NEW

AMERICAN CYCLOPÆDIA.

VOL. VI.

COUGH–EDUCATION.

THE NEW

AMERICAN CYCLOPÆDIA:

A

Popular Dictionary

OF

GENERAL KNOWLEDGE.

EDITED BY

GEORGE RIPLEY AND CHARLES A. DANA.

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COUGH—EDUCATION.

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NEW AMERICAN CYCLOPÆDIA.

COUGH, a violent expiratory movement, excited by some stimulus in the respiratory organs, in which the air is forcibly expelled, carrying with it the mucus or other products accumulated in the air passages. Any irritation from acrid vapors, liquid or solid foreign bodies, too abundant or morbid secretions, or even the action of cold air on the irritated mucous membrane, may produce a cough; the impression is conveyed to the respiratory nervous centre, the medulla oblongata, by the excitor fibres of the par vagum, and the motor impulse is transmitted to the abdominal and other muscles concerned in respiration. Coughing occurs when the source of irritation is in or below the posterior fauces; and sneezing when the irritating cause acts on the nasal mucous membrane. The act of coughing, as defined by physiologists, consists in a long inspiration which fills the lungs; in the closure of the glottis, when the expiratory effort commences; and in the bursting open of the closed glottis by the sudden blast of air forced up from the air passages. The cause of cough may be in the respiratory system, or it may be symptomatic of disease in the digestive and other organs. The cough in laryngitis, croup, and follicülitis arises from irritation in the throat and larynx; in bronchitis, pneumonia, pleurisy, and phthisis, the cause is in the thoracic cavity. Cough may be dry, as in the first stage of pleurisy; or humid, as in certain stages of pneumonia and in advanced consumption; this act may be single, and with distant intervals, or paroxysmal and long continued, as in whooping cough, phthisis, and bronchial catarrh; it may be accompanied by a ringing metallic sound, as in croup and whooping cough, by a hollow resonance or gurgling, as in phthisis with cavities, and by hoarseness, as in laryngeal disease. The character of the cough is characteristic of certain diseases; that of whooping cough and of croup is highly diagnostic; in pleurisy it is dry and hard; in pneumonia, generally humid, with viscid rusty sputa; in consumption it varies with the stage of the affection; but in all these, taken in connection with other symptoms, the cough is a valuable diagnostic sign. Many râles, characteristic of morbid changes, are only or best recognized in the increased respiration after coughing. Cough is frequently accompanied by pain, as in acute pleurisy, pneumonia, and bronchitis; at other times painless, but exhausting, as in the paroxysms of spasmodic coughs. Cough, symptomatic of other than pulmonary disease, is not accompanied by any characteristic phenomena discoverable by auscultation and percussion. The gravity of cough as a symptom depends on the disease in which it occurs; spasmodic coughs generally are not dangerous, except from the liability to rupture of vessels, or other simply mechanical consequences. For the relief of cough the prescriptions are almost innumerable, consisting of compounds of narcotics, antispasmodics, demulcents, expectorants, and alteratives, according to the character of the symptom, the stage of the disease, and the fancy of the physician.

COULOMB, Charles Auguste de, a French philosopher, born at Angoulême, June 14, 1736, died in Paris, Aug. 23, 1806. In early life he was sent to the West Indies as an engineer, and remained there employed in the construction of military works 3 years. In 1773 he presented to the academy a memoir on cohesion, and in 1777 won a prize for improvements in the mariner's compass, and in 1781 another for a theory of machines. As a commissary of the government he won great praise from the inhabitants of Brittany for his defence of their interests against the schemes of certain projectors of canals, and was publicly honored with gifts from them. Leaving Paris at the time of the revolution, he devoted himself to the education of his children and the study of electricity. His published memoirs are upon the statical questions of architecture; the mariner's compass; modes of working under water; simple machines and the stiffness of ropes; windmills; the force of torsion; a stationary compass, in which the needle is hung by floss silk; electricity and magnetism, to which he devoted 9 memoirs; the friction of pivots; the circulation of sap in the poplar; the work of day laborers; and the cohesion of fluids. His fame rests principally on his electrical experiments and calculations. For our knowledge of the forces of electricity we are perhaps as much indebted to him as to any one. In private character he was as estimable as in science he was profound, thorough, and exact.

COUNCIL (Lat. *concilium*, an assembly for consultation), in ecclesiastical history, an assembly of bishops legitimately convoked, to determine questions concerning the faith, rites, and discipline of the church. Councils are either provincial, national, or general, according as they are composed of the prelates of a province, a nation, or of all Christendom; and their jurisdiction is of corresponding extent. The name is also given to the diocesan synod, called by the bishop for the direction of the spiritual affairs of his diocese. Provincial councils are called and presided over by a metropolitan bishop. Their chief design is to make local disciplinary regulations; and though they may discuss questions of faith, their decisions concerning doctrines have no force unless confirmed by the authority of the Catholic church. The general councils of Basel and Trent enjoined that provincial councils should be held once in 3 years, but in recent times the injunction is often disregarded. In France no metropolitan bishop is permitted to call a council unless by express sanction of the civil power. National councils assemble under the presidency of the primate or of a legate of the holy see; they are composed of all the bishops of a kingdom, and are called by princes for the regulation of national ecclesiastical affairs. These councils were frequent in France under the first 2 lines of French kings. More than 100 bishops were assembled by Napoleon in Paris in 1811, to consider the right claimed by him of nominating bishops and cardinals. As, however, they supported the resistance made by Pope Pius VII. to the imperial designs, they were dismissed before they had passed any decision. Among the latest national councils are that of Presburg, in Hungary, in 1822, and that of Würtzburg, in Bavaria, in 1849.—The general councils, called also œcumenical (from Gr. *οικουμενη*, the habitable earth), are summoned by the pope, are composed of all the bishops of Christendom, and are designed to adjudge questions of schism and heresy, belief and discipline, which affect the universal church. Though the first 8 general councils were convoked by the Christian emperors, as Constantine, Theodosius, and Justinian, it was because the church did not then extend beyond the limits of the empire, and therefore the Roman emperor had the same right to call a general council which after the division of the empire belonged to the emperor of Germany, and the kings of France, Spain, and England, to call national councils. It is moreover maintained by Roman Catholic writers that the first general councils were summoned by the emperors at the request or with the consent of the popes. Bishops and their representatives alone have a judicative right in councils, though the privilege has often been extended to abbots and the generals of monastic orders. The lower orders of the clergy and the doctors of the church may be invited, and may participate in the deliberations of the assembly, but have only a consultative voice. The cases in which priests and deacons have voted (St. Athanasius, for instance, having been but a deacon when he took the leading part in the council of Nice) are exceptional, and thought to be founded on the circumstance that they were the representatives of bishops. The pope, in person or by legates, presides over the council and directs its transactions; the emperors who presided in some early eastern councils having done so only in an executive and protective capacity. The decision is usually according to the majority of the votes cast; but in the council of Constance the 4 nations, Italy, France, Germany, and England, each voted separately. General councils do not create new dogmas, but interpret and declare what was originally contained in Scripture and tradition, and according to Roman Catholic belief are under the immediate guidance of the Holy Spirit, and therefore infallible, when they pronounce concerning matters of faith. Their infallibility, however, does not extend to questions of discipline, history, politics, or science, nor even to the grounds of their decision, nor to collateral observations. The disciplinary ordinances are usually termed canons (*canones*), and the decisions concerning doctrines, dogmas (*dogmata*); in the council of Trent, on the contrary, the latter were styled canons, and the former distinguished as *capita* or *decreta*.—The Roman Catholic church recognizes 19 general councils: that of Jerusalem, held by the apostles, about A. D. 50; the 1st of Nice, in Bithynia, convened in 325; the 1st of Constantinople, in 381; the 1st of Ephesus, in 431; that of Chalcedon, in 451; the 2d of Constantinople, in 553; the 3d of Constantinople, in 680; the 2d of Nice, in 787; the 4th of Constantinople, in 869; the 4 councils of Lateran, at Rome, in 1123, 1139, 1179, and 1215; the 1st and 2d of Lyons, in 1245 and 1274; that of Vienne, in Dauphiny, in 1311; that of Constance, in 1414; that of Basel, in 1431 (till its dissolution by the pope); and that of Trent, in 1545. The council of Pisa in 1409, that of Florence in 1439, and the 5th of Lateran in 1512, are also regarded by some as œcumenical. The conference of 192 prelates at Rome in 1854, which proclaimed the dogma of the immaculate conception, was not a council. The Greek church receives as authoritative the decisions of only the first 7 general councils. The Protestant churches generally admit the full authority of none of them, and esteem as œcumenical only the 6 which directly followed the apostolic council of Jerusalem. The synodical assemblies of the Protestant churches, as the councils of La Rochelle and of Dort near the period of the reformation, the general synods of the Evangelical church of Germany, and the convocations of the Anglican church at the present time, cannot in their nature be œcumenical.—The most complete collections of the acts of councils are those of Fathers Labbe and Cossart (Paris, 1671 *et seq.*, 18 vols.), with supplements by St. Baluzius (Paris, 1683 *et seq.*); Hardouin (Paris, 1715, 12 vols.); Coleti (Venice, 1728 *et seq.*, 23 vols.); Mansi (Florence, 1759–'98,

31 vols.); and Disch, the *Concilienlexicon*, embracing all the councils from the first at Jerusalem (Augsburg, 1843–'45, 2 vols.). The best collections of the old French councils are that of Sirmond (Paris, 1629, 3 vols.), with supplements by La Lande (Paris, 1666); of the later French councils, that of Odespun (Paris, 1649); of German councils, that of Schannat, Hartzheim, Scholl, and Neissen (Cologne, 1759–'90, 11 vols.); of German national, provincial, and diocesan councils, from the 4th century to the council of Trent, that of Binterim (Mentz, 1835–'43, 7 vols.); and of Spanish councils, that of Aguirre (Madrid, 1781 *et seq.*). (The history of particular councils is given in special articles under the names of the cities in which they were held.)—In political history, the term council is variously applied to either permanent or extraordinary deliberative assemblies. The political affairs of the cantons of Switzerland are intrusted to councils. Certain courts of justice in France were formerly termed councils.—The Council of Ten was the secret tribunal of the republic of Venice, instituted in 1310, after the conspiracy of Tiepolo, and composed originally of 10 councillors in black, to whom were soon added 6 others in red, and the doge. This council was appointed to guard the security of the state, and to anticipate and punish its secret enemies, and was armed with unlimited power over the life and property of the citizens. All its processes were secret. At first established temporarily, it was prolonged from year to year, was declared perpetual in 1335, and maintained its power till the fall of the republic in 1797.—The Council of the Ancients (*conseil des anciens*), in France, was an assembly instituted by the constitution of the year III. (adopted in the year IV., Sept. 23, 1795), which shared the power with the executive directory, and composed, with the council of 500, the legislative body. It had 250 members, either married or widowers, domiciled at least 15 years in France, and one-third of whom were to be renewed annually. It sat in the Tuileries, in the hall of the convention, and had the power to change the residence of the legislative body. It confirmed or rejected, but could not amend, the measures proposed by the council of 500. It was overthrown on the 18th Brumaire.—The Council of Five Hundred (*conseil des cinq-cents*), instituted at the same time as the council of the ancients, was composed of 500 members, aged at least 30 years, domiciled 10 years in France, and one-third renewed annually. It sat in the hall *du manége*, in the rue de Rivoli, and proposed laws which were read 3 times, at intervals of 10 days. On the 18th Fructidor, year V., 42 of its members were expelled, but it recovered its power with the revival of the Jacobins, and was violently dissolved by Napoleon, on the 18th Brumaire, year VIII. (1799).—The Council of State existed under various names in France from the reign of Philip the Fair. It was composed chiefly of the principal officers of the crown, was dependent upon the will of the king, and followed him in his journeys to advise him on public affairs. The number of councillors of state varied from 15 in 1413, to 30 in 1673. It was limited at the revolution to the king and his ministers, was dissolved in 1792, and was instituted anew in the year VIII., when it was divided into the committees of litigation, the interior, finances, and war. In these committees were elaborated the important laws of the consulate and the empire. This council was modified under the restoration, and now consists of 6 sections. (See Regnault's *Histoire du conseil d'état depuis son origine jusqu'à nos jours*, 1851.)—In England, the Privy Council was formerly the adviser of the king in all weighty matters of state, a function which is now officially discharged by the cabinet. By acts 2, 3, and 4 of William IV., a judicial committee of the privy council was constituted with high powers. All appeals from the prize and admiralty courts, and from courts in the plantations abroad, and any other appeals which by former law or usage had been made to the high court of admiralty in England, and to the lords commissioners in prize cases, are directed to be made to the king in council. These appeals are then referred to the judicial committee of the privy council, which reports on them to his majesty. This committee consists of the chief justice of the king's bench, the master of the rolls, the vice-chancellor of England, and several other persons, *ex officio*, and any two privy councillors may be added by the king.—In Prussia, by a law established March 20, 1807, the council of state (*Staats Rath*) consists of the princes of the royal family who have attained their majority, and of the highest officers of the state who enjoy the special confidence of the king. Its decisions have no validity without the royal sanction.—A Council of War is an assembly of the principal officers in an army or fleet, called by the officer in chief command to deliberate and advise concerning measures to be taken. The council of administration, in the army of the United States, under the congressional act of July 5, 1838, appoints the chaplain, fixes a tariff to the prices of sutlers' goods, and makes appropriations for specific objects from the post and regimental funds.—In some of the United States there are bodies termed councils, which are elected to advise the governor in the executive part of his office, and have power to reject or confirm his nominations to office.

COUNSELLOR, a lawyer whose peculiar function is pleading in public, the same as the English barrister. The duties of a counsellor and attorney at law are usually performed by the same individual in the United States; but in England and in the U. S. supreme court they are distinct, the counsellor being retained for oral pleading and for advice on intricate law points, while the attorney addresses himself to advice on ordinary matters, to the practice of the courts, and to communication with clients.

COUNT (Fr. *comte*; It. *conte*), a title of no-

bility used in most countries of continental Europe, and corresponding with that of earl in Great Britain. It is derived from the Latin *comes*, meaning companion, which, under the republic, designated young Romans of family accompanying a proconsul or proprætor during his governorship or command, in order to acquire a practical knowledge of political and military affairs. Under the empire a number of persons belonging to the household of the court, or to the retinue of the chief of the state, received the title of comes, with some addition designating their function or office. Comites as well as jurisconsulti surrounded the emperor when sitting as judge, to assist him in the hearing of causes, which were thus judged with the same authority as in full senate. This mark of office was first converted into a title of dignity by Constantine the Great. As such it was soon conferred not only on persons of the palace, or companions of the prince, but also on most kinds of higher officers. These dignitaries, according to Eusebius, were divided into 3 classes, of which the first received the distinguishing appellation of illustrious, the second, that of most renowned, and the third, that of most perfect. The senate was composed of the first two. Among the multitude of officers who, at this period of the Roman empire, were dignified by the title of comes, and of whom some served in a civil, some in a legal, and others in a religious capacity, we find comites of the treasury, of sacred expenditures, of the sacred council, of the palace, of the chief physicians, of commerce, of grain, of the domestics, of the horses of the prince or of the stable (*comes stabuli*, the origin of the modern constable), of the houses, of the notaries, of the laws, of the boundaries or marks (the origin of the later margrave and marquis), of the harbor of Rome, of heritages, &c. Most of these titles were imitated, with slight modifications, in the feudal kingdoms which arose on the ruins of the Roman empire. Thus we can easily trace in some of the above mentioned titles the origin of the modern grand almoner, grand master of ceremonies, grand master of the royal household, grand equerry, &c., in which the word grand is used as a substitute for the ancient comes. Under the Franks counts appear as governors of cities or districts, next in rank to the dukes, commanding in time of war, and administering justice in time of peace. Charlemagne divided his whole empire into small districts (*pagi*, Ger. *Gaue*), governed by counts, whose duties are minutely described in the capitularies of the monarch. The Frankish counts had also their deputies or vicars (*missi* or *vicarii*, whence our viscount or *vice-comes*). Under the last of the Carlovingian kings of France the dignity of the counts became hereditary; they even usurped the sovereignty, and their encroachments remained unchecked even after the accession of Hugh Capet, who was himself the son of the count of Paris, and it was not until the lapse of several centuries that their territories became by degrees reunited with the crown. The German term for count, *Graf* (which is variously derived from *grau*, gray or venerable; from γραφω, to write, whence the mediæval Latin word *graffare*, and the French *greffier*; from the ancient Grman *gefera*, companion, and *gerefa*, bailiff or steward, whence the English sheriff) first appears in the Salic law in the form of *grafio*. With the development of the feudal system, as well as of that of imperial dignitaries in Germany, we find there counts palatine (*comes palatii*, *palatinus*, *Pfalzgraf*), presiding over the supreme tribunal; constables, afterward marshals (*Stallgraf*); district counts (*Gaugraf*); counts deputy (*Sendgraf*), controllers of the preceding; margraves (*Markgraf*), intrusted with the defence of the frontiers (*Mark*); landgraves (*Landgraf*), counts of large possessions; burggraves (*Burggraf*), commanders, and afterward owners of a fortified town (*Burg*), &c. With the decline of the imperial power most of these titles became hereditary, as well as the estates or territories with which they were connected, the dignity and possessions of the counts ranking next to those of the dukes in the empire. But there were also counts whose title depended solely on their office, as counts of the wood, of the salt, of the water, of mills, &c. The dignity of count is now merely a hereditary title, mostly attached to the possession of certain estates, and bestowed by the monarch, but including neither sovereignty nor jurisdiction, though connected in some states with the peerage, as was the case for instance under the late constitution of Hungary. In England, where the wife of the earl is still termed countess, the dignity of count was attached by William the Conqueror to the provinces or counties of the realm, and given in fee to his nobles. The German term has been adopted by several nations of Europe, as for instance by the Poles (*hrabia*), Russians (*graf*), and Hungarians (*gróf*).

COUNTERPOINT. See Harmony.

COUNTERSCARP, in fortification, the outer slope or boundary of a ditch. The inner slope is called *escarpe*. The term is applied also to the whole covered way, with its parapet and glacis, as when the enemy is said to be lodged in the counterscarp.

COUNTERSIGN, the signature of a secretary or other public officer to attest that a writing has been signed by a superior. Thus the certificates *recognovit, relegit, et subscripsit* are common on charters granted by kings in the middle ages.—In military affairs, the countersign is a particular word given out by the highest in command, intrusted to those employed on duty in camp and garrison, and exchanged between guards and sentinels.

COUNTY (Fr. *comté*), in Great Britain and some of the British colonies, and in most of the United States of America, a political division nearly corresponding to a province of Prussia or a department of France. It is synonymous with shire, with which designation it is often interchanged in England, but never in Ireland. The division of England into shires or counties,

though popularly attributed to Alfred, was probably of earlier date, since several of them, as Kent, Sussex, and Essex are nearly identical with ancient Saxon kingdoms. There are now 52 counties in England and Wales, 33 in Scotland, and 32 in Ireland. The county is an administrative division, and its principal officers are a lord lieutenant, who has command of the militia; a *custos rotulorum*, or keeper of the rolls or archives; a sheriff, a receiver-general of taxes, a coroner, justices of the peace, an under-sheriff, and a clerk of the peace. The assize court, county court, and hundred courts, are the chief judicial tribunals. There are in England 3 counties palatine, Chester, Lancaster, and Durham, the earl of each of which had all the *jura regalia*, or rights of sovereignty, in his shire. The first two of these have been long annexed to the crown, and Durham, previously governed by its bishop, was annexed in 1836. The United States are divided into counties, with the exception of South Carolina (divided into districts) and Louisiana (divided into parishes). In each county there are county officers who superintend its financial affairs, a county court of inferior jurisdiction, and stated sessions of the supreme court of the state.

COUP (French), a blow, is used in various connections to denote a sudden, decisive action, as *coup de main*, in military language, a prompt, unexpected attack; *coup d'œil*, in the same, a rapid conception of the advantages and disadvantages of position and arrangement in a battle; *coup de grâce*, a killing stroke, finishing the torments of the victim; *coup de théâtre*, a sudden change in the action; *coup de soleil*, a stroke of the sun; *coup d'état*, a sudden, arbitrary, and forcible measure in politics, used mostly for the violent overthrow of a constitution.

COUPON (Fr. *couper*, to cut), an interest certificate attached to the bottom of bonds on which the interest is payable at particular periods. There are as many of these certificates as there are payments to be made, and at each payment one of them is cut off and delivered to the payer.

COURAYER, Pierre François le, a Roman Catholic ecclesiastic, born in Vernon, Normandy, 1681, died in England, 1776. He had taken refuge in England (1728) in consequence of a "Defence of English Ordinations," which he had published (1723) as a result of the convictions to which he was brought by a correspondence with Archbishop Wake. The correspondence took place while Courayer was canon of St. Geneviève, and professor of theology and philosophy. The university of Oxford conferred on him the title of doctor of laws, and Queen Caroline settled a pension of £200 on him for a French translation of Father Paul's "History of the Council of Trent." He also translated Sleidan's "History of the Reformation," and wrote several theological works. He entertained many religious opinions contrary to the doctrines and practices of the church of Rome, but declared himself, two years before his death, still a member of her communion. He was buried in the cloisters of Westminster abbey.

COURCELLES, Thomas de, a French theologian, born in 1400, died in Paris, Oct. 23, 1469. He was educated at the university of Paris, of which institution he became one of the brightest ornaments. In 1430 he was chosen rector of that university, and in 1431 was made canon of Amiens, Laon, and Thérouanne. He took a prominent part in the trial and condemnation of Joan of Arc, but was not present at her execution. In the process of her rehabilitation in 1456 he made no excuse for his conduct in this affair.

COURIER DE MÉRÉ, Paul Louis, a French scholar and publicist, born in Paris, Jan. 4, 1772, murdered near Veretz (Indre-et-Loire), April 10, 1825. Having received an excellent education, he took, while in the army of Italy, every opportunity of visiting libraries and works of art, and denounced in his private correspondence the spoliation of the latter by the French soldiery. Returning to France in 1800, he attracted the attention of Hellenists by the publication of his remarks upon Schweighäuser's edition of Athenæus. In 1806 he was again with the army, stationed in dangerous and isolated parts of Calabria, and afterward at Naples and Portici, where he occupied his leisure hours in translating Xenophon's treatise on cavalry, and on equitation. Censured for lingering in Rome and Florence instead of attending to his duties, he threw up his commission, but rejoined the army just before the battle of Wagram, after which, however, he left it entirely. While in Florence, he had discovered in the Laurentian library an unedited manuscript of Longus, "Daphnis and Chloe," which he published in Greek and French in 1810. Having, however, in copying the manuscript, accidentally blotted it with ink, he was accused of doing so purposely, and ultimately expelled from Tuscany, while the 27 remaining copies of the 52 he had printed were seized by the Tuscan government. This proceeding was probably prompted by Courier's castigation of the Florentine library authorities in a spirited letter addressed to M. Rénouard, and prefixed to his Longus. On his final return to France in 1814, he married, at the age of 42, a young lady of 18, a daughter of his friend, the Hellenist Clavier. The restoration gave him opportunities of trying his strength in politics. He denounced the follies of the new administration in numerous pamphlets, which produced a strong impression upon the public mind, but involved Courier in troubles with the government, and he was arrested on several occasions. His most effective pamphlet, *Pamphlet des pamphlets*, appeared in 1824, and was called by his biographer, Armand Carrel, "the last note of the expiring swan," for during the spring of the following year he was found shot near his country seat. Five years later it was ascertained that he had been murdered by his gamekeeper, Frémont, who had died of apoplexy, but no clue was discovered to the motive which

prompted him to the deed. Courier's pamphlets are masterpieces of style. They have been published, together with his translations from the Greek and other works, in Paris, 1834, in 4 vols., and reprinted by Didot in 1 vol. The best edition of his translation of Longus is that of 1825.

COURLAND, or KURLAND, one of the Baltic provinces of Russia in Europe, bounded N. by the gulf of Riga and Livonia, E. by the government of Vitepsk, S. by that of Kovno, and W. by the Baltic sea; area, 10,608 sq. m.; pop. in 1851, 539,270. The face of the country is level, but interspersed with some hills, the highest of which has an elevation of 700 feet. The province contains a great many forests, especially of pine and fir, and there are said to be no less than 300 lakes and ponds, beside a large number of small streams and brooks, and several rivers. Among the larger rivers are the Düna, Aa, and Windau. The soil is not rich, but when properly tilled is productive. The principal products are wheat, rye, barley, oats, peas, beans, hemp, flax, and linseed. Clay, iron, lime, and gypsum are found, and are wrought to some extent. The manufactures are unimportant. The province is formed of the old duchies of Courland and Semigallia, united with the ancient bishopric of Pilten, and the district of Polangen, which once formed part of the duchy of Lithuania. It is divided into 5 arrondissements, each of which is subdivided into 2 captaincies. It has 2 shipping ports, Libau and Windau. Capital, Mitau. The predominant religion is Protestantism, and the ecclesiastical affairs are conducted by the consistory of Mitau. There are about 15,000 members of the Greek church and 45,000 Roman Catholics, who together possess but 19 churches, and are subject respectively to the bishops of Samogitia and Pskof. There are also many Jews, Poles, Russians, and various residents of other nations, among whom are the Krewincks, a race of Finnish descent. The nobility and the city population, and the higher classes generally, are of German descent, while the peasantry and the lower classes are chiefly of Lettish origin. Courland was ruled for a long time by sovereign dukes, as a dependency of the Polish crown. By the marriage in 1710 of Duke Frederic William with the princess Anna of Russia, the influence of that empire became predominant in Courland. It was strengthened in the following year, when after the duke's death Anna was appointed regent, under the protection of Peter the Great. After Anna's accession to the Russian throne in 1730, her uncle Ferdinand officiated as duke of Courland until his death in 1737. Subsequently the duchy was ruled by Anna's favorite, the adventurer Biron, who died in 1772, and bequeathed it to his eldest son Peter. The latter, failing to give satisfaction to the country, was obliged to cede Courland to Catharine II. in 1795. Since that time it has formed part of Russia, though retaining some ancient privileges. The civil governor of Courland is now (1859) M. de Brevern, who resides in Mitau, while the general direction of affairs devolves upon the governor-general of the Baltic provinces, in 1859 Prince Italiski.

COURT (Lat. *curia*, the senate house), in the early middle ages, the feudal lord and his family, with their companions and servants—all the persons, collectively regarded, who occupied the various departments of a feudal castle. After the rise of the modern monarchies the name was given by preëminence to the family of the sovereign and their attendants, the residents in the royal palace. Pomp and obeisance had waited on the ancient Roman and oriental masters of empires, and when Charlemagne founded the empire of the West he adopted the titles and ceremonial which were in use in the palace of the emperors of Constantinople. The marriage of the emperor Otho II. with the Byzantine princess Theophania, also contributed to spread in Europe the usages of the imperial court of the Orient. The *cours plenières*, which followed the establishment of royal over feudal supremacy, were assemblages of all the nobility of the kingdom around the monarch. Charles V. in vain sought to introduce permanently into the German courts the severe and stately manners of the Spanish; and the Spanish reverences and bending of the knee were soon succeeded by the fashion of merely bowing the head. The French court, as organized by Francis I., became a model of politeness and taste to all Europe. Affirming that "a court without ladies is a year without spring, and a spring without roses," this monarch introduced more of elegance and freedom into society, and substituted the spirit of gallantry for that of courtesy. A distinction was made between the severe manners of the palace and the freer etiquette allowed in the field and in travelling. The French court obtained its highest prestige for wit and grace under Louis XIV. In England, the courts of Elizabeth and Queen Anne have been most illustrious for the learned and witty men that attended them, and that of Charles II. was most famous for its gayety. The court *ton* is any peculiarity of manner imitated from the personal habit of the sovereign. The Spanish language was spoken in the German imperial court till about the end of the 16th century, when it was succeeded by the Italian. Near the end of the 17th century the French had become the usual court language in all the countries on the continent, but about the beginning of the present century was partially succeeded by the German in most of the German courts. —The right of admittance or presentation at court belonged originally only to the nobility. It was extended also to the higher clergy, and to some distinguished persons, as great artists or scholars, whose accomplishments were regarded as giving them personal nobility. The reign of Frederic the Great and the period of the French revolution relaxed the conditions of presentation, though Napoleon in his new imperial court revived all the dignities and strict-

ness of ceremonial which had existed under the old *régime*. The precedence of diplomatic agents and others at court is determined partly by the relative rank of states, important republics, as the United States and Switzerland, receiving the same honors as kingdoms; and partly by the degree of relationship to the sovereign, since nearly all the European dynasties are united to each other by family ties.

COURT, in law, an institution having a two-fold object, viz.: the conservation of public order by the suppression of violence and crime, and the adjudication of disputes on civil matters between the individuals constituting a community. The first of these is most prominent in a rude state of society; the latter, in an advanced stage of civilization. In the earlier and ruder condition, the laws have principal reference to protection from personal violence, and the judicial function is chiefly exercised in rendering speedy justice to the offenders. Another peculiar distinction is also observable in the administration of laws at the different periods above referred to. In the earlier, it is vested in the executive, which at that time is usually the sole constituent of the government, and this continues to be the characteristic of every nation whose advance beyond semi-barbarism is arrested, or whenever from a state of partial civilization it returns again to its original rude condition. Such was the primitive administration of laws in the states of Greece; the king or chief of a people was not merely a military leader, but also a judge; and this is now the case in oriental autocracies, with only the modification that where the territorial jurisdiction is large, as in Turkey or Persia, the laws are administered by deputies, but who, in like manner as the sovereign of a small state, each within his respective district, perform the functions of executive and judicial officers. A third circumstance may be observed, viz.: that in the earlier period a large discretion is exercised in judicial proceedings. The laws being few, cases will occur that are not provided for; and again, personal security being the chief object had in view, summary justice is naturally preferred to the more tardy form of proceeding which would be involved by a regard to the rules of evidence which in a more advanced stage of society are deemed essential; indeed, these rules are an after growth, and require a long experience and an intellectual habit to develop.—The Roman consuls were at first executive and judicial magistrates. The progress of the people in civilization was indicated by their demand of some check upon the arbitrary judgment of the consuls in their judicial capacity, which led to the compilation of the laws of the 12 tables; a still further advance was shown in the separation of the judicial from the consular office, and the appointment of the prætor. But although the Roman mind was eminently legal, it did not during the existence of the republic attain to a clear idea of the importance of a supervisory power for the correction of the errors of inferior tribunals. The assemblies of the people, both the *centuriata* and *tributa*, had indeed a judicial power, but it was exercised in the hearing of cases in the first instance, and those chiefly of persons charged with capital offences. But in civil causes (*judicia privata*) there was not properly an appeal from the judgment of the prætor, or of the judges (or more properly juries) appointed by him. The nearest approach to it was the power exercised by the prætor in certain cases of setting aside the sentence of the *judices* for fraud, and so the assistance of the tribunes was sometimes invoked against the corrupt conduct of the prætor himself. Under the imperial government an appeal was allowed from all inferior judges to the emperor, which was in fact usually heard by a court composed of the chief officers of state and distinguished jurists. Even this court was not, however, strictly subject to the rules which are in modern times deemed essential to an appellate court. It not only decided cases brought before it by appeal from the final judgments of inferior tribunals, but would take original jurisdiction in many cases while they were pending before a subordinate court, and not merely made decisions (*decreta*) in such cases, but also gave opinions (*rescripta*) to magistrates or private persons upon questions proposed by them. —In the constitution of judicial tribunals under modern European governments there has been a great advance beyond the Roman in all of the particulars which we have named above as appertaining to the administration of law. The separation of the judicial from executive functions has become gradually recognized as a political principle. In England it was asserted at an early period for the protection of personal freedom against royal power, but it was imperfectly carried into effect until within the last 2 centuries, when the tenure of judicial office was made independent of the pleasure of the king. The clause of Magna Charta, *Communia placita non sequentur curiam nostram, sed teneantur in aliquo loco*, though seemingly intended for the mere convenience of suitors, by prescribing a certain place for the trial of their causes, instead of compelling them to travel about with their witnesses wherever the *aula regis* held by the king in person might be, in reality had the effect of breaking up that court, and ultimately of establishing the several courts of common pleas, king's bench, and exchequer, presided over by justices appointed for that purpose. The king's bench alone, which retained jurisdiction of criminal cases, continued for some time afterward to be migratory, whence the common form of process returnable to that court was *ubicunque fuerimus;* and this prevailed after the court became fixed like the others at Westminster, and its itinerancy was but a mere legal fiction. But the judges of all these courts were appointed by the king, and could be removed by him at will; and this power of removal continued until by statute 13 William III.

(1701) it was enacted that the commissions of the judges should be *quamdiu se bene gesserint*, instead of *durante bene placito* as formerly, and that they should be removable only upon an address of both houses of parliament. The chancellor alone, who presides over the department of equity, is subject to removal at the pleasure of the king, and his office is held entirely by a political tenure. There are 4 courts of original and general jurisdiction, viz.: the king's bench, common pleas, exchequer, and chancery. These may be considered the outgrowth of the common law, though according to a popular mode of expression chancery is distinguished from the other three, as if not of common law origin, but the equity administered in that court was chiefly indigenous. The ecclesiastical and admiralty courts, on the other hand, derive their mode of administering law from a foreign source, though the limit of their respective jurisdictions is prescribed by acts of parliament, or by long usage, which is supposed to be founded upon statute. The court of king's bench, in the distribution of judicial powers upon the breaking up of the ancient aula regis, retained, as we have mentioned, jurisdiction of criminal cases; but to this was added all that class of cases which, though in reality civil actions between private citizens, yet, as they involved an allegation of force (as in actions for trespass, where the act complained of was alleged to have been done *vi et armis*), were deemed *quasi* criminal. But notwithstanding this narrow limit of its cognizance of civil cases, it remained in one sense the highest court in the realm. It has always been the representative of the king's prerogative, has exercised authority over all other common law courts so far as to restrain them within their proper jurisdiction by writ of prohibition, and has always exercised summary power, in all cases not otherwise provided for, to compel inferior courts and magistrates to do their duty. By a fiction of law it has also acquired jurisdiction over all civil cases except actions relating to real estate, and may in one form of action, viz., ejectment, even try titles to land; which fiction consists of an allegation in pleading that the defendant has been arrested upon process of that court for a trespass, whereupon the plaintiff complains against him for another and the real cause of action. The court of common pleas had originally exclusive jurisdiction of all merely civil actions not involving any criminal offence, and it still retains sole cognizance of actions relating to realty except ejectment, which, as before mentioned, may be also brought in the king's bench. The business of the court of exchequer was originally the collection of debts due to the crown, the proceeding for which was by bill, somewhat in the nature of a bill in chancery, whence this was called the equity side of the court; but jurisdiction was obtained of all personal actions by a fiction, viz., an allegation that the king's debtor hath suffered an injury whereby he is less able to pay his debt, *quo minus sufficiens existit*, whereupon he was allowed to implead in this court the person charged with the wrong. This was called the common law side of the court. The old forms of process and proceeding peculiar to these courts have been recently abrogated, but the jurisdiction acquired by them remains. Substantially the same process and mode of pleading is now used in the three courts, by stat. 2 William IV., c. 39 (1832), and other acts, the provisions of all which are included in the more general revision by stat. 15 and 16 Vic., c. 76 (1852), and 17 and 18 Vic., c. 125 (1854). As to the nature and extent of the jurisdiction of the court of chancery, see article Chancery. From all these courts an appeal lies to the house of lords. There are, however, some intermediate appeals. From each of the three courts it has been long the practice to adjourn cases of great importance, before judgment, to the court of exchequer chamber, consisting of the barons of the exchequer, the chancellor, lord treasurer, and justices of the king's bench and common pleas. There is also an appeal, in certain cases after final judgment, to the same court (in which cases on appeal the judges of the court from which the appeal is taken do not sit), and from that court an appeal lies to the house of lords; and so in all other cases which are not reviewed in the court of exchequer chamber. Cases in chancery are usually heard in the first instance before the master of the rolls or a vice-chancellor, from whom an appeal lies to the chancellor (with whom two lords justices have been recently associated for the hearing of appeals), and from them to the house of lords. A writ of error, it is said, may also issue from the king's bench to the common pleas, but it seems to have been rarely used. The trial of all common law causes in the first instance is before itinerant or circuit judges, one of whom must be a justice of one of the superior courts of Westminster, which judges are sent annually into every county of the kingdom for the trial of civil and criminal cases which are to be brought before a jury. They were first appointed in the reign of Henry II., and were then called justices in eyre (*justiciarii in itinere*), but are now designated as justices of assize and nisi prius. Their commission also authorizes them to try all criminal cases, which part of their duties is expressed by the old law phrases of oyer and terminer (to hear and determine), and general gaol delivery; the former relating to cases upon which an indictment is found by a grand jury at the same circuit, the latter to indictments previously found upon which there had been an arrest and imprisonment of the parties indicted. The commissions of assize and nisi prius relate to civil causes. Assize in the old English law was the name applied to the trial of issues relating to the freehold, by a species of jury called recognitors, who were allowed to decide upon their own personal knowledge without the examination of witnesses; in modern law the term designates issues in actions relating to real estate. *Nisi prius* is a phrase in the writ issued to the sheriff for the summoning of a jury, by which he is

commanded to bring them before the court at Westminster at a certain day in term, unless before that time the justices of assize should come into his county; and as the justices accordingly come, the sheriff returns the writ at the court of assizes.—In France, the administration of justice, which originally belonged to and was exercised by the suzerains or feudal lords in person, was, by a process similar to what took place in England, vested in certain officers appointed for that purpose, who at first were considered as the mere deputies of the suzerain, but were afterward recognized as having independent official functions. One peculiarity prevailed in all the seigniories, viz., that whether the seigneur or his deputy, or the latter judicial magistrate (under the name of *bailli*), presided, it was necessary for the adjudication of any question to call together the principal vassals, who in fact constituted a court, although at first they were spoken of rather as advisers of the seigneur than as judges; but afterward, when the baillies held the courts, they were obliged to submit every case to the judgment of the assembled vassals, who then began to be called peers. These courts decided all questions between the vassals themselves or between vassal and seigneur, except that in the latter class of cases such questions were excluded as involved a contest between the seigneur and the vassals generally, which questions were brought before the suzerain or superior lord of whom the seigneur held. In other cases, where the seigneur refused to decide,or interfered with the proper administration of right, an appeal was often made to the superior lord; and so also for an unjust judgment, probably, however, only in a case of flagrant violation of right. The former appeal was called *en défaut de droit*, the latter *en faux jugement*. In either case, however, the ground of the appeal was some misconduct of the seigneur or his representative, and not strictly for a review of a case fairly conducted. But instead of such appeal,the vassal who thought himself aggrieved by the judgment of his seigneur could challenge him to combat, first renouncing fealty to him. From these seigneurial courts subsequently grew up the *parlements*. There was at first but one, viz., the court of the king. The first Capetian sovereigns created 4 grand *bailliages* to hear appeals from all judgments rendered in the courts of the seigneurs, and to judge in the first instance where there was a conflict of jurisdiction; but these tribunals were not uniformly acknowledged, and the vassals still resorted to the court of the king. In consequence of the accumulation of business, and the great expense of attending upon that court at various places, Philip the Fair, by an edict in 1302, made the sitting of the court permanent at Paris. He also established a *parlement* for Languedoc. The *exchiquier* of Normandy was fixed at Rouen permanently by Louis XII., and was entitled by Francils I. a *cour de parlement*. Others were afterward established, and these courts continued to be the appellate tribunals until the revolution. Henry II. established presidences (*présidiaux*) in the principal cities, reserving to the *parlements* only the more considerable causes and inspection of the inferior courts. The *parlements*, which originally consisted of the peers of France, were finally composed of lawyers appointed by the king. They were abolished in 1790, and in their palce, so far as respected appellate jurisdiction, was substituted the court of cassation. This court was composed of 52 judges, who, by the *charte constitutionelle* of 1814, received their appointment from the king, but were not removable. Tribunals of appeal were created a few years after the establishment of the court of cassation (1802), which after the restoration were called *cours royales*, and under Napoleon III. *cours impériales*. The exact limits of the jurisdiction of the latter courts and of the court of cassation are not defined with much precision. The court of cassation, which now consists of 45 judges, 3 vice-presidents, and a president, is divided into 3 chambers, viz.: a chamber of requests, a chamber of civil, and a chamber of criminal cassation. Demands in cassation (applications for reversal of judgment) are first heard by the chamber of requests, which either rejects them or sends them to one of the other chambers to be adjudicated. The appeal to the *cours impériales* is directly from the tribunals of first instance, *tribunaux civil d'arrondissement*, which are the same that were established in 1790 under the name of *tribunaux de district*.—This brief review of the courts of the two countries of Europe most celebrated for their jurisprudence, will sufficiently illustrate how far they fulfil the conditions of a sound administration of justice in two particulars, viz.: freedom from executive control, and a due regard to the correction of errors by a review of the first judgment in an appellate court. There are, however, other important considerations to which we may properly advert. Judges should be independent not only of executive influence, but also of all personal responsibility to litigant parties. There is a singular feature in the French law which indicates either a low state of judicial integrity or an entire oversight of an important principle of jurisprudence. By a proceeding called *prise à partie*, which has been recognized from an early period, a judge is liable to be sued by the party against whom he has rendered judgment. The old rule was, that he could be made responsible only when the judgment was without excuse (*doit être affectée et inexcusable*); by an ordinance of Francis I. (1540) a judge was not liable except for fraud or extortion (*s'il n'y a dol, fraude, ou concussion*). Still he was subject to a suit for damages, and several old writers commented strongly upon the peril to society in subjecting judges to such a liability, especially for judgments in criminal proceedings. But notwithstanding these remonstrances, the proceeding has always been and still is allowed. Merlin mentions a number of cases in which the

judge would be held responsible, among which are: 1, arresting a person without proper complaint, except in case of flagrant crime (*hors le cas de flagrant délit*); 2, arrest without proof, or for an offence which was not punishable by imprisonment; 3, where the judge has exceeded his power by taking cognizance of a matter without having jurisdiction; 4, evoking a case from an inferior tribunal under pretext of an appeal, and then not disposing of it. The provisions of the code of civil procedure lack precision. The cases of *prise à partie* are: 1, for fraud or extortion, in the language of the ordinance of Francis I.; 2, where it is expressly prescribed by law; 3, where the law has declared judges liable for damages; 4, if the judge has denied justice. (*Code de procédure*, § 505.) The English law, on the contrary, affords an ample protection to judges. The rule is, that no private suit will lie against judges of a court of general jurisdiction, either for error of judgment or even for misconduct in their judicial functions; and the same protection is extended to judges of courts of inferior jurisdiction when acting within the limit of their authority. For official corruption, or other criminal conduct, a judge may be impeached and removed from office, and is also liable to be proceeded against by indictment; but no other redress is allowed to a suitor who may have sustained injury by such misconduct. If, however, a judge having a limited jurisdiction should exceed it, that is to say, should undertake to act in a matter not within his jurisdiction, then he becomes liable to a suit for damages, even if it was a mere mistake of judgment. Thus the court of Marshalsea, which had jurisdiction only of cases in which one of the parties was of the king's household, or trespasses committed within the verge of the court, having given judgment for a debt of which they had no cognizance and imprisoned the debtor, the judges and even the ministerial officers were all held liable to damages, the proceeding being *coram non judice* (case of the Marshalsea, 10 Coke's Rep. 68); but in the same case it was said that where a court has jurisdiction of a cause and proceeds erroneously, an action will not lie against the party who sues or against the officer or minister of the court. A single exception may possibly exist in respect to the immunity given to judges of courts of general jurisdiction, viz.: where they act extra-judicially, as in the case mentioned by Hawkins: "If a judge will so far forget the honor and dignity of his post as to turn solicitor in a cause in which he is to judge, and privately and extra-judicially tamper with witnesses or labor jurymen, he hath no reason to complain if he be dealt with according to the capacity to which he so basely degrades himself." The rule, however, as above stated, has been sustained by the most eminent English judges. (See Groenvelt *vs.* Burwell, 1 Salk. 396; Miller *vs.* Seare, 2 Bla. Rep. 1141; and Mostyn *vs.* Fabrigas, Cowp. 161.) In the case last cited, a governor of Minorca was sued in England for a false imprisonment alleged to have been committed by him while governor. Lord Mansfield said, if it had been done judicially it would have been a complete bar to the action, but as governor he had no such exemption, and he mentioned several cases of naval officers in the British service against whom actions had been brought and damages recovered for acts done by them officially in foreign parts. There was an interesting discussion of this subject in the courts of the state of New York in the case of Yates *vs.* Lansing, which was an action against the chancellor, and the English doctrine was fully considered and sustained. (5 Johnson's Rep. 282; 9 id. 375.) The same exemption from private suit on account of judicial acts which is given to judges is also extended to jurors, who, by the English and American law, are judges of facts.—Another important requisite for the proper administration of law is certainty in the rules of decision. A discretionary power has been shown by common experience to be unsafe, however specious the idea may be of determining each case upon its own equity. A general rule, known beforehand and rigidly adhered to, is preferable to an oscillating and precarious judgment, although cases of individual hardship will occur in the application of such rules. There will, however, be cases not foreseen or provided for; in respect to these, shall the judges exercise a discretionary power, or should there be a judicatory to take special cognizance of them, or lastly, should legislative action be invoked? The Roman prætors intermingled equitable relief with their judicial decisions. In the English judicial system the court of chancery has had an exclusive but still limited authority to give relief in certain cases upon principles of equity differing from the strict rules of law. Yet even in the administration of equity that court soon became bound by its own precedents, from which it was not at liberty to depart, and the chancery law of England is at this day as well settled as the law administered in the other courts. Bacon proposed in his aphorisms *De Justitia Universali*, that there should be what he calls prætorian courts, having power as well of relieving from the rigor of the law as of supplying the defects of law, that is, prescribing the rule in cases not otherwise provided for (*De Aug.*, lib. 8, c. iii., aph. 31). The English courts all decide according to precedents, or if no former decision can be found, then by analogy to what has been decided in similar cases, or upon some general principle which has been recognized; and in cases entirely new have sometimes sought aid from the Roman law. There is one class of cases, however, in which positive law alone is acted upon, and that is in respect to crimes and their punishment. Crimes must be defined by law, which may be either by statute or by ancient prescription, but courts have no power to declare new crimes; and so in regard to punishment, courts can enforce no other penalty than what has been previously fixed by law. The *parlements* of France were

in like manner bound by the *arrets réglementaires*, rules of decision established in former cases. On the reorganization of the courts in 1790 an attempt was made to abrogate all power of deciding from analogy, or even by a resort to general principles of jurisprudence; and all cases not provided for by express law were to be referred to the national assembly for the purpose of having such law enacted as would be applicable to the particular case. This crude experiment was so unsatisfactory that in the *Code Napoléon* it was thought necessary not only to restore to the courts the power of deciding upon general principles and analogy, but it was even made penal to do otherwise (*Code Napoléon*, art. 4).—The courts in the United States have a general correspondence with the English judicial system. The modifications are chiefly these: 1. In the federal courts, as well as the courts of most of the states, the equity powers of the English chancery have been vested in the other courts, though the English system of equity is still substantially administered. Hence our courts may be said to have an equity and a common law side. 2. Local circuit judges have been generally substituted in place of the itinerant or nisi prius judges of England. The judges of the supreme court of the United States have each a certain territorial limit in which they respectively act as circuit judges. In the state of New York 8 judicial districts have been established, and the supreme court is constituted of 4 judges in each district, who in their respective districts are independent, resembling in that respect the French *parlements*, but in another respect they are all members of one tribunal, as each judge is competent to act in any district, either by voluntary arrangement with the judges of such district, or by direction of the governor. But the prevailing system in most of the states is the appointment of local judges for the trial of causes who are unconnected with an appellate tribunal. 3. In many of the states the judges are elected like other public officers by popular vote.

COURT DE GÉBELIN, Antoine, a French author, born in Nîmes in 1725, died in Paris, May 10, 1784. He was the son of Antoine Court, and early in life officiated for a short time as a preacher. Subsequently he devoted himself to the study of ancient mythology, in which, as in many other branches of knowledge, he was deeply learned. He established himself in Paris in 1763, and between 1775 and 1784 published the 9 vols. of his great work entitled *Le monde primitif*, in which he traces the history of the moral and intellectual world. The work was the fruit of 20 years' severe labor, and was to have embraced several additional volumes, the preparation of which was prevented by the author's death. He sympathized deeply with the American struggle for independence, and cooperated with Franklin and others in the publication of a work advocating the American cause, entitled *Affaires de l'Angleterre et de l'Amérique*. He was the author of a defence of animal magnetism, and of a variety of works, historical, philosophical, and political.

COURT MARTIAL, a tribunal authorized in the United States by the articles of war, and in England by the mutiny act, for the trial of all persons in the army or navy charged with military offences. According to articles 64 *et seq.* of the congressional act of May 29, 1830, any general officer commanding an army, or colonel commanding a separate department, may appoint a general court martial, except when such officer or colonel shall be the accuser, in which case the court shall be appointed by the president of the United States. A general court martial may consist of any number of commissioned officers from 5 to 13, but shall not be less than 13 when that number can be convened without manifest injury to the service. The commanding officer decides as to the number. Such a court has no jurisdiction over any citizen not employed in military service. The sentence of the court shall not be carried into execution until the whole proceedings have been laid before the officer commanding the troops for the time being. In time of peace, no sentence extending to loss of life, or the dismission of a commissioned officer, and either in peace or war, no sentence against a general officer, shall be carried into execution until confirmed by the president of the United States, to whom, through the secretary of war, the whole proceedings shall be transmitted. Every officer commanding a regiment or corps may appoint a court martial consisting of 3 commissioned officers, to judge offences not capital committed in his own regiment or corps. Such a court martial may be appointed also by the officers commanding garrisons, forts, or barracks. But in neither of the cases has it power to try a commissioned officer, or to inflict penalties beyond certain limitations.

COURT OF LOVE (Fr. *cour d'amour*), in mediæval France, a tribunal composed of ladies illustrious for their birth and talent, whose jurisdiction, recognized only by courtesy and opinion, extended over all questions of gallantry. Such courts existed from the 12th to the 14th century, while the romantic notions of love which characterized the ages of chivalry were predominant. The decisions were made according to a code of 31 articles, which have been preserved in a MS. entitled *De Arte Amatoria et Reprobatione Amoris*, written by André, royal chaplain of France, about 1170. Some of the troubadours were often present to celebrate the proceedings in verse, and the songs of these minstrels were not unfrequently reviewed and judged by the tribunals. Among the ladies who presided were the countess De Die, called the Sappho of the middle ages, and Laura de Sade, celebrated by Petrarch. King René of Anjou attempted in vain to revive the courts of love, and the last imitation of them was held at Rueil at the instance of Cardinal Richelieu, to judge a question of gallantry which had been raised in the hôtel de Rambouillet.

COURTEN, William, an English manufacturer and merchant, born in London in 1572, died there in May, 1636. His father had been a tailor at Menin, in the Netherlands, and escaping with difficulty from the persecution of the duke of Alva, had arrived in London in 1568. The Courten family were engaged in the manufacture of French hoods, then much in fashion, and at the death of the parents about the end of Elizabeth's reign, the sons were opulent merchants in silks and linens. In 1631 William and Peter received the honor of knighthood, when their returns amounted to £150,000 a year. They made large loans both to James I. and Charles I., and had a claim upon the crown of over £200,000. The first severe loss which Sir William Courten suffered was occasioned by Lord Carlisle, who seized as a grant from the crown the island of Barbados, on which the former had built a factory, as a place discovered and protected by himself. His agents at Amboyna, in the Spice islands, were subsequently murdered by the Dutch, and all his property there destroyed. Engaging in the Chinese trade, the loss of two richly laden ships completed his disasters, reducing him to poverty a short time before his death.—William, last male descendant of the Courten family of merchants, born in London in 1642, died at Kensington Gravelpits in 1702. Educated by his wealthy relatives, he began early to travel and to display a love of natural history. He resided and studied at Montpellier, and when of age returned to England to claim the shattered fortune of his family. After a long lawsuit he changed his name for that of William Charleton, and retired to Montpellier, where he lived for 25 years, enjoying the society of Tournefort and Sir Hans Sloane. He returned again to England, and took chambers in the Temple, where he lived during the last 14 years of his life. Locke was one of his intimate friends. He made a large collection of coins, precious stones, and various curiosities in medallic and antiquarian history; and his industry is proved by his catalogue, which embraces 46 volumes. His antiquarian collection, which he left to Sir Hans Sloane, now belongs to the British museum.

COURTOIS, Jacques, or Cortesi, Jacopo. See Borgognone.

COURTRAI, or Courtray (Flemish, *Kortryk*), a town, capital of the arrondissement of the same name, in the province of West Flanders, Belgium, 75 m. from Brussels; pop. in 1857 of the arrondissement 136,505, and of the town 22,216. It is situated on the river Lys, an affluent of the Scheldt. It is handsomely built; contains several fine edifices, including a town hall, 2 fine churches, an exchange, a college, and 2 orphan asylums. In one of the churches (Notre Dame) is Vandyke's great painting, the "Elevation of the Cross." The inhabitants are actively engaged in the linen manufacture. The fine linens known under the name of Courtrai cloth are made in the neighboring districts. The flax culture in the neighborhood of Courtrai has a world-wide reputation. There are also large bleaching grounds and manufactories of thread lace and silk lace. The town was the Cortoriacum (afterward written Curtricum) of the Romans. It was near Courtrai that the famous battle of spurs was fought (1302), so called from the number of spurs collected from the French knights who fell in it. The name of Courtrai frequently occurs in the history of the Netherlands; it was often taken by the French, who finally destroyed its fortifications in 1744.

COUSIN, Jean, a French painter, sculptor, and engraver, born about 1501 at Soucy, near Sens, died about 1589. His paintings on glass, many of which were executed in churches, royal palaces, and princely residences, are still highly valued, some having been preserved, as the "Legend of St. Eutopius" and the "Sibyl consulted by Augustus," in the cathedral church of Sens. A large specimen of his oil paintings on canvas, the "Last Judgment," is in the Louvre. He is the author of two treatises, *Le livre de perspective*, and *La vraie science de la portraiture*. He is reckoned by many as the founder of the French school of painting.

COUSIN, Victor, a French philosopher, born in Paris, Nov. 28, 1792. His father was a clockmaker, a faithful disciple of Jean Jacques Rousseau, and a revolutionist. The first public school that he attended was the Charlemagne lyceum, in which he was noted for his severe studies and gained the highest prizes. Especially interested in rhetoric, the imitative arts, and music, he determined to make literature his vocation, and as a distinguished student his name was in 1810 placed first on the list of pupils admitted into the newly organized normal school. He became assistant Greek professor in this school in 1812, master of the conferences in 1814, held at the same time a chair in the Napoleon lyceum (Bourbon college), and during the Hundred Days was enrolled in the *élite* corps of royal volunteers. Meantime his attention had been diverted from belles-lettres to philosophy. The attractive lectures of Laromiguière, one of the society of Auteuil, and the most graceful of the followers of Condillac, first interested him in sensationalism or ideology, the reigning philosophy of the 18th century. The spirit of the age was, however, set against this system; Napoleon had denied to it the power of showing any thing grand in human nature or destiny; and the reaction against it was animated by the religious enthusiasm of the Catholics De Maistre and De Bonald, by the loyal and poetical sentimentalism of Châteaubriand, and was spread through literature and art by Mme. De Staël and Quatremère de Quincy. In philosophy Laromiguière indicated a point of departure from it by admitting the active and voluntary force of sentiment in alliance with the passive and receptive faculties of the understanding; but the first who openly revolted from the authority of Condillac was Royer-Collard, who developed in France the spiritual theories of the Scotch school, and of whom Cousin was the favorite pupil. When at

the close of 1815 the former was raised to civil office under the restoration, Cousin became his successor as deputy professor of philosophy in the Sorbonne, and for 5 years he lectured both at the university and the normal school. From the speculations of Maine de Biran concerning the will, he derived the germs of his ideas of personality, causality, and liberty; and his earliest courses followed the system of Reid, and were devoted in general to an exposition of ideal truth. The vacations of 1817 and 1818 he spent in Germany, acquainting himself with the literature and thinkers of that country; and the metaphysics of Kant tinged the lectures delivered after his return. In 1820, in consequence of the royalist reaction in the state, his views of free agency were thought to have a political intent, and his course was indefinitely suspended. Two years later the normal school was closed by a royal ordinance. The leisure thus afforded he occupied in prosecuting his editions of Proclus (6 vols. Paris, 1820–'27), of Descartes (11 vols. Paris, 1826), and his translation of Plato, with summaries, on which he employed, like Raphael, the labor of his pupils subject to his own revision (13 vols. Paris, 1825–'40). He also took charge of the education of a son of Marshal Lannes, and in 1824 visited Germany with his pupil. He was arrested at Dresden, on suspicion of being an accomplice of the carbonari, was taken to Berlin, where he suffered a captivity of 6 months, and was visited in prison by Hegel, whose philosophy was then predominant in Germany. He also became intimately acquainted with Schleiermacher and Schelling. Returning to Paris, he published in 1826 the first series of his *Fragments philosophiques* (followed by a series of *Nouveaux fragments* in 1828), favored the increasing liberal party, and in 1827, when the Villèle ministry was supplanted by that of Martignac, he was restored to the chair of philosophy in the Sorbonne, with Guizot and Villemain for colleagues. The successful triumvirate at once attracted audiences to the university unexampled in numbers and enthusiasm since the time of Abelard. Stenographic reports of their lectures were also distributed throughout France. Cousin had already unfurled the banner of eclecticism in the preface to his *Fragments philosophiques*, and he now fully developed the theory that 4 pure systems of philosophy have alternately prevailed, each of which is the perversion of a truth, and that the human mind can cease to revolve in the circles of past error only by uniting the elements of truth contained in each system, so as to form a composite philosophy superior to all systems. He found in the East, in Greece, in mediæval scholasticism, and in all modern speculations, only different phases of sensualism, idealism, scepticism, and mysticism. With equal delight and skill in metaphysical exercises, his forte lay in developing a system from its central principle till it took in the universe in its consequences. His eloquence was at once impetuous and grave, his style and splendid language recalled the stateliness of the old French classics, and his enthusiastic discourse ran within an hour over nature, humanity, Deity, philosophy, history, religion, destiny, industry, society, and great men. The students, accustomed to the calm dissertations of the sensationalists, followed with admiration his adventurous flight through all truths and all errors. The speculations and strange technology of the German philosophical development from Kant to Hegel he was the first to unfold to French audiences, giving popular expression to theories of the absolute. His lectures derived additional interest from the political temper of the time, a liberal audience gladly discovering political allusions in the words of a liberal professor. It was at this period that Cousin enjoyed his highest reputation as an expositor of philosophical ideas. At the revolution of 1830 he took no part in the 3 days' struggle, but immediately after dedicated a volume of Plato to the memory of one of his pupils who had fallen in the fight. Under the new *régime* he might have entered with Guizot, Villemain, and Thiers into the chamber of deputies, but chose to adhere to his philosophical studies, declaring politics to be only an episode in his career. He soon became counsellor of state, member of the royal council of public instruction, officer of the legion of honor, titular professor in the Sorbonne, member of the French academy to succeed Baron Fourier (1830), and of the academy of moral and political sciences at its foundation (1832), director of the reëstablished normal school, and peer of France. As the recognized head, too, of what was termed the official philosophy, he was exposed to constant and contradictory attacks from the clergy and the opposition. He reorganized the system of primary instruction in France, arranged the admirable plan of studies which is still retained in the normal school, and visited Prussia (1833) and Holland (1837) to observe the institutions of public instruction in those countries, concerning which he published full and valuable reports, which were translated into English by Mrs. Austin. He urged that national instruction should be associated with religion and founded on the Christian principle, and maintained that education which is not specially religious is likely to be hurtful rather than beneficial, since it opens new avenues to immoral tendencies without providing efficient checks. This view he illustrated with great learning on the subject in speeches delivered in the chamber of peers. In 1840 he entered as minister of public instruction into the cabinet of Thiers, which lasted but 8 months, in which time he made the programme of philosophical studies in the lyceums, and suggested other improvements, of which he gave an apologetic account in the *Revue des deux mondes* for Feb. 1841. In 1844 he gained his greatest parliamentary distinction by his speech in the chamber of peers in defence of the university and of philosophy, which was published in a volume. Though surprised by the revolution of 1848, he gave it his aid, and began the series of publications undertaken by

the institute at the request of Gen. Cavaignac to confirm the *morale* of the people. He issued a beautiful popular edition of Rousseau's *Profession de foi du vicaire Savoyard*, and in short treatises entitled *Philosophie populaire* and *Justice et charité* combated the doctrines of socialism. Since 1849 he has disappeared from public life.—After 1830, when he ceased for the most part to deliver academic lectures, he became one of the writers for the *Journal des savants*, and for the *Revue des deux mondes*, in which many of the articles composing his volumes of *Fragments de philosophie ancienne*, *Fragments de philosophie scholastique*, *Fragments de philosophie moderne*, *Fragments littéraires*, and other collections, first appeared. His other chief philosophical publications are, an introduction to the history of philosophy (1828), a history of philosophy in the 18th century (1829), a translation of Tennemann's history of philosophy (1829), a treatise on the metaphysics of Aristotle (1838), lectures on the philosophy of Kant (1841), lectures on moral philosophy delivered between 1816 and 1820 (1840–'41), a work entitled *Du vrai, du beau, et du bien* (1853), and editions of the *Sic et Non* of Abelard (1836), of the works of Maine de Biran (1834–'41), of the *Pensées* of Pascal (1842), of the works of André (1843), and of the works of Abelard (1849). All of his editions are remarkable for the thoroughness with which the text has been revised from original MSS., and many of them contain documents from old libraries which had not before been discovered. One of the most acceptable fruits of his research is the recovery of the original MS. of the "Thoughts" of Pascal, where, through the erasures, corrections, interpolations, and reconstructions, the reader is introduced into the laboratory of Pascal's eloquence. The biography of Jacqueline Pascal (1844) is founded chiefly on inedited or unknown documents.—As a philosopher, the plan of Cousin has been to publish systems, and from systems to deduce philosophy. The most characteristic feature at once of his method and his results is his theory of the reason. The reason, in his view, has spontaneous consciousness of absolute truths, and furnishes to the mind ideas of infinite objects which could not be formed by any power of abstraction from observation of particular, finite, and contingent things. To know these ideas is the aim of philosophy, and the reason would be perfectly cognizant of them if it were not misled by the senses, passions, and imagination. There is something true in every system of philosophy, since error can never reach to utter extravagance. This element of truth exists in the reason, and may be found by impartial examination of the consciousness, and of the history of humanity. From the drama of changing systems, which is the history of philosophy, let the truth which constitutes the positive side of every system be taken, exclusive of whatever constitutes its negative and false side. The ideas thus obtained will furnish a spectacle of the universal consciousness, and will be the sum of eclectic philosophy. If the question be raised concerning the authority of the reason, and the certainty that its ideas are universal truths, Cousin, in order to answer, passes from psychology to ontology. Human reason, he says, is not a part of the human personality, but is in its nature impersonal, absolute, and infallible, the logos of Pythagoras and Plato, a mediator between God and man. Its qualities are those precisely opposed to individuality, namely, universality and necessity, and its spontaneous ideas rightly understood are revelations of a world unknown to man. This theory finds its completion in theodicy. As every phenomenon implies a substance, as our faculties, volitions, and sensations imply a person to whom they belong, so absolute truths have their last foundation in an absolute being, and ideal truth, beauty, and goodness are not mere abstractions, but are the attributes of the infinite Being whom we call God. Eclecticism is rightly regarded by Cousin in his work on the true, the beautiful, and the good, the last expression of his opinions, less as a doctrine than as a banner, as less an instrument of philosophy than of morality, as less effective to discover truth than to advance virtue. He has suppressed the words in his *Fragments philosophiques* in which he affirmed the system of Schelling to be true, though Schelling had then declared for "either Bruno or absolute unity;" and with less reliance upon metaphysics, he maintains the spirit and tendency of all his speculations to promote that philosophy which began with Socrates and Plato; which the gospel spread through the world; which Descartes subordinated to the severe forms of modern genius, and which always contributes to subject the senses to the mind, and to elevate and ennoble man.—His latest publications have been histories and biographies illustrating French society in the 17th century. In the stately proprieties and careful speaking and writing which distinguished the period of the Fronde and of the hôtel de Rambouillet he finds admirable examples of conversation, festive entertainments, heroic actions, noble sentiments, and great characters. His series of studies on Madame de Longueville (1853), Madame de Sablé (1854), Madame de Chevreuse and Madame de Hautefort (1856), and that entitled *La société Française au XVII^e^ siècle, d'après le Grand Cyrus de Mlle. de Scudéry* (1858), have the same elevation of thought and sentiment, the same poetical and eloquent style, which mark his discussions and histories of philosophy; and like many of these, also, they abound in dates, citations, documents, and annotations.—The principal American editions of Cousin's philosophical writings are the "Introduction to the History of Philosophy," translated by Henning Gottfried Linberg (Boston, 1832); the "Elements of Psychology," from his lectures, by C. S. Henry (Hartford, 1834; last edition, New York, 1856); selections from his works, with introductory and critical notices, in Ripley's "Philosophical Miscellanies" (Boston, 1838);

his "Course of Modern Philosophy," by O. W. Wight (New York, 1855); and his "Lectures on the True, the Beautiful, and the Good," also by O. W. Wight (New York, 1857).

COUSTOU, the name of 3 French sculptors. I. Nicolas, born in 1658, died in 1733. His masterpiece is the "Descent from the Cross," in the church of Notre Dame, at Paris. II. Guillaume, brother of the preceding, born in 1678, died in 1746. Among his best works is a marble statue of Cardinal Dubois. III. Guillaume, son of the foregoing, born in 1716, died in 1777. His fame rests upon the statues of Mars and Venus, which he executed for Frederic the Great.

COUTELLE, Jean Marie Joseph, a French engineer, born at Mans in 1748, died there, March 20, 1835. Franklin's invention of lightning rods made a great impression upon his mind, and the first instrument of the kind in Mans was to be seen in his house. He devoted himself particularly to the improvement of air balloons. For some time he commanded the aërostatic corps which accompanied the army of the Sambre-et-Meuse, and afterward he followed Bonaparte to Egypt, but his balloons were destroyed at the battle of Aboukir. He was promoted to the rank of colonel, but in 1816 he was removed from active service. The celebrated work on Egypt, published by the French government, contains 2 essays of his, one on the topography of Mt. Sinai, and the other on the meteorology of Cairo.

COUTHON, Georges, a French revolutionist, a lawyer by profession, born near Clermont in 1756, guillotined July 28, 1794. He was a member of the constituent assembly, and afterward of the convention, moved the resolution which decreed the arrest of the Girondists, and officiated as commissioner in Lyons, where he ordered the most beautiful buildings which had belonged to the royalists to be destroyed. He was noted for his violence, and for his fanatical devotion to Robespierre, whose fate he shared.

COUTTS, Angela Georgiana Burdett, an English philanthropist, born April 25, 1814. She is the youngest daughter of the late Sir Francis Burdett, and on her mother's side a granddaughter of the wealthy banker, Thomas Coutts. Her early prospects were not brilliant, as her father's family was a large one, and her grandfather's fortune, which had been left to his widow (the actress, Miss Mellon, whom he married late in life), had apparently been diverted into another channel by the marriage of the latter with the duke of St. Albans. The duchess, however, having no children of her own, determined that the fortune of her first husband should revert to his family, and made Miss Angela Burdett her heiress, on condition that she should assume the name of Coutts. In 1837 Miss Burdett Coutts succeeded to this vast property, estimated at between 2 and 3 millions sterling, and since that time has dispensed large sums annually—amounting probably to her entire income —in various charities. One of the most important of these was the building and endowment, in 1847, of a church, with a parsonage and schools attached, the site of which in Rochester row, Westminster, one of the neglected parts of London, was selected by the late Dr. Blomfield, bishop of London, who also acted on other occasions as her agent or almoner. The outlay for this work amounted to £30,000. She has also endowed a bishopric in Adelaide, South Australia; and in 1858 appropriated £15,000 for a similar purpose in British Columbia.

COUTURE, Thomas, a French painter, born at Senlis, Dec. 21, 1815, was a pupil of Gros and of Paul Delaroche. His principal work, the "Romans of the Decadence," first exhibited at Paris in 1847, is now in the gallery of the Luxembourg palace. His pictures are remarkable for vitality and broad effects of color. In 1855 he exhibited "The Falconer," and has since been employed upon 3 new pictures, called "Volunteer Enrolments," the "Return of the Crimean Troops," and "Baptism of the Imperial Prince."

COVENANTERS. See Cameronians.

COVENTRY, a city, municipal and parliamentary borough of Warwickshire, England, on the Sherbourne, 10 m. N. N. E. of Warwick, and 94 m. by the London and northwestern railway N. N. W. of London; pop. in 1851, 36,812. In conjunction with some adjacent villages it was formed into a separate county by Henry VI., but an act of parliament in 1842 united it with Warwickshire. Its name, a corruption of *Conventre*, or "convent town," came from a Benedictine priory, founded in 1044 by Leofric, lord of Mercia, and his lady Godiva, of which the cellar, 225 feet long by 15 feet wide, still exists. The ancient part of the city has narrow, ill paved, and crooked streets, built up with antiquated houses; the modern part is laid out with great neatness, filled with handsome and comfortable dwellings, and supplied with gas and water. There are 3 ancient and 3 modern churches, and several chapels. Among the educational establishments is a free school, founded in the time of Henry VIII. by John Hales, having an income of £950 per annum, 2 fellowships at Oxford, 1 at Cambridge, and 6 exhibitions at either university. There are 6 endowed and various private schools, a government school of design, mechanics' institute, 2 libraries, a convent of the sisters of charity, hospital, dispensary, savings bank, theatre, county hall, drapers' hall, barracks, and a great number of charitable foundations. St. Mary's hall, a venerable building of the 15th century, with a principal room 63 feet long, 30 feet wide, and 34 feet high, has a curiously carved roof, and a large painted window. It was built for the Trinity guild, but is now used for public celebrations, meetings, &c. The manufactures of Coventry were celebrated at a very early date. At the commencement of the 15th century an active trade was carried on here in woollen cloths, caps, and

bonnets, and there were flourishing manufactures of caps, woollens, and broadcloth. Afterward blue thread, called "Coventry true blue," and still later tammies, camlets, shalloons, and callimancoes, were staple manufactures; but the articles now most largely made are silks, ribbons, fringes, and especially watches, the last more extensively than even at London. The ribbon manufacture employs about 6,000 persons in the city, and 14,000 more in the neighboring villages. Coventry was anciently defended by walls and towers, but only a small portion of the former and 3 of the latter remain; the rest were destroyed by Charles II. on account of the favor shown by the citizens to the parliamentarians. Two parliaments were held here, one by Henry IV. in 1404, the other by Henry VI. in 1459. The people were noted for their love of all kinds of shows, pageants, and processions, descriptions of which have furnished matter for several curious and interesting works. The religious dramas called mysteries were performed here with peculiar magnificence as early as 1416, and not unfrequently in the presence of royalty. A procession still annually takes place here, commemorative of the legend of the countess Godiva, who is said to have obtained from her husband Leofric the repeal of certain heavy imposts under which the citizens complained, on condition that she should ride naked through the streets of Coventry at noonday. She ordered the people to keep within doors and close their shutters, and, veiled only by her long flowing hair, she mounted her palfrey and rode through the town, unseen except by an inquisitive tailor, immortalized under the sobriquet of "peeping Tom," whose curiosity was punished by instant blindness. This story, on which Alfred Tennyson has founded a beautiful poem, was first recorded by Matthew of Westminster, who wrote in 1307, 250 years after its supposed occurrence. The procession, as now held during the great fair, which takes place in Trinity week, dates from 1677, and before the passage of the municipal reform act was solemnly attended by the city authorities. The principal characters are St. George of England on his charger, and the lady Godiva, who is represented by a female with flowing hair, clad in a close-fitting flesh-colored garment, and riding a gray horse. Strong efforts have been made to suppress this exhibition, but without success.—Coventry is connected with the grand trunk navigation by the Coventry and Oxford canal, and with the chief emporiums of the kingdom by the great northwestern and 2 branch railways. It sends 2 members to parliament. The meaning of the phrase "sending to Coventry" is variously given. Some suppose it to have originated with military men, who were formerly regarded with disfavor by the inhabitants.

COVERDALE, Miles, bishop of Exeter in the reign of Edward VI., born in Yorkshire in 1487, was educated in the house of Augustine friars at Cambridge. Attached in his early years to the religion in which he had been educated, he was ordained a priest of the order of St. Augustine in 1514, at Norwich. Afterward changing his opinions, he dedicated himself solely to the service of the reformation, and was among the first at Cambridge to renounce allegiance to the church of Rome. Finding residence in England unsafe, he went abroad, and assisted Tyndale in his translation of the Bible. In 1535 he published a translation of his own, with a dedication to King Henry VIII.; of this edition no perfect copy is now known to exist. The version of the Psalms in this translation is that now used in the "Common Prayer" of the Episcopal church. In 1538, by special license, Coverdale published a quarto edition of the New Testament in English. The skill of the French printers, and the comparative cheapness of labor and materials at Paris, made King Henry desirous of printing an edition of the Bible in that city. Permission was granted by Francis I., then king of France, in the last named year, and Coverdale went thither to superintend it; but before the completion of the undertaking it was denounced by the inquisition, and the impression of 2,500 copies condemned to the flames. Owing to the cupidity of the officer to whom the execution of the sentence had been confided, a few copies were sold as waste paper, and so preserved. These, with presses, types, and printers, were shortly after transported to England, and used under the superintendence of Coverdale in printing the "Great Bible" of Cranmer. Coverdale held the office of almoner to Queen Catharine Parr, and officiated at her funeral in 1548. In 1551, when appointed to the bishopric of Exeter, the customary payment of first fruits was remitted to him, at the solicitation of Cranmer, on account of his poverty. On the accession of Queen Mary, and the consequent restoration of the Roman Catholic religion, Coverdale was deposed from his bishopric, and escaped a long imprisonment only on condition of leaving the country. He found an asylum, first in Denmark, and afterward in Geneva, where he assisted in the English translation known as the "Genevan Bible." He returned to England on the accession of Elizabeth, but was not restored to the see of Exeter. His last days were spent in translating the writings of the continental reformers, and publishing original tracts in support of the principles of the reformation. The date of his death is uncertain, but he was buried in the church of St. Bartholomew, London, Feb. 19, 1568. On Oct. 4, 1835, was celebrated the 3d centenary of the publication of his Bible.

COVINGTON. I. A S. co. of Ala., bordering on Fla., drained by Conecuh and Yellow-water rivers; area, 1,240 sq. m.; pop. in 1850, 3,645, of whom 480 were slaves. The surface is uneven, and mostly occupied by pine forests, the lumber obtained from which forms the chief article of export. The soil is sandy and poor. In 1850 it produced 80,205 bushels of Indian corn, and 416 bales of cotton. There

were 9 churches, and 144 pupils in the public schools. Capital, Montezuma. II. A S. co. of Miss., drained by affluents of Leaf river; area, 680 sq. m.; pop. in 1850, 3,338, of whom 1,114 were slaves. Pine timber occupies portions of the surface, but it is not abundant. The soil is light and sandy, and in 1850 produced 108,920 bushels of Indian corn, 9,417 of oats, 51,849 of sweet potatoes, and 1,164 bales of cotton. There were 2 churches, and 126 pupils attending schools and academies. The county was named in honor of Gen. Covington. Capital, Williamsburg.

COVINGTON, a thriving city of Kenton co., Ky.; pop. in 1853, about 13,000. It stands on a beautiful plain on the Ohio river, opposite Cincinnati, and at the mouth of Licking river, on the other side of which is the town of Newport. It is regularly built, and in its general arrangement greatly resembles Cincinnati, of which it may be considered a suburb. Many persons doing business in Cincinnati have their residence here. Covington contains a number of cotton, woollen, silk, and tobacco factories, an extensive pork and beef packing establishment, a large city hall, 3 banks, 2 female academies, 10 churches, and the western theological college, a wealthy institution under the charge of the Baptists.

COW. See CATTLE.

COWELL, JOHN, an English civilian, born at Ernsborough, in Devonshire, in 1554; died at Cambridge, Oct. 11, 1611. He was educated at the university of Cambridge, where he subsequently became fellow, professor of civil law, and master of Trinity hall. In 1607 he published a general law dictionary, styled the "Interpreter," which, though displaying extensive erudition, involved him in much trouble, the house of commons having commenced a prosecution against him for maintaining in that work that a British monarch might make laws without the consent of parliament. The king, James I., however, interposed, and proceedings were stopped. Beside the above named work, Cowell also wrote "Institutes of the Laws of England."

COWES, WEST, a seaport town and watering place of the isle of Wight, Hampshire, England, situated on the W. side of the mouth of the river Medina, which enters the Solent channel nearly opposite the estuary called Southampton water; pop. in 1851, 4,786. It is finely situated on rising ground, and presents a handsome appearance from the harbor, with its houses rising one above another, its castle and crescent-shaped battery, and its modern villas crowning the eminence. It has a number of good hotels and lodging houses for summer visitors, an assembly room, a town hall, a mechanics' institute, 5 places of worship, the club house of the royal yacht squadron, which holds its annual regatta here, and a marine parade, which lies S. of the castle, and forms a fashionable promenade. The streets, however, are steep, narrow, and in many quarters disfigured by old and wretched dwellings. Its beautiful scenery, good situation, and facilities for sea-bathing at a fine beach very near the town, render it one of the most popular bathing places in England. The harbor is excellent, and there is constant steam communication with Portsmouth, Yarmouth, Southampton, &c. A brisk trade is carried on in provisions and other marine stores; wheat, flour, malt, barley, wool, and salt are largely exported to France, Spain, Portugal, and the Mediterranean; vessels of war, yachts, and other craft of superior sailing qualities, are built in considerable numbers. The registered shipping of the port, Dec. 31, 1856, showed an aggregate of 168 vessels, tonnage 7,683. Number of vessels entered during the year, 1,454, tonnage 62,048; number of vessels cleared, 519, tonnage 13,055.—EAST COWES, a small place, on the opposite bank of the Medina, communicates by ferry with the above town, of which it may be considered a suburb. It contains the custom house of the port, a church, a botanic garden, and a number of handsome dwellings. Osborne house, the marine villa of Queen Victoria, is in the vicinity.

COWETA, a N. W. co. of Ga.; area, 378 sq. m.; pop. in 1852, 12,498, of whom 4,823 were slaves. Value of real estate in 1856, $2,131,799. It is bounded N. W. by the Chattahoochee, and E. by Line creek. It has an uneven surface and a fertile soil, most of which consists of a sandy loam. Oak, hickory, and pine are the principal kinds of timber. In 1850 the productions were 10,369 bales of cotton, 516,910 bushels of corn, 93,104 of oats, and 94,357 of sweet potatoes. There were 27 churches, and 800 pupils attending academies and schools. A gold mine was worked here during the same year. The county was formed in 1826, and named in honor of Gen. William McIntosh, a half-blood Creek Indian and head chief of the Coweta villages. Capital, Newnan.

COWHAGE, bristly hairs from the pod of the *mucuna pruriens*, a perennial climbing plant, which grows in the West Indies and other parts of tropical America. The pod is imported for the sake of the hairs, which are used in medicine. They are sharp, penetrating spiculæ, which produce an intense itching sensation when handled. In the West Indies they were long since found to possess valuable qualities as a vermifuge, probably by penetrating and thus destroying the worms. They are consequently adopted in medical practice, and introduced into the pharmacopœias. The medicine is prepared by dipping the pods in molasses and scraping the hairs into this, until a mixture is obtained as thick as honey. Cowhage has also been applied as an external irritant by making it into an ointment with lard.

COWL (Sax. *cugle;* Lat. *cucullus*), a sort of hood, originally worn by all classes, and still retained by certain orders of monks. It consists of a conical covering for the head, attached to the robe or cloak, and sometimes made to draw over the shoulders also. According to Mabillon, it was at first the same

as the scapular. The Benedictines and Bernardines have 2 sorts, one black for ordinary occasions, and another white and very large for days of ceremony. The proper shape of the cowl has been the subject of long and bitter dissensions in the Franciscan order, which 4 popes exhausted every means to heal, and which were only remedied by time.

COWLEY, Abraham, an English poet, born in London in 1618, died at Chertsey, in Surrey, July 28, 1667. His father died before his birth, and he was brought up under the care of his mother, by whose solicitation he was admitted into Westminster school. Spenser's "Fairy Queen" first led him to turn his attention to poetry. A volume of his poems was published when he was 15 years old, including some of his compositions written at 10 years of age. While he was yet at school, he produced a comedy entitled "Love's Riddle," written in the pastoral strain. In 1636 he removed to Cambridge, and two years afterward published his "Love's Riddle," with *Naufragium Joculare*, a comedy in Latin prose, now totally forgotten. In 1643 he was ejected from Cambridge, on account of his political opinions and independence, and went to Oxford. He was strongly attached to the fortunes of Charles I., and in the struggle which followed was a devoted partisan of the royal cause. When Oxford was taken possession of by the parliament, Cowley followed the queen to Paris, and there became secretary to Lord Jermyn, afterward the earl of St. Albans; he was frequently occupied in writing and deciphering the secret letters that passed between the king and queen, an office of delicate nature and of great responsibility. He was absent from England all together upward of 10 years, and during that time he undertook some very perilous journeys to Jersey, Scotland, Flanders, Holland, and other countries. In 1656 he repaired secretly to England, but was arrested and only set at liberty on his giving bail for £1,000. In that year he published his poems, and in his preface appears to have inserted a passage suppressed in subsequent editions, which was thought to intimate a change in his loyal feelings, and he also speaks of his desire to "retire to the American plantations and forsake this world for ever." On the death of Oliver Cromwell he returned to France, where he remained in his former station until the restoration of the Stuarts. He was made a doctor of medicine at Oxford in 1657, but there is no reason to suppose that he ever practised. He considered a knowledge of botany indispensable to the medical profession, and retiring to the county of Kent, busied himself with gathering plants. He also wrote a Latin poem on plants in 6 books. When the restoration took place, Cowley looked for some substantial reward for his services in the royal cause, but he received nothing. He had been promised by Charles I., as well as by his son, the mastership of the Savoy, "but lost it by certain persons enemies to the muses." It is said that in revenge he altered a comedy, the "Guardian," and brought it out anew under the title of "Cutter of Coleman Street." It was harshly treated on the stage, and regarded as a satire on the royal party. He took the failure of his play considerably to heart, but denied that it was intended in any manner as a reflection on the royalists. This assertion, however, gained little credence, nor did he mend matters by the publication of an ode called the "Complaint," in which he bewailed his misfortunes, and styled himself the melancholy Cowley. He now left London, and secluded himself first at Barn Elms, a suburban village, and afterward at Chertsey in Surrey. In his retreat he was at first but slenderly provided for, but by the influence of the earl of St. Albans he obtained such a lease of the queen's lands as secured him a tolerable income. Although very highly esteemed as an author by Johnson, and by Milton even ranked with Shakespeare and Spenser, there is probably no English poet of equal pretensions less read at the present day. His "Essays" have great merit as agreeable specimens of prose composition. He was buried near Chaucer and Spenser in Westminster abbey, where in 1675 the duke of Buckingham erected a monument to his memory.—An edition of his "Works," with his "Life" by Bishop Sprat, was published in 1688 (folio), and his "Select Works," edited by Bishop Hurd, in 1772–'7 (3 vols. 8vo.).

COWLEY, Henry Richard Charles Wellesley, baron, a British diplomatist, born July 17, 1804, nephew of the first duke of Wellington, succeeded his father in the peerage, April 27, 1847. At an early age he entered the diplomatic service, and having been successively employed in the embassies of Vienna, Stuttgart, and Constantinople, he was sent as minister plenipotentiary to Switzerland in 1848, and afterward to Frankfort-on-the-Main, where he acted as minister to the German confederation. In 1852, when Napoleon became emperor, Lord Cowley was chosen to replace Lord Normanby as ambassador to France, and in concert with the earl of Clarendon attended the peace congress of Paris, which opened Feb. 25, 1856.

COWLITZ, Cowlitsk, or Cowelitsk, a S. W. co. of Washington territory, bounded S. W. by the Columbia, S. E. by the Calama, which separates it from Clark co., and intersected by Cowlitz river; area, 1,050 sq. m. Capital, Monticello.

COWPENS, a post village in Spartanburg district, S. C., near the border of North Carolina, in the neighborhood of which a signal victory was gained by the American forces, commanded by Gen. Daniel Morgan, over a British division under Col. Tarleton, Jan. 17, 1781. In the latter part of December, 1780, Morgan was directed by Gen. Greene to occupy the country between the Broad and Pacolet rivers in the Spartanburg district, and Cornwallis, then at Winnsborough, in Fairfield, apprehending that the important post of Ninety-six was menaced, despatched Tarleton with 1,100 choice troops,

comprising 350 of his famous legion and portions of the 7th and 71st regiments, with 2 pieces of artillery, to force Morgan either to fight or retreat into North Carolina. Tarleton commenced his march on Jan. 11, and moving with great rapidity reached the Pacolet on the evening of the 15th. Morgan had intended to dispute the passage of the river; but being inferior in cavalry, he deemed it prudent to retire toward Broad river. Tarleton pressed on in pursuit, and on the morning of the 17th came up with Morgan in an open wood known as Hannah's Cowpens, being part of a grazing establishment belonging to a man named Hannah. The American troops, about 1,000 in number, occupied 2 gentle eminences, on which they were drawn up by Morgan in 2 lines, the 1st composed of Carolina militia, with an advanced corps of volunteer riflemen under the command of Col. Pickens, and the 2d of Maryland regulars and Virginia riflemen under Lieut. Col. John E. Howard. In the rear was a reserve of cavalry, consisting of Lieut. Col. Washington's troop, 80 strong, and about 50 mounted volunteers under Major McCall. Tarleton, disregarding the fact that his troops were fatigued by a long night march, with characteristic impetuosity ordered an attack. The British advanced to the charge with loud shouts, receiving an effective discharge from the American riflemen, who in obedience to Morgan's orders fell back upon the 1st line. The latter stood firm until within bayonet thrust of their opponents, when they also fell back upon the 2d line, composed of continental troops, which was thus compelled to bear the brunt of the fight. Col. Howard at length, fearing that he might be outflanked, attempted to change his front to the right, the order for executing which was misinterpreted into one for a retreat, and the whole line was thrown into some confusion. At this moment Morgan ordered them to retreat to the eminence behind which the cavalry were posted. The British, feeling sure of victory, rushed forward in some disorder, when they were met by a fierce charge from Washington's dragoons. At the same time Howard's troops facing about gave them a deadly volley of musketry, which they followed up so effectively with the bayonet that in a few minutes the British line was broken, and cavalry, infantry, and artillery were in full flight. Tarleton endeavored in vain to reform his troops; a panic had seized upon them, and even his favorite legion, with which he had accomplished so many dashing exploits, galloped away without having crossed a sabre. Tarleton himself, with a small band of horsemen, made a precipitate retreat, hotly pursued by Col. Washington, by whom he was wounded in the hand. The British loss in this action amounted to more than 300 killed and wounded, and between 500 and 600 rank and file prisoners. The Americans had 12 men killed and 60 wounded. The spoils of the victors were 2 field pieces, 2 standards, 800 muskets, 100 dragoon horses, 70 negroes, and some baggage.

COWPER, Edward, an English inventor and improver of machinery, also favorably known as a lecturer on the mechanic arts, born in 1790, died in London, Oct. 17, 1852. During the greater part of his life he was a printer, and some of the most important improvements in machine printing are due to him. Among others may be mentioned the giving a diagonal action to the rollers on the self-acting inking tables. During the latter part of his life he was professor of mechanics and manufacturing arts at King's college. He wrote an elaborate article on a "Button," and delivered lectures on the London crystal palace, in 1851.

COWPER, William, lord chancellor of England, born at Hertford in 1664, died Oct. 10, 1723. He was called to the bar in 1688, the year of the revolution, in which he took part so far as to form a small company of volunteers, and set out to join the prince of Orange. After the settlement of the government he returned to his practice, and soon became the decided leader of the home circuit, with a large practice in the court of chancery. He entered parliament as a whig in 1695, and gained by his maiden speech the reputation of a consummate debater. The whig party having gained the ascendant in 1705, the great seal was committed to him as lord keeper, and the next year he was raised to the peerage and made lord high chancellor. His judicial business was transacted with credit, and his honorable disinterestedness is worthy of remembrance in having abolished the custom of "yearly gifts" from the officers and lawyers of his court, which prevailed there before his time as well as in the other courts of the kingdom, and which had produced to the chancellors some £3,000 per annum. He presided at the impeachment of Sacheverel, and soon afterward upon the defeat of the whigs resigned his office, went into opposition, and remained one of the chiefs of his party in council and debate until the accession of George I., when in 1714 he was again made lord chancellor. For some time he enjoyed the entire confidence of the king, and had an important share in the political direction of affairs during the settlement of the government under the new dynasty and the rebellion of 1715 in favor of the exiled family, but again resigned in 1718, in consequence of the feud between the king and the prince of Wales. He continued to take part in the proceedings of the house of lords as long as he lived. Although a lawyer and a judge of authority and respectable standing, his principal character in history is that of a politician, where he generally appears as the advocate of liberal principles, both in relation to secular and religious matters, but not always free from the errors and inconsistencies of the time. He was celebrated as an orator for his graceful and charming manner and delivery, with which he was said to captivate the hearts of his auditory; but he was nevertheless the mark for much political detraction, and the hero of a curious story circulated all over Europe by

the authority of Voltaire, that he married and lived at the same time with 2 wives, and wrote a little book in defence of the practice. Although there was apparently no other foundation for it than some early irregularities, it gave him the common nickname of "Will Bigamy."

COWPER, William, an English poet, born Nov. 15, 1731, at Great Berkhamstead, Hertfordshire, died at East Dereham, Norfolkshire, April 25, 1800. His father, the Rev. John Cowper, was one of the chaplains to George II. and nephew to the lord chancellor Cowper. His mother died when the poet was but 6 years of age, and the touching lines in which he recalls her memory show the deep impressions she had left on his mind. He was sent early to the day school of his native town, and went afterward to Westminster, where he suffered from the tyranny of older and stronger boys. At 18 he began to study law with a solicitor, Mr. Chapman, in whose house he slept for 3 years, but who set his student the example of paying little attention to his profession. He then took rooms in the Inner Temple, was admitted to the bar, and here for the next 12 years lived indolently, neglecting the law for literature and gay society. He formed literary acquaintances, wrote verses, and contributed several papers to the "Connoisseur." In his 31st year he formed an attachment for his cousin Theodora Cowper, sister of Lady Hesketh; but their union was forbidden by her father, first for prudential reasons, and then because of their consanguinity. Having received an appointment through his uncle, Major Cowper, as reading clerk to the committees of the house of lords, he seemed destined to ease and competence; but his natural timidity and nervousness interposed. He shrank from the thought of appearing before the lords, and when a new office was provided for him by the same kind relative, the clerkship of the journals to the same house, he was seized with a fresh alarm when called upon to stand an examination as to his qualification for the place, and in his mental excitement sought to destroy himself. He soon afterward became insane, and was removed by his relatives to an asylum at St. Albans under the care of Dr. Cotton. During the remainder of his life he experienced several long returns of mental alienation. He fancied himself destined to eternal woe. He shunned the society of his friends and near relatives, to find relief in that of strangers. In all his sufferings, however, his relatives watched over him with tenderness and provided for him a moderate support. At Huntingdon, whither he removed in 1765 from the care of Dr. Cotton, he met with the Unwin family, who received him into their house as a boarder, and for whom he formed a lasting regard. When, on the sudden death of her husband, two years afterward, Mrs. Unwin removed to Olney in Buckinghamshire, Cowper went with her; and here they occupied a house next that of the Rev. John Newton, curate of the parish, for whom he had previously contracted a high esteem. Olney is famous as the favorite residence of Cowper. Here he passed many years of his life, occupied with religious exercises and in active charity among the poor. Here, too, were written those poems that served to lighten his mental suffering, though they could never wholly relieve it. At the age of 50 (1782) he published the 1st volume of his poems, the subjects of several of which had been suggested by Mrs. Unwin. The volume was tolerably well received; but the ballad of "John Gilpin," which he wrote from a story told him by Lady Austen, gave him a wide renown. It was read to crowded audiences in London by Henderson the actor, and one publisher alone sold 6,000 copies of a print of John Gilpin on his famous ride. The ballad had been published anonymously, and lay for 3 years neglected until suddenly it caught the attention of the public. Lady Austen next suggested to him the "Task," which appeared in 1784, and gained general popularity. The amiable, intelligent Lady Austen, and the older and more austere Mrs. Unwin, were now his constant associates; but jealousy, it is said, arose between them, and Lady Austen left Olney in displeasure. He next translated Homer in blank verse, and published it by subscription in 1791. His last literary occupation was a translation of Milton's Latin poems, with a commentary on his works; but this performance the condition of his mind prevented him from completing. His faithful friend Mrs. Unwin having become paralytic, his cousin Lady Hesketh came to take charge of his household; but in 1795 he removed from Olney with Mrs. Unwin to the house of his relative, the Rev. Mr. Johnson, at Tuddenham, and finally to East Dereham. A pension of £300 had been settled upon him by the king, chiefly through the active solicitations of the amiable poet Hayley; but Cowper, when it was announced to him, showed no marks of pleasure. In 1796 Mrs. Unwin died; the poet, it is said, looked in silent agony upon her corpse, and then turning away, never afterward mentioned her name. A slight recovery of his mental powers enabled him in 1799 to revise his Homer, and to write his last poem, the "Castaway," a picture of his own sad fate, but he died of dropsy in the spring of the following year.—Cowper's writings are original, truthful, and striking. In poetry he was one of the first to break away from the despotism of Pope, and invent an original rhythm. He is never melodious, but always natural and at his ease. He loved nature, flowers, animals, and rural life, and paints scenery with great power. His descriptions are sometimes coarse, but always clear and effective. The moral teaching of his poetry is high, and he strove to force upon his material age the noblest conceptions of the spiritual and the divine. With this religious turn of thought he joined humor and forcible satire. He translated Homer with more accuracy than Pope, but his blank verse wants harmony and grace. His prose is excellent, and his let-

ters are not surpassed by any in the language. Here, in his happier moods, all is playful humor, ease, gayety, simplicity, and wisdom. His mind seems to break from its clouds into moments of perfect sunshine. In character he was pure, his disposition amiable; he gained the love and respect of gifted men and virtuous accomplished women; he was charitable and active in doing good; tender and confiding to his friends, and capable of unchanging affection. So good a man might well have looked for happiness both here and hereafter; but it was Cowper's singular fate to pass a lifetime in despair. Hope was an impulse he never knew or never ventured to indulge. His appearance was intellectual and well bred, his manner pleasing, and his whole life that of a tasteful recluse. He cultivated flowers, and watched with interest the progress of his garden. He petted tame leverets and immortalized them in verse. He was careful of his dress, and though afraid of strangers, took pleasure in a narrow circle of well bred, intelligent associates. His clouded mind, his mental agonies, and his generous kindly nature, endeared him to his friends, who loved, pitied, and admired him; sentiments that posterity must continue to share.—The life of Cowper was first written by William Hayley, for an edition of his posthumous writings (Chichester, 1803–'6). It has also been written by Thomas Taylor (London, 1835); by the Rev. T. S. Grimshawe, for an edition of his works and correspondence (London, 1836); by H. F. Cary, for an edition of his poems, including his translations of the Iliad and Odyssey (London, 1839); by Sir Harris Nicolas, for an Aldine edition of his poems (London, 1843); and by Robert Southey, for a complete edition of his works (London, 1833–'37). The last biography and edition are much the best, and have recently been republished, with additional letters, in Bohn's "Standard Library," in 8 vols.

COWRY, the common name of the shell-fish *cypræa*, of the family *cypræidæ*. Many species are met with most abundantly in the warm seas of the eastern hemisphere. Those of special interest are the *C. annulus*, used by the Asiatic islanders to adorn their dress, for sinkers to their fishing nets, and for barter; and the *C. moneta*, or money cowry. The latter is an eastern and Pacific shell, and is an important article of trade, being largely imported into Calcutta and Bombay from the Laccadive and Maldive islands. Their value in Bengal used to be rated at 2,400, then at 2,560, but now more than 3,200 to the rupee, the worth of which is about 50 cents. They are largely imported into Liverpool, about 60 tons being received in 1848, and nearly 300 tons in 1849. Their rates are often quoted upon the price currents of New York and London. They are sent to the western coast of Africa for barter with the natives. A species of this family called the *C. princeps*, "the brindled cowry of the Persian gulf," is very highly prized by conchologists for its rarity and beauty. Only two specimens are known; one is in the British museum, and the other was sold a few years since in London, at the sale of the collection of the late earl of Mountnorris, for £40. A specimen of the *C. umbilicata* was sold in 1850 for £30. The cowries, from the great variety and beauty of the markings upon their smoothly-polished surface, have long been in demand among civilized and uncivilized nations for ornaments to their dress and habitations.

COX. I. David, an English landscape painter, born at Birmingham, April 29, 1793. His paintings, chiefly on Welsh subjects, are in water colors, small, and apparently rapid and careless, but full of the impression and effect of nature. He succeeds best in sketching rain and wind, bursts of sunshine on dark moors, the dank herbage of marshes, and rural scenery beneath the threatening storm. He published in 1814 what is still considered the best "Treatise on Landscape Painting in Water Colors." His son David is also a painter of some ability. II. Francis Augustus, D.D., an English clergyman of the Baptist denomination, born March 7, 1783, died in Sept. 1853. He was graduated at the university of Edinburgh, and commenced his pastoral labors at Hackney, near London, in 1811. Here he principally resided, and beside the care of a large congregation and various other employments, he took an active share in procuring the establishment of the London university. He attained a prominent position in his denomination, and was chosen about 1840 to make an official visit to the United States, for the purpose of drawing closer the bonds of fraternal feeling between the Baptists of the two countries. Dr. Cox was a contributor to the "Eclectic Review" and other periodicals, and published a "Life of Melanchthon," "Female Scripture Biography," and other works. III. Richard, bishop of Ely, born at Whaddon, Bucks, about 1500, died in 1581. He was educated at Cambridge, and when Christchurch college at Oxford was founded by Cardinal Wolsey, was chosen one of its officers, but afterward forfeited this position and was lodged in prison, in consequence of his adoption of the doctrines of Luther. Upon the accession of Edward VI. he became tutor to the king, chancellor of Oxford, canon of Windsor, dean of Westminster, and a privy councillor. When Mary began her reign he fled to the continent; but when Elizabeth succeeded, he returned to England, and was made bishop of Ely, which see he held for 21 years. He took an active part in the preparation of the liturgy. The revision of the Gospels and the Acts of the Apostles, in that edition of the Scriptures called the "Bishops' Bible," was by him. He was also one of the compilers of Lily's "Accidence." IV. Samuel Hanson, an American divine, born at Leesville, N. J., Aug. 25, 1793. In 1811 he commenced the study of the law at Newark, N. J., but abandoned it at the end of one year to take up that of theology, and was ordained by the presbytery of New Jersey, July 1, 1817. In

the autumn of 1820 he removed to New York to assume the charge of the Spring street Presbyterian church. After gaining here the reputation of an ardent and striking preacher, he sailed for Europe in 1833 to recruit his health, and after his return took the chair of professor of sacred rhetoric at Auburn, N. Y., in the autumn of 1834. In May, 1837, he removed to Brooklyn as pastor of the first Presbyterian church, and remained in this connection until 1854, when he was obliged by infirmity of the voice to give up his charge, and retired to Owego, N. Y. Having had the degree of D.D. conferred on him in the summer of 1825 by Williams college, he indignantly repudiated, in a letter to the "New York Observer," Nov. 16, 1825, the "semilunar fardels." Having lent his countenance and sympathy to the foundation of the American anti-slavery society, he was one of the sufferers by a mob excited in opposition, and had his house and church sacked, July 10, 1834. At that time he passed for an agitator upon all topics; and always throwing himself impetuously into the service of every cause which he has espoused, he has successively appeared as the zealous advocate of abolition, temperance, colonization, new school Presbyterianism, the evangelical alliance, &c. Of late years, however, he has changed his views on the slavery question, and has identified himself with the conservative treatment of that question. As a writer and preacher he abounds in quaint conceits and learned allusions, with a substratum of strong common sense and ardent feeling, and holds a high rank in the religious and intelligent community. He was moderator in 1846 of the general assembly of the Presbyrian church, and has frequently been delegated to attend the religious anniversaries in London. He is the author of "Quakerism not Christianity," "Interviews Memorable and Useful, from Diary and Memory," and other publications.

COXCIE, or Coxis, Michael, a Flemish painter, born at Mechlin in 1497, died in Antwerp from the fall of a scaffolding in 1592. He was a pupil of Bernard van Orley, and went afterward to Rome, where he acquired celebrity and was much employed as a fresco painter. He married in Italy, and after his return to his own country his works were in great demand, and he acquired a large fortune by them. Many of them were taken to Spain, and he had 3 palaces or houses full of the most valuable at Mechlin. He is now better known by his copy of the "Adoration of the Lamb," by the brothers Van Eyck, in the church of St. Bavon at Ghent, than by his original productions. This copy was made for Philip II. of Spain, and cost 2 years of constant labor, for which the artist was paid 4,000 florins. It was finished in 1559. Complaining that he could not find a blue good enough to paint the mantle of the Virgin with, the king wrote to Titian for some ultramarine, of which, when it came, Coxcie used to the value of 32 ducats on the mantle alone. The copy was painted with extreme care, and was for a long time kept in the chapel of the old palace at Madrid, whence it was sent to Brussels by Gen. Belliard during the French occupation of Spain. It was in several parts, which are now scattered in the royal gallery of Berlin, in the Pinakothek at Munich, and in the collection of the king of Holland. Without much originality, Coxcie yet conferred a service upon the art in his native country by introducing there the knowledge of the Italian masters and their style. He is distinguished for lightness, grace, and an agreeable individuality. Among his best productions are the illustrations of the fable of Psyche, which were engraved by Agostino Veneziano, and have furnished the models for innumerable paintings on glass.

COXE. I. Arthur Cleveland, D.D., an Episcopal clergyman, son of the Rev. S. H. Cox, born at Mendham, N. J., May 10, 1818. He was graduated in 1838 at the university of New York, took orders in 1841, and has been settled successively at Morrisania, Hartford, and Baltimore, in which last named city he is now (1859) the rector of Grace church. He has written "Christian Ballads," a volume of religious poems (New York, 1840), "Saul, a Mystery," and other poems, beside a volume of travels in England (1856), and a collection of sermons (1855). II. Tench, an American writer on political economy, born in 1756, died in Philadelphia, July 16, 1824. He was the author of "An Inquiry into the Principles of a Commercial System for the United States" (1787), "View of the United States" (1794), "Thoughts on Naval Power and the Encouragement of Commerce and Manufactures" (1806), "Memoir on the Cultivation, Trade, and Manufacture of Cotton" (1807), "On the Navigation Act" (1809), "On the Arts and Manufactures of the United States" (1814). III. William, archdeacon of Wilts, an English historical and biographical writer, born in London in March, 1747, died at Bemerton in June, 1828. He was elected a fellow of King's college, Cambridge, in 1768, and in 1771 was appointed to the curacy of Denham. Shortly after this he commenced a series of extended visits to the continent, in the capacity of private tutor to young members of the nobility, which, with occasional intervals for literary or professional labor, embraced a period of more than 20 years. The result of his observation and researches was given to the world in a number of elaborate books of travel, and of history and biography. In the former department he published between 1779 and 1789 "Travels into Poland, Russia, and Denmark," and "Travels in Switzerland," beside some miscellaneous works on Russian discoveries, on hospitals in northern Europe, and other subjects. In 1798 appeared his "Memoirs of the Life and Administration of Sir Robert Walpole," accompanied by many valuable state papers, of which Pitt observed that it gave him his first correct notion of the character of Sir Robert. His next important publication, "History of the House of Austria" (which forms a part of Bohn's "Stand-

ard Library"), is carefully and impartially written, and is still regarded as a standard authority. It was succeeded by "History of the Kings of Spain of the House of Bourbon," in 1813, "Memoirs of John, Duke of Marlborough," in 1817–'19, "Memoirs of the Administration of the Right Hon. Henry Pelham," published posthumously in 1829, and by a variety of minor publications. He was appointed archdeacon of Wilts in 1805, and during the last 7 or 8 years of his life was afflicted with total blindness.

COYPEL. I. Noël, a French painter, a successful imitator of Poussin, born in 1628, died in 1707. Among his most celebrated pictures are the "Death of Abel" and the "Assumption of the Virgin," the latter in the hotel of the Invalids. II. Antoine, a son and pupil of the preceding, born in 1661, died in 1722. He was inferior to his father, but graceful in the treatment of his subjects, and a man of literary accomplishments. He was appointed painter to the king in 1716. His principal works are the "Assumption," in the church of Notre Dame, "Christ Curing the Blind," and "Christ among the Doctors." Some of his etchings are executed in a masterly manner. The "Numismatic History of the Reign of Louis XIV.," chiefly from his designs, is a work as remarkable of its kind as his frescoes of the chapel at Versailles. III. Noël Nicolas, stepbrother of the preceding, born in 1692, died in 1735, also painted many works for the churches of Paris, of which the best are the ceiling of the chapel of the Virgin in the church of St. Saviour, and the "Assumption" in the same chapel. IV. Charles Antoine, son of Antoine, born in 1694, died in 1752, chiefly excelled as painter of portraits, the best of which is that of Adrienne Lecouvreur.

COYSEVOX, Antoine, a French sculptor of Spanish origin, born in 1640, died in Paris, Oct. 10, 1720, produced several fine statues of Louis XIV., a statue of Condé, and of other eminent persons. Among his best works are the tombs of Mazarin and of Colbert, the monument of Lebrun, and 2 statues of a flute-player and Flora, now in the gardens of the Tuileries.

COZZENS, Frederic Swartwout, an American author, born in New York, March 5, 1818. He was educated in his native city, and has always resided there. In 1853 he collected a series of articles, which he had previously contributed to the "Knickerbocker Magazine," in a volume entitled "Prismatics, by Richard Haywarde." The *nom de plume* which he assumed was the name of one of his ancestors, an English Moravian missionary in America. In 1856 he published the "Sparrowgrass Papers," consisting of sketches which had before appeared in "Putnam's Magazine," describing the rural life of a cockney. Mr. Cozzens is a leading wine merchant, and publishes in connection with his business a periodical entitled the "Wine Press," for which, as well as for other publications, he has written interesting essays on the culture of the grape. In 1858 Mr. Cozzens attended the copyright congress of Brussels as delegate of the New York publishers' association.

CRAB, a crustaceous animal of the tribe *brachyura* and genera *cancer*, *lupa*, and many others, several species of which are common on the coast, and serve, like the lobster, for food. The most common is the *lupa dicantha* of Milne-Edwards, found most abundantly south of Cape Cod, and especially in Chesapeake and Delaware bays. Its feet are flattened, its teeth long and projecting like spines. From the color of its long hands it is sometimes called the violet crab, though the color of the body is greenish. In the summer months it is regarded as a great delicacy on the shores of the Chesapeake. A number of the species of the smallest crabs are known only as they are found in the intestines and maws of the cod, haddock, and other fish, to which they seem to furnish one of the principal sources of food. Another little crab, the *pinnotheres ostreum*, unprotected by a shell of its own, finds a shelter within those of the oyster, mussel, pinna, &c., which it does not appear to molest; indeed, it is supposed by some that it affords aid to the shellfish in securing the prey which nourishes both. This was the opinion of Pliny, and of later naturalists also. Others state that in the case of the pinna, at least, the little crab warns the shell fish of danger when its enemy the cuttle fish approaches to devour it. The little crab is often found with the oysters cooked for the table. Several species of the genus *pagurus* are also unprovided with a shell of their own; but these seek for some empty univalve shell; and an individual finding one which on trial fits his size, he takes possession of it, and drags it about with him on the sands, till his enlarged dimensions cause him to seek a more capacious tenement, or till a stronger crab, driving him out, suddenly slips in, and leaves him to look for another. These are known as hermit or soldier crabs. In Jamaica they pass into the interior several miles from the sea, carrying with them their coverings of marine shells.—Beside the salt-water crabs, there are others, as the thelphusians, that live on the banks of rivers and in humid forests, burrowing in the ground. In Italy and further up the Mediterranean these are eaten, particularly in the season of Lent. There are others also in warm climates of terrestrial habits, one group of which is called *ocypoda*, swift-footed, from their rapid running, which is such, as Cuvier states, that a horseman has some difficulty in overtaking them. The *O. arenaria*, or sand crab, of Catesby, is an American specimen of this genus, found in the West Indies and on the mainland. During the summer they live in holes on the sea-shore just above high-water mark, retiring into them during the day and coming out at night. When disturbed they run very rapidly, threatening at the same time with their elevated claws. At the close of the summer they emigrate in troops into the interior, and, finding a convenient place for passing the winter, dig holes into which they bury them

selves, and so completely hide the entrance to their retreats, that no indication of them is seen upon the surface. In the spring they reappear, and return to the sea-shore. They have a singular habit in their nocturnal excursions of entering into the houses, the doors of which in the warm nights are often left open, and taking possession of small articles of clothing, as cravats, collars, stockings, &c. If disturbed in their pilferings, they scramble away, making a great clattering upon the floor; the articles that disappear with them are usually effectually concealed in their holes. They are often seen in great numbers in the roads, and it is curious to observe their rapid sidelong retreat, as one is riding by on horseback, and when overtaken how they run as rapidly back the other way without turning round. In the Moluccas a crab is described by the name of purse or robber crab (*pagurus latro* of Fabricius), which is said to feed upon fruits as well as flesh, and to climb the palm tree called the *pandanus odoratissimus*, to eat the small cocoanuts it bears. They are seen in great abundance in Lord Hood's island in the Pacific. When met in the road they set themselves in a threatening attitude, making a great snapping with their pincers and retreating backward.

CRAB APPLE. See Apple.

CRABB, George, an English barrister and philologist, born at Palgrave, Dec. 8, 1778, died at Hammersmith, Dec. 4, 1854. Intended for the medical profession, his delicate nervous organization made him incompetent to follow it. He devoted himself to teaching, studied in Germany, and published on his return German text books, which were long in use. In 1821, after having been married 22 years, he was graduated at the university of Oxford, with reputation for mathematical attainments. He was 51 years of age when he was admitted to the bar. His offensive manners prevented his success as a practitioner, but as an author he made several contributions to legal literature, which became standard works. Among these is a "History of English Law." He is most generally known by his treatise on "English Synonymes," explained with copious examples, published in 1816 (7th edition in 1844, after which the book was stereotyped). He was the author also of a historical and of a technological dictionary.

CRABBE, George, an English poet, born at Aldborough, in Suffolk, Dec. 24, 1754, died at Trowbridge, in Wiltshire, Feb. 3, 1832. His father, who was a collector of salt duties, exerted himself to give his son a superior education. At the age of 14 years, having made some progress in the study of mathematics and the classics, George was destined to the medical profession, and was apprenticed to a surgeon near Bury St. Edmund's. Three years later he was transferred to another surgeon at Woodbridge, with whom he completed his apprenticeship. His father was a subscriber to a "Philosophical Magazine," the last page of which, devoted to poetry, he was accustomed to tear off before sending the numbers to be bound. These rejected sheets had first excited the poetical tastes and powers of his son, who, both during his school days and amid the pursuits of surgery, made many ambitious attempts at versifying. While at Woodbridge he competed successfully with a poem on "Hope" for a prize offered by the "Lady's Magazine," to which he continued to contribute. In 1775 his first separate publication, a poem on "Inebriety," was issued anonymously at Ipswich. He soon after repaired to London to pursue his medical studies, but returned within a year, with his pecuniary resources exhausted. Never pleased with his profession, he soon determined to abandon it for literary adventure in London, and, provided with a loan of £5, he worked his way in a sloop from Aldborough to the metropolis, where he arrived in 1780. His first poetical pieces found no publisher; and his first printed poem, the "Candidate," which appeared anonymously in that year, was coldly received, and brought him no profit in consequence of the immediate failure of his publisher. His letters to Lord North, Lord Shelburne, and Lord Thurlow, enclosing some of his poems and asking assistance, received no answer. Threatened with arrest, he applied without an introduction to Edmund Burke, at whose door he left a simple and manly letter, and then calmed his agitation by walking Westminster bridge backward and forward throughout the night. From his kind reception by Mr. Burke begins his success in literature. He was received into the family of the statesman, was introduced to Fox, Reynolds, Johnson, and his other distinguished friends, and had the advantage of his criticism and advice concerning the poem of the "Library," which was published in 1781 (2d edition in 1783), and which was favorably noticed. Lord Thurlow, with tardy generosity, now invited him to breakfast and presented him with a bank note for £100. By Mr. Burke's recommendation, he qualified himself for holy orders, was ordained a deacon in 1781, and a priest in the following year, and after a short experience as curate in his native parish, received the situation of chaplain to the duke of Rutland at Belvoir castle. In 1783 he published the "Village," which had been revised both by Mr. Burke and Dr. Johnson, and obtained immediate popularity, some of its descriptions, as that of the parish workhouse, being copied into nearly all periodicals. Lord Thurlow, declaring that he was "as like to parson Adams as twelve to a dozen," presented him in 1785 to two small livings in Dorsetshire, where, having married a lady who was the object of his early love, he lived in retirement. After the publication of the "Newspaper" in that year he did not resume authorship till 1807. He exchanged his livings in 1789 for others in the vale of Belvoir, where he resided most of the time till after the death of his wife in 1813, when he was preferred to the rectory

of Trowbridge. He assigned the death of his distinguished friends and advisers as his reason for publishing nothing, and passed his time in domestic enjoyment, in various studies of natural history, especially of botany, in educating his sons, in writing three novels which he afterward burned, and in fulfilling his professional duties. In 1807 his "Parish Register," which had been read and approved by Mr. Fox, was received with universal approbation, and was followed in 1810 by the "Borough," and in 1812 by "Tales in Verse." The latter years of Crabbe were occupied with the conscientious discharge of his duties to his parishioners of Trowbridge, by whom he was beloved, with studies of botany and geology pursued with increasing interest, and with occasional visits to London, and associations with a younger generation of poets, among whom were Moore, Rogers, Campbell, Scott, Wordsworth, and Southey. In 1819 he completed his last publication, the "Tales of the Hall," for the copyright of which and of all his previous works he received from Mr. Murray the sum of £3,000. In 1822 he visited Sir Walter Scott at Edinburgh, then in the midst of tumultuous preparations for the king's visit, and the biographer of Scott regrets that the two poets had not rather met among the books, and trees, and simple peasants of Abbottsford. His health began to decline in 1828, but his mind still retained its clearness and cheerfulness. The shops of Trowbridge were closed on the days of his death and funeral, and his parishioners erected a monument to his memory in the chancel of their church. He had spent for many years the principal part of his professional income in charity.—The finest productions of Crabbe, and sure foundations of his fame, are the "Village," "Parish Register," and some of his shorter tales, which are unrivalled for their severe and minute descriptions of humble life. The whole force of his genius, rarely diverted by bright ideal scenes or pictures of elegance and refinement, was bent upon delineating the circumstances and anatomizing the characters of poverty, vice, and misery. He is styled by Byron "nature's sternest painter, yet the best;" and though he flattered the poor by no Arcadian pictures, he was far from being their satirist. The amenities of the refined society which he enjoyed in mature manhood never occupied his imagination so much as the reminiscences of struggle, suffering, passion, and disaster with which his youth was familiar; and it was with deep sympathy that he described the ruined and friendless inmates of the workhouse, explored the haunts of smugglers and gypsies, wrote of erring and crazed maidens, and lingered over the darkest forms and refuse members of humanity. But though his delineations, with their Dutch minuteness and accuracy, always reveal tenderness and benevolence rather than harshness in the poet, they yet sometimes become wearisome and displeasing, failing to excite an interest in the gloomy subjects which they expose. A complete edition of his poetical works in 8 vols., the first of which contained his life written by his son, with his letters and journals, was published by Murray, in London, in 1834, and republished in one vol. in 1847.—George, an English clergyman, eldest son of the preceding, born at Strathern, near Belvoir castle, in 1785, died at Bredfield, Sept. 16, 1857. He was educated at Cambridge, was for many years curate of Pucklehead, and afterward vicar of Bredfield, published in 1840 a work entitled "Outlines of Natural Theology," and is chiefly known for his interesting biography of his father, which first appeared in 1834.

CRABETH, Dirk and Wouter, two brothers, natives of Gouda, in Holland, celebrated masters of painting on glass, lived in the 16th and the beginning of the 17th century. They painted the windows of St. John's church at Gouda, which are considered the most finished productions ever executed in that branch of art, and also the windows of other churches in Belgium and Paris, and probably also Spain. The two brothers were excessively jealous of each other, Wouter being superior in correctness and neatness of design, and Dirk in brilliancy of coloring.

CRACOW, formerly the capital of independent Poland, from 1815 to 1846 of the republic of the same name, now of a western circle of Galicia, and seat of a bishopric, is situated in a plain surrounded by hills, on the left bank of the Vistula, which there becomes navigable, and is crossed by a new massive bridge, connecting the city with the suburban town of Podgorze; lat. 50° 3′ N., long. 19° 55′ E.; pop. about 40,000, of whom nearly ⅓ are Jews. It consists of the city proper and several suburbs, the chief of which are the Kleparz, Stradom, and Kazimierz, the latter on an island of the Vistula, inhabited almost exclusively by the Jews, who have there 7 synagogues. Except this part, which is mostly a narrow and gloomy abode of misery, Cracow, with its old castle, once the residence of the kings, on the top of the Wawel, its large central square, its numerous churches, chapels, turrets, and steeples, offers the aspect of a handsome and picturesque old city; though several conflagrations, of which that of 1850 was one of the most destructive, have changed parts of it, and the ancient fortifications have been converted into modern encircling promenades. The royal castle, whose history is connected with that of the legendary Krakus and his daughter Wanda, of the Piasts and Jagiellos, having been destroyed by 2 conflagrations, restored by King Augustus II., fortified under the direction of Dumouriez, afterward the French general, in 1768, and repaired by the Austrians, has finally been converted by the latter into barracks for the garrison of the city. But the beautiful Gothic cathedral of the ancient residence still contains, in its numerous and splendid chapels, the tombs and monuments of St. Stanislas, whose remains are preserved in a silver coffin, of Casimir the

Great, Jagiello and his wife Hedvig, the 3 Sigismunds, Stephen Bathori, John Sobieski, Copernicus, Prince Poniatowski, Kosciuszko, Dombrowski, Arthur Potocki, and other kings, queens and celebrated men of Poland. Its bell, cast in 1520, its archives and library, as well as the royal insignia, preserved in the vaults, are also shown to visiting travellers as worthy of their curiosity. Beside the cathedral, Cracow has more than 70 Roman Catholic churches, numerous convents and chapels, and one Protestant church. Other remarkable buildings are the episcopal palace, with a museum of Sarmatian antiquities, the city hall, and the Jagiello university. The latter, founded by Casimir the Great, and completed under Ladislas Jagiello, was for centuries one of the most flourishing institutions of Europe, but lost its importance through the influence of the Jesuits, and having been reorganized in 1817, had again to suffer restrictive alterations in 1833. A library containing numerous old books and valuable manuscripts, a cabinet of natural history, a botanical garden and observatory, belong to it. Cracow has also a number of other institutions for public education, arts, sciences, and benevolence. In the vicinity of the city, the hill of Wanda, which commemorates the patriotic suicide of the daughter of Krakus, the Bronislawa (glory of arms), with a mound 150 feet high, erected in memory of Kosciuszko, and Lobzow, a summer residence built by Casimir the Great, attract the attention of travellers and patriots. The commerce of Cracow, though greatly decreased since the fall of independent Poland, and especially since the annexation to Austria, is still considerable. It is still a centre of trade between Russian Poland, Galicia, and Hungary, and a chief depot for Hungarian wines, salt, and wax. The celebrated salt mines of Wieliczka are a few miles distant from Cracow. Railroad lines connect it with Warsaw, Berlin, Vienna, and the interior of Galicia.—The foundation of Cracow is attributed by the legends of Poland to Krakus, a Slavic chief, who is supposed to have lived about the year 700. Under Ladislas Lokietek (the Short), who was crowned here in 1320, it became, instead of Gnesen, the capital of Poland. This dignity it maintained down to the reign of Sigismund III., who made Warsaw the seat of the court and government (1609). The kings of Poland, however, still continued to be crowned in the cathedral of Cracow. It was conquered in 1039 by the Bohemians, in 1241 by the Tartars, in 1655 by the Swedes under Charles X., in 1702 by Charles XII., and in 1768, after having for some time supported the cause of the confederation of Bar, by the Russians. After the fall of Kosciuszko, who made Cracow the starting point of his revolution, it was, on the last partition of Poland (1795), taken by Austria. In 1809 it was annexed, together with western Galicia, to the duchy of Warsaw, which had been created 2 years before by Napoleon. After the fall of this emperor it was erected by the congress of Vienna, together with a small but fertile territory of about 500 sq. m. on the left bank of the Vistula, bounded by Russian Poland, Galicia, and Prussian Silesia, into an independent and neutral republic, under the protection of Russia, Austria, and Prussia. This miniature state, the last remnant of Polish independence, had a representative assembly, which held sessions in the last month of every year, and an executive senate headed by a president, who was elected for 3 years by the assembly, and confirmed by the protecting states. It contained about 150,000 inhabitants, of whom more than $\frac{1}{10}$ were Jews. The latter, however, enjoyed no civil rights, and were also subject to many humiliating mediæval restrictions. Grain, excellent fruits, cattle, coal, iron, and sulphur, and the reviving commerce of Cracow, were the chief sources of wealth. During the Polish revolution of 1830–'31, Cracow was under the influence of the national party, and many of its inhabitants fought in the ranks of the Polish armies. Having become a place of refuge to a small part of the corps of Rozycki toward the close of the war, it was occupied by the Russian general Rüdiger. The republic was now purged by the 3 protecting powers of all revolutionary elements, and finally reorganized in 1833. But new national agitations brought about another military occupation in 1836, this time executed by troops of all the 3 powers. This was followed by the expulsion of more than 500 persons, who were escorted to Trieste, to be transported from that port to America. Scarcely had the troops retired, when new conspiracies, and the assassination of a Russian spy, served in 1838 as a reason for a fresh occupation by the Austrians, which lasted till 1841. The revolutionary outbreak of Feb. 1846, which was prepared by a most extensive conspiracy for simultaneous action in all the provinces of ancient Poland, was for a moment successful in Cracow alone. The Austrians, who had again occupied the city, were driven beyond the Vistula, the restoration of Poland as a democratic republic was proclaimed, and a provisional government organized under Tyssowski as dictator (who died at Washington in 1857). But the early detection of the conspiracy in the duchy of Posen, the easy suppression of the outbreak in Russian Poland, and particularly the great catastrophe in western Galicia, where the peasantry massacred the insurgent nobility with their followers and families, soon annihilated the hopes of the friends of Poland. Three armies were approaching. Thus pressed, the small body of Poles surrendered to the Prussians (March 3), and the republic of Cracow was soon after annexed to Austria by a resolution of the 3 protectors. Thus the stipulation of the congress of Vienna, which guaranteed the "perpetual freedom and independence" of the last small remnant of Poland, was set aside by 3 out of 8 contracting powers, without the consent of the others. The event was announced as a *fait accompli* by Prince Metternich, and remained so in spite of the

protests of the governments of England and France, the clamors and indignation of the western press, and the vehement speeches of Count de Montalembert in the French chamber of peers. The movements of 1848 but slightly disturbed the peace of Cracow. An extensive system of fortifications, undertaken by the Austrians, is now in course of completion.

CRAFTS, Samuel Chandler, governor and U. S. senator of Vermont, born at Woodstock, Windham co., Conn., Oct. 6, 1768, died at Craftsbury, Vt., Nov. 19, 1853, was graduated at Harvard university in 1790, and removed to Vermont soon after the state was admitted to the federal union. He was elected town clerk of Craftsbury in 1792, and held that office for 37 successive years. In 1800 he was appointed assistant judge of Orleans county court, and so continued till 1810, when he was appointed chief judge of the county court, holding that office till 1816. From 1796 to 1815 he was register of probate for Orleans district. In 1825 he was again appointed chief judge of the county court, in which office he remained 3 years, and from 1836 to 1838 he was clerk of the county court. In 1793 he was elected a delegate to the convention which met at Windsor to frame a state consitution. In 1796 he was elected a member of the house of representatives, and was re-elected in 1800, 1801, 1803, and 1805. In 1798 and 1799 he was clerk of the general assembly. In 1828 he was elected governor of Vermont, and reëlected in 1829 and 1830. In 1829 he was a member of the constitutional convention, of which body he was elected president. He was elected a representative in congress in 1816, and held that office for 8 successive years. In 1842 he was appointed by Gov. Paine a senator in congress to fill a vacancy. When the general assembly was convened, he was continued in the U. S. senatorship till the close of the term by the election of that body. With the termination of this office (March 3, 1843) his active public career was closed. In June, 1802, while there were but a few log huts on the site of the present city of Cincinnati, he commenced a tour of observation to the lower Mississippi, and, in company with Michaux the younger, made a botanical reconnoissance of the valley of the great West in canoes and arks at a time when there were no steamboats on that river.

CRAFTS, William, an American lawyer and author, born in Charleston, S. C., Jan. 24, 1787, died at Lebanon Springs, N. Y., Sept. 23, 1826. He was graduated at Harvard college in 1805. Choosing the legal profession, he began to practise in Charleston, and his eloquence made him a most successful advocate, especially in criminal cases. During several sessions he was a member of the state legislature. As editor of the Charleston "Courier," he contributed to that journal a large number of graceful essays suggested by topics of the day. He was a favorite orator on public occasions, and in 1817 delivered the Phi Beta Kappa address at Cambridge. He wrote a few poems, chiefly on local subjects, among which are "Sullivan's Island;" the "Raciad;" a "Monody on the Death of Decatur," an improvisation published on the day after the news of the commodore's death was received; "Kitty," a companion piece to Halleck's "Fanny;" the "Sea Serpent, or Gloucester Hoax," a drama in 3 acts, founded on the reputed capture of the sea serpent at Gloucester, which proved to be a horse mackerel of mammoth proportions; and contributions to the *Omnium Botherum*, a quizzical serial, the object of which was local satire. A selection from his writings in prose and verse, including several of his orations, was published at Charleston in 1828, with a memoir of his life by the Rev. Samuel Gilman.

CRAG, in geology, sandy strata overlying the London clay, found particularly in the counties of Suffolk and Norfolk, England. Two divisions are recognized—the upper, called the red, and the lower, the coralline. The former is mostly made up of red ferruginous quartzose sands; the strata of the latter are more calcareous and marly, and more abound in masses of shells and corals, which are sometimes sufficiently compact for use as building stones. The formation is particularly interesting on account of the fossils with which it is filled, the great proportion of which are of species still living.

CRAIG, a S. W. co. of Va., formed since 1850 out of portions of Giles, Botetourt, and Roanoke counties, and named from Craig's creek, by the sources of which it is drained. The surface is mountainous, and the principal range of the Alleghanies extends along the N. W. border. The valleys are generally fertile, and produce corn, wheat, oats, and hay. Capital, New Castle. Value of real estate in 1856, $852,959.

CRAIK, George Lillie, an English author, born in Fifeshire in 1799. Having studied theology at the university of St. Andrew's, he went to London in 1824, and wrote for the society for the diffusion of useful knowledge the 2 volumes of the "Pursuit of Knowledge under Difficulties," published in Knight's library of "Entertaining Knowledge." He was a principal contributor to the "Penny Cyclopædia" in history and biography, and in 1839 became the editor of the "Pictorial History of England," and wrote those chapters on religion, government, laws, industry, and literature, which were afterward expanded into separate works in Knight's "Weekly Volume" as "Sketches of the History of Literature and Learning in England" (6 vols.), and the "History of British Commerce" (3 vols.). In the same series appeared "Spenser and his Poetry" in 1845, and "Bacon and his Philosophy" in 1846. He wrote in 1847 another volume of the "Pursuit of Knowledge under Difficulties," containing female examples only. He was appointed in 1849 professor of history and English literature in Queen's college, Belfast, and has since written "Romance of the Peerage" (4 vols.), "Outlines of the History of the English Language," the "English of Shakespeare," &c.

CRAIK, James, M.D., the family physician of Washington, born in Scotland in 1731, died in Fairfax co., Va., Feb. 6, 1814. He was with Washington in the expedition against the French and Indians in 1754, and the next year attended Braddock in his fatal campaign. In 1781 he was director of the hospital at Yorktown. To him we owe the anecdote respecting the dangers incurred by Washington, and his remarkable escape, at Braddock's defeat. Fifteen years afterward, while exploring wild lands in the western districts of Virginia, he encountered a party led by an aged Indian chief, who informed him, by an interpreter, that he had made a long journey to see Col. Washington, at whom in the battle of Monongahela he had fired his rifle 15 times, and ordered all his young men to do the same. In fact, Washington had 2 horses killed under him, and his coat was pierced with 4 bullets. After the revolution Craik settled near Mount Vernon, and continued to be the physician of Washington until his death.

CRAMER, John Anthony, a philologist, born in Switzerland in 1793, died at Brighton, England, Aug. 24, 1848. He passed the greater part of his life in England, having received his education at the university of Oxford, where he became principal of New Inn hall, and professor of modern history. He published many valuable works on philological subjects, beside descriptions of ancient Greece, Italy, and Asia Minor.

CRAMER, John Baptist, a musical artist and composer, born at Mannheim, Baden, in 1771, died in England, April 16, 1858, where he passed most of his life in great esteem as a composer and as a performer and teacher on the piano forte. His exercises and studies for the instrument are used in all parts of Europe and in America. His compositions are considered models of clear and simple construction, beauty, and grace.

CRANACH, or Kranach, Lucas, a German painter, whose family name was Sunder, born in Kronach, near Bamberg, in 1472, died in Wittenberg, Oct. 16, 1553. He was court painter to three electors of Saxony—Frederic the Wise, John the Steadfast, and Frederic the Magnanimous. He accompanied the first to the Holy Land in 1493, and shared the imprisonment to which the last was subjected after the battle of Mühlberg, in 1547. In 1533 he was appointed burgomaster of Wittenberg, and thenceforward enjoyed the intimate friendship of Luther, Melanchthon, and the other great reformers, whom he frequently introduced into his pictures. The school of Saxony, of which he was the head, is parallel to that of Albert Dürer, with whom he had much in common, although the earnestness and grandeur of the latter are replaced in Cranach by a graceful and almost childlike simplicity. Like Dürer, however, he was at times too much swayed by the fantastic element, then so prevalent in German art. His works are numerous in Germany, particularly in Saxony, and some good specimens are to be found in Florence. One of the most celebrated is an altarpiece at Weimar, representing in the middle the crucified Saviour, on one side of whom stand John the Baptist, the artist, and Luther; and on the other is the Redeemer, victorious over death and the devil. On the wings are portraits of the elector and his family. The picture has remarkable power in parts, and the portrait of Luther is singularly grand. In the wings of another altarpiece in the city church at Wittenberg, representing the last supper, he has introduced Luther, Melanchthon, and Bugenhagen, performing various religious duties. In mythological subjects he was not less successful, and his nude female figures have sometimes much grace and beauty of form. He also excelled in portraits, and has left accurate likenesses of some of the most notable men of the time. As an engraver he was inferior to Dürer, but his wood cuts are highly esteemed. Christian Schuchardt is the author of *Lucas Cranach des Älteren Leben und Werke* (Leipsic, 1851), and the editor and proprietor of an illustrated publication, with designs of Cranach's work, of which the 2d instalment (*Sechs Blätter mit sieben Nachbildungen von Werken Lucas Cranach d. Ä.*) appeared at Weimar in 1858.—His son, Lucas the younger, who officiated also as a burgomaster of Wittenberg, and who died in 1586, formed his style on that of his father and of Dürer, and attained great excellence as a painter.

CRANBERRY, the small, red, acid fruit of the *vaccinium macrocarpon*, and other shrubs of the same genus, distinguished by slender creeping stems, small evergreen leaves whitened beneath, and erect pedicels terminated by a pale rose-colored nodding flower, with a 4-parted corolla. The cranberry shrub grows best in lowlands, where the decay of organic matter furnishes the different organic acids. It is indigenous on both continents, wild in many parts of North and South America, in England and Ireland, in the marshy grounds of central and northern Europe, and on the wastes of Siberia. The American cranberry is larger than the English, and of richer flavor. The 3 principal varieties recognized in the markets are the cherry, bugle, and bell cranberries. The best of the cherry variety are very dark colored. Cape Cod is noted for its cranberry grounds; its climate and soil are both favorable to their growth, and the product is large and of the finest quality. The estimation in which this fruit is held both in Europe and America has caused many attempts, generally with little success on uplands, to produce it by artificial cultivation. Recently a wild upland cranberry has been discovered on the Neepegon coast of Lake Superior, where it flourishes on the poorest soils. The fruit is of a pale red color, smaller, softer, and sweeter than the lowland varieties, and well suited for jellies and preserves. The lowland berries succeed well on beach sand, or on soil composed of beach sand and peat. On heavy soils the vines

become luxuriant, but do not fruit well. A loamy soil is fitted for a cranberry ground by having beach sand applied to it; lowlands are improved for this purpose by being coated with sand. Taking off the sod and exposing the soil to a winter's frost, ameliorates its condition and rids it of weeds. Stagnant water kills the vines. If they are grown on swampy ground, its surface should be drained. The vines may be flooded in autumn and the water drawn off in the spring, which saves them from danger by frost, but makes them blossom later. If vines are taken up in the autumn to be planted again in spring, they should be protected in a cellar during the winter. A southerly aspect and shelter from cold winds are desirable. The vines should be chosen with great care, some of them being unfruitful; the best may be distinguished by the wiry texture of the wood, and the greenish brown color of the leaves. The poorer plants are more vigorous, brighter, greener, and have a more bushy foliage than the best. The vines should be planted in the spring, or in the autumn if the "patch" can be well flooded in winter. The transferring of the sods which bear the vines is going out of practice. A better method is to use cuttings from 4 to 6 inches long, the middle of which is covered in the soil, and the ends left projecting; or 2 or 3 cuttings may be planted together with a dibble. Vines have been cut into pieces 2 or 3 inches long by a common hay cutter, sown broadcast, and harrowed in. Propagation from seed is not to be depended on, the seed not germinating readily except in favorable localities; the seedlings are easily injured; there is much loss of time; and even in the third year little fruit is borne. The vines should be planted in rows 2 feet apart. The weeds should be kept down for 2 seasons, after which the vines will begin to take full possession of the soil. Cranberry vines are sometimes burned (but not when the ground is very dry) to destroy the worm. Flooding is also a remedy for this. The fruit ripens in the vicinity of New York about the middle of October. The persons who pick the berries are usually paid by the bushel. The vines should be picked clean. When gathered before they are ripe (as is sometimes done to save them from frost), or if the dew be on them, they do not keep well. The cranberry rake may sometimes be used to advantage; it is made of bent sheet iron, whose lower edge is a row of teeth shaped like the letter V; when drawn over the ground the plants escape, but the fruit is gathered. The berries may be rolled over an inclined plane to separate the good from the bad. Leaves, straws, prematurely ripe and diseased fruit, should be removed. Cranberries for Europe are packed in water in small kegs, and sometimes in sealed bottles filled with water. By the American aborigines poultices were prepared from cranberries to extract the venom from wounds made by poisoned arrows.

CRANCH, William, an American jurist, born in Weymouth, Mass., July 17, 1769, died in Washington, Sept. 1, 1855. He was the only son of the Hon. Richard Cranch of Quincy, Mass., who emigrated to the United States from Devonshire, England, in 1746. The father was for many years a judge of the court of common pleas in Massachusetts, and at one time a state senator. He was so well read and learned, though educated as a watchmaker, that the elder Adams said in 1815, in a letter to the Rev. Dr. Morse, that he was "a man who had studied divinity, and Jewish and Christian antiquities, more than any clergyman now existing in New England." From his mother, a woman of rare accomplishments and virtues, William Cranch received the beginning of his education, including instruction in the elements of algebra and Latin. He was graduated at Harvard college in 1787, commenced the study of the law, and was admitted to the bar in July, 1790. After practising for 3 years in the courts of Massachusetts and New Hampshire, he removed in 1794 to the district of Columbia, where he passed the remainder of his life. In 1800 he was appointed one of the commissioners of public buildings, and on Feb. 27, 1801, was nominated to the senate by President Adams, and by that body confirmed, as one of the assistant judges of the U. S. circuit court for the district of Columbia, Gov. Thomas Johnson of Maryland and James Marshall (brother of Chief Justice Marshall) sitting with him as associate judges. In 1805, upon the resignation of Chief Justice Kiety, who had been made chancellor of Maryland, Judge Cranch received the appointment of chief justice of the court from President Jefferson, and in virtue of that office became sole judge of the district court of the United States for the district of Columbia; a court of the same jurisdiction as that of the United States district courts in other parts of the country. These honorable positions Judge Cranch held until Sept. 1, 1855, the day of his death. For 55 years he was judge of a U. S. court, for more than 50 years chief justice; and in all this period of time, notwithstanding the facilities of appeal to the supreme court of the United States, and, in the district of Columbia, upon judgments of a much smaller amount than those rendered in the U. S. circuit and district courts in the states, only 2 of his own decisions were overruled or sent back for amendment by the highest court in the country. In all the courts of the country and to all the members of the bar Judge Cranch is well known as the reporter of the decisions of the U. S. supreme court. In this office he was preceded by Mr. Dallas, and succeeded by Mr. Peters. He also made full and accurate reports of the cases decided in the circuit court of the district of Columbia from 1801 to 1841, which were published in 6 large volumes a few years before his death. In conformity with an act of congress he also prepared a code of laws for the district of Columbia, but this code, like that prepared by Philip Doddridge, M. C. from Virginia, some years later, was neglected by congress. As a judge he was always fearless, independent, wise.

and just. His proximity to the federal authorities brought him more than once into conflict with the executive department, and upon questions involving the rights and integrity of the judicial service. In all such conflicts he proved an able and upright judge. His legal acquirements were extraordinary, and he studied his cases with a patience and research that never grew weary. Among the last services imposed upon him by congress, was the final hearing of patent causes after an appeal from the commissioner of patents. He was alike familiar with the modern lights of jurisprudence and with all the black-letter authorities. Long after he had reached the age of threescore and ten years he still gave to study 12, 14, and even 16 hours a day. He could not only toil like a very Hercules in his profession, but he loved that profession and all its labors with his whole heart. He also had a fondness for art and for music, and with the latter he had a practical acquaintance which he enjoyed through life, especially sacred music, with all the earnestness of youthful enthusiasm. He was eminently a religious man, an example of Christian charity and all the amenities of life. During his long career he possessed the respect of all who knew his abilities and services, and the confidence of all who knew him as a man. His habits of life were singularly simple, his manners modest and reserved, and his character child-like and confiding. His wife, Nancy Greenleaf, of Boston, died 12 years before him. They had 13 children, of whom the sons were liberally educated, while the daughters enjoyed every advantage of instruction which the federal capital could afford, all upon the father's salary of $2,500 and $2,700 a year, out of which they also were able to live respectably and bestow something in charity to the poor.

—Christopher Pearse, son of the preceding, an American artist and poet, born at Alexandria, D. C., March 8, 1813. He was graduated at Columbian college, in Washington, in 1831, studied for 3 years in the divinity school of Harvard university, became a licentiate, but gradually withdrew from the clerical office, and in 1842 determined to devote himself to landscape painting. He resided in New York in the practice of his art from that time till 1847, when he visited Italy for 2 years. He went again to Europe in 1853, and has since then lived in Paris; and his productions have given him a prominent position as an artist. Mr. Cranch was one of the contributors to the "Dial," edited by R. W. Emerson and others, and some of his best poems were published in that periodical. In 1854 a volume of his poems appeared at Philadelphia. His latest publications are two stories, entitled the "Last of the Huggermuggers" (Boston, 1856), and "Kobboltozo" (1857), the latter of which is a sequel to the former. He continues to write occasionally for various American journals and magazines.

CRANE, a wading bird of the order *grallæ*, family *ardeidæ*, and subfamily *gruinæ;* under this subfamily are included the genera *grus*, *scops*, and *balearica*. The genus *grus*, which includes the typical cranes, has the bill longer than the head, straight, sharp-pointed, compressed on the sides, and slightly curved at the tip; the wings are long, the tertials lengthened and pendent; tail short; tarsi very long and slender, covered with transverse scales; toes rather short, the outer united at the base to the middle one, the lateral ones equal; hind toe short and elevated; claws short and strong. The cranes are large birds, frequenting marshes, muddy flats, cultivated and open plains, migrating to warm climates in winter, and returning to the north to breed. They fly usually at night in large flocks, following a leader in 2 diverging lines, at a great elevation, and sometimes uttering loud cries. Their food consists of reptiles, fish, mice, and other small animals, insects, seeds, roots, and grain. The common crane of Europe is *G. cinerea* (Bechst.). The American crane (*G. Americana*, Linn.) is a good example of the genus. It has the bill dusky, and yellow toward the base; the head small, neck very long, body rather slender, tibia bare to a large extent; the bare parts on the top and sides of the head carmine, with small black hairs; feet black; plumage pure white except the primaries and their coverts, which are brownish black. The length to the end of the tail is 54 inches, and to the end of claws 65; extent of wings 92, bill 5½, tarsus about 11 inches. Young birds are of bluish gray color, with the feathers tipped and margined with yellowish brown, and the abdomen grayish blue; in this state the bird was described as *G. Canadensis*. This species, called whooping crane from the loud noise it makes, is by some considered specifically distinct from the true *G. Canadensis* (Linn.), to which the name of sand-hill crane has been given. The cranes are found in the western and southern states from the middle of October until about the middle of April, when they retire to the north. They are very shy, and difficult to approach from the acuteness of their sight and hearing; when wounded, they should be approached with caution, to avoid the blows of their sharp and powerful bills. They roost either on the ground or on high trees, according to circumstances. The nests are made among the high grass, of coarse materials, flat, about 18 inches in diameter, but little elevated above the surface; the eggs are 2 in number, bluish white, and are sat upon by both birds. They become gentle in captivity, feeding on vegetable substances. The genus *scops* embraces the Numidian crane (*S. virgo*, Linn.), ash-colored, with a black neck, and 2 white tufts of elongated slender feathers covering the ear; this is often kept in captivity, and is quite gentle. The genus *balearica*, peculiar to Africa and the islands of the Mediterranean, has the bill shorter than the head, thick and strong; the cheeks are naked, and the base of the bill and the throat beneath are wattled. The crowned crane (*B. pavonina*, Linn.) is a slender, graceful bird, about 4 feet high, ash-colored, with a black

belly, white wings, and fulvous rump; the naked cheeks are bright rose color, and the hind head is crowned with a tuft of yellow feathers or hairs, resembling the flower stems of broom corn, which may be extended at pleasure; it is also often kept in captivity for its beauty and docility; its voice is remarkably shrill. In its wild state it feeds on fish.

CRANE, a machine for raising heavy weights, and moving them short distances. In its simplest form it consists of an upright post with a horizontal beam called a jib, framed in or near its top, and braced by a stick called a stay, which is framed in the post and the jib. It is held upright, with freedom to turn round, by a pin in each end of the post, one working upon a solid support below, and the other in a beam above; or the upper support may be in a collar encircling the post and secured to a stationary object, as a wall or another post. A pulley is set in or suspended from the further extremity of the jib, by which the weight is taken up, the fall of the tackle passing around the drum of a winch attached to the lower end of the post. Such cranes are employed in founderies and upon piers, where large blocks of stone or other heavy materials are shipped or unshipped, and are set upon some barges to be always at hand for moving their heavy freight. Their construction is, however, generally a modification of the simple form described. The horizontal jib has often a narrow rail upon its top, upon which a flanged wheel traverses, supporting the pulley. This admits of the weight being brought nearer to the post, so that it may be placed upon any part of the circular area included in the sweep of the jib. Cranes are often made with the jib set at an inclination of 45° or thereabouts, and stepped at its lower end in a framework of iron, which carries also the winch, and may be turned around the post which it encircles. In these the foot of the post is set strongly in mason work, and no support is required to steady it at top. The jib is kept up by tension bars placed above it and extending horizontally from its extreme end to the top of the post. A convenient crane for laying small stone, employed in constructing the dry dock at Brooklyn, was made with a boom 30 feet long, working upon a horizontal iron bolt attached to the frame of the winch. The working part of the winch, its pinion with a crank at each end of the axle, and the wheel driven by the pinion, with the barrel upon its axis, were set upon the side of the mast opposite to the boom, and the fall passed up to the top 40 feet from the ground, and thence over the end of the boom to the pulleys suspended below it. The mast worked upon a pivot stepped upon a stone foundation, and its upper end was stayed by guys. The boom could be lowered or raised by a pulley passing from its extremity to the top of the mast, the fall coming down and made fast at its foot. In some cranes, made to lift very heavy weights, the foot of the jib, instead of resting upon the crane post, is set against a circular rail let into the masonry, thus relieving the post of a great portion of the strain. Cast iron has been much employed for some years past, instead of timber, for the construction of cranes; and Mr. Fairbairn, of England, has introduced the use of plates of wrought iron, riveted together and arranged in tubular form, on the principle adopted in the building of the Britannia tubular bridge. His crane, designed to raise 12 tons, has been tested with 20, and is supposed capable of bearing 60. It sweeps a circle of 53 feet radius. The under side of the jib is of cellular construction to resist pressure, and there are long plates, and T iron on the upper side to resist tension. The jib being curved like the neck of a crane, allows a large boiler or other article to be raised to the top.—The power employed to work cranes is usually that of men turning the winch. In some situations they are conveniently connected with machinery running by steam or other power, and their movements are controlled by a lever brought to bear with as much friction as may be required upon the barrel of the winch by a rope held in the hand of the man who manages the machine. They have also been made to work by the pressure of a column of water upon a movable piston, a valve in the supply pipe being used to control the movement. Steam, also, has been applied to work a small engine connected directly with the barrel of the winch.—The most powerful of all cranes ever built are those contrived by Mr. Albert Bishop of New York, and generally known as Bishop's boom derrick. Derrick is a name commonly applied to cranes used on shipboard. Several of these have been in use since the year 1853 in New York harbor; the stationary ones are for moving boilers and heavy machinery in or out of steamships. One was built upon a scow, that admits of its being floated about wherever required for raising sunken vessels. On Sept. 27, 1858, the first one of the kind built in England was launched in Bow creek, London, which far exceeds in capacity those made in the United States. It is built upon a huge iron hull of 5,000 tons measurement, 257 feet long, and 90 feet wide. This is stayed by trusses of wrought iron and tie rods, that give it greater strength than that of any other vessel ever put together, not excepting the Great Eastern. The propelling power is furnished by 2 pairs of oscillating engines of 160 horse power each, with Barran's patent cup surface boilers; and 2 other oscillating engines, of 30 nominal horse power, are provided for working 10 sets of crabs, independently of each other. Their combined hoisting power is rated at 1,000 tons clear of the water; and the load can be swung upon an arc the radius of which is 60 feet, and moved in or out upon this radius. The post is a stand like a tripod, except that it has 4 legs. These are of wrought iron, strongly braced with iron, and their cap is 80 feet above the deck. This is a huge iron saucer containing iron balls, upon which the cross or yard called the boom is supported, and

rolls around; this, too, is of wrought iron, 120 feet long and weighing 80 tons. Upon its centre stands a wrought-iron cylinder called the king post, 50 feet high, 7 feet in circumference, and weighing 60 tons. From the top of this 10 tension braces of iron rods pass down on one side to the boom, along which they are arranged like the supporting wires of a suspension bridge, and a smaller number pass to the end of the boom on the other side; from this end powerful rods are let fall to the deck, where they are secured to a circular railway, that admits of their moving as the boom is swung round. Along the suspension arm of the boom are placed 10 heavy pulleys, the falls of which pass down to the crabs or winches in the base of the stand. The tackles of these concentrating below in one resemble the arrangement of the web of the spider, where numerous strands are brought to combine their strength at one point. These tackles connect with the great chains employed in lifting sunken ships. The weight of iron in the hull is 750 tons, and in the derrick itself about 250 tons, making 1,000 tons, independently of the weight of all the machinery. The total cost was £45,000. The machine is intended to go out to sea, and to be employed near Liverpool as well as London, until others are constructed for each place. The paddles for propelling the vessel are very small, arranged upon an endless chain, and are compared to the legs of a caterpillar. In 1857 there were on the English coast 1,141 wrecks reported, and there is no doubt a very large proportion of these vessels could have been raised, if such machines had been available.

CRANE, William M., a commodore in the U. S. navy, born at Elizabethtown, N. J., Feb. 1, 1776, died in Washington, March 18, 1846. He was the son of Gen. William Crane, who served as colonel in the revolutionary army. He entered the navy as midshipman in May, 1799; was made a lieutenant in July, 1803; served before Tripoli under Commodore Edward Preble, and was present at all the attacks made upon the city. He was serving on board the Chesapeake at the time of her action with the Leopard. At the commencement of the war with England he was appointed to the command of the brig Nautilus of 14 guns, in which he was unfortunately captured in July, 1812, by a British squadron, soon after sailing from New York. On his exchange he was ordered to the lakes, where, in command of the Madison and Pike, in the squadron of Com. Chauncey, he served with distinction for the remainder of the war. From 1815 until his death, Com. Crane was very constantly employed in important service. During one cruise of over 4 years in the Mediterranean, he commanded successively the Independence ship of the line, the Erie sloop, and the frigates Constellation and United States. In 1827 he was appointed to command the American squadron in that sea, the Delaware ship of the line bearing his flag. While on this service he acted as joint commissioner with Mr. Offley, U. S. consul at Smyrna, to open negotiations with the Ottoman government, preliminary to a commercial treaty, which was concluded soon afterward. In 1841 he was appointed navy commissioner, and in 1842, when the navy department was reorganized, was made chief of the bureau of ordnance and hydrography, which he administered until near his death.

CRANK, an axle bent twice at right angles, or it may be 4 times, so as to return upon its original line, in which case the axle may be supported on each side the elbow. When it is made to revolve, a rod playing loosely upon the elbow will be carried forward and back; thus an alternating motion is obtained from a rotary; and on the same plan an alternating motion may be converted into a rotary motion. Watt applied it to the steam engine, taking the idea from the crank of the knife-grinder's machine, by which the alternating motion given to the treadle with the foot causes the wheel to rotate. It has continued in one form or another to be indispensable in almost every kind of steam engine.

CRANMER, Thomas, the first Protestant archbishop of Canterbury, born at Aslacton, Nottinghamshire, July 2, 1489, died March 21, 1556. His family is said to have been ancient, though by some authorities his father is called a yeoman. Having acquired the rudiments of knowledge at Aslacton school, he was sent at the age of 14 to Jesus college, Cambridge, where he remained 16 years. He was not only an accomplished scholar, but versed in pursuits that belong especially to active men of the world; and he lost his fellowship through marriage. His wife dying soon, he turned his attention to the church, and in 1523 was made doctor in divinity, appointed theological lecturer of Jesus college, and examiner of candidates for holy orders. While married, he had been common lecturer of Magdalen (then Buckingham) college. When on a visit to Mr. Cressy, at Waltham, 1529, he met the secretary and almoner of Henry VIII., who pressed him to give his opinion on the question of the king's divorce, Henry being anxious to get rid of Catharine of Aragon, in order that he might wed Anne Boleyn. Cranmer said that the opinion of the learned men of Europe should be taken on the question whether, according to the canon law and the Bible, a man could marry his brother's widow; and that the pope could not resist that opinion if it should be pronounced in favor of the king, while if it were against him the king would himself have to submit. This was told to Henry, who was struck by it, and he ordered Cranmer to come to court. The personal interview that followed was very satisfactory to Henry, who required Cranmer to reduce to writing what he had to say in favor of the divorce, made him a royal chaplain, and put him in the household of Anne Boleyn's father. Cranmer completed his work on the divorce, bringing his chief arguments against that papal dispensing power under which Henry had mar-

ried his brother Arthur's widow, to the royal satisfaction; and then was appointed to superintend the execution of the plan he had suggested. He began at Cambridge, where he encountered much opposition. Oxford was more pliant. On the continent he succeeded better, and many learned and pious men gave such judgments as were pleasing to Henry and his agent. He was also appointed to accompany Lord Wiltshire, Anne Boleyn's father, and others, on a mission to Bologna (1530), where the emperor then was, and to the pope. Clement VII. had for several months previously resisted all solicitations to pronounce judgment on the cause, but at length had been induced by the influence of Charles V. to sign a brief forbidding Henry to marry before the publication of his sentence. On the arrival of the ambassadors, the operation of the brief was suspended; the pope received them cordially, conferred an office on Cranmer, and promised to do whatever his conscience would permit in favor of Henry. The emperor took a more decided stand against the demands of the embassy, and was gracious only to Cranmer, who was really the most efficient member of the divorce party. When Lord Wiltshire returned home, Cranmer went to Germany, for the purpose of working on the minds of the Lutheran clergy, and to perform certain diplomatic duties. He was not successful, but the Lutherans converted him. Though yet a Catholic clergyman, nominally, he married the niece of the celebrated Osiander of Nuremberg, an excellent woman. Love had probably much effect on his mind, and tended to change his religious belief. He was made archbishop of Canterbury in 1533, soon after his return to England. Undoubtedly he desired not this promotion, which exposed him to great danger, and the *nolo episcopari* in his case meant something; but Henry was not the sovereign to digest a refusal, and Cranmer, before swearing obedience to the pope, made a private protest substantially declaring he did not consider the oath binding. He immediately proceeded with the divorce, and declared the marriage between Henry and Catharine null and void from the beginning. The queen refused to appear in his court. It is not true that he married Henry and Anne, as he was not even present at the ceremony, and knew not of its occurrence until a fortnight had elapsed; but he delivered the crown and sceptre to Anne at her coronation. When the pope had excommunicated Henry, Cranmer became an active agent in the reformation, and urged forward measures calculated to make the breach complete, his principles and his fears alike dictating that course. Yet he was always opposed to cruelty, and, provided his own safety was assured, would have been content that all others should live and prosper. He tried hard to save More and Fisher. His personal enemies he forgave with a readiness that somewhat lessens admiration, because it suggests that he had small sense of either favors or injuries. When Anne Boleyn was arrested, he was ordered to go to his episcopal palace, and there to remain, an act intended to frighten him into taking some part in the queen's degradation and murder. The king and his instruments knew his timid nature, and that his high office and pure personal character would help gloss over a foul transaction. At first, the primate was disposed to show some spirit, and he wrote a letter to Henry which was favorable to Anne, though not strikingly so; but before the letter was sent, he was summoned to the star chamber, where he had an interview with some of the high officers of the crown, and others, and their communications caused him to add a postscript to the effect that he was persuaded of the queen's guilt. Mr. Froude, who would, to borrow a saying of that age, find Abel guilty of the murder of Cain, in his zeal to show that whatever Henry VIII. did was of necessity right, draws from this postscript the utterly illogical inference that the evidence against Anne placed before Cranmer was conclusive; whereas it is probable the primate was frightened by the persons who had been appointed to work upon his timorous nature. His feelings were ever good, but he had no courage. After the scandalous trial and condemnation of Anne, she was taken to Lambeth, where Cranmer, sitting in judgment, pronounced her marriage null and void from the first (1536). The archbishop had his share in the persecutions that were carried on by Henry, and in some instances took part in sending to death persons who believed what soon afterward he came to believe himself, if he did not believe it at the time he condemned them. When Cromwell suspended the power of all the prelates and ordinaries in the kingdom, in virtue of his power as vicar-general, and because of the general visitation that was to be made, Cranmer set the example of submission, and placed the church at the feet of the king, having previously contended that the king alone had the power of appointing spiritual officers. He seems to have been ready to go as far as Erastus himself in maintaining the authority of the civil power. The suppression of the monasteries was supported by him, but he was desirous that some of the property seized should be used for the purposes of religion and education, instead of being given to mercenary courtiers. He took an active and prominent part in placing the Bible in the hands of the English people in their native tongue. In 1534 he carried through the convocation a resolution that the Bible should be translated, and the holy volume appeared in 1540, Cranmer's portrait being conspicuous in the frontispiece. Through his influence the creed, the Lord's prayer, and the commandments were taught in English. Yet the Protestant doctrines were far from being established in England, and in 1539 the famous "six articles" were adopted, in opposition to Cranmer's advice and exertions. They were Catholic in character, and

one of them bore hard upon Cranmer. He was married, and the 3d declared that it was not permitted to priests to marry and have wives after ordination. On this point Cranmer contended strongly, and Henry, who liked him as well as he was capable of liking any one, bore with his opposition, but would not abandon his purpose. He then submitted, and sent his wife and children to Germany, where they remained until Henry's death. After this, Cranmer was less prominent at court than he had been, and though he continued to have the king's favor, he was once on the eve of being arrested. He supported the project of marrying Henry to Anne of Cleves, received that lady after her arrival in England, and presided in convocation when that body declared the marriage dissolved (1540). He interceded for Cromwell, but ineffectually. It was by him that Henry was informed of the alleged criminality of his 5th queen, Catharine Howard (1541); and as she belonged to, and was in the hands of, the Catholic party, which aimed at the primate's destruction, it is not uncharitable to suppose that he was a willing informer. It shows the estimation in which he was held by the king, that he was selected by him for consoler when he was dying, and that Henry's last earthly act was to wring his hand as evidence that he put his trust in God through the Saviour. By the royal will, Cranmer was appointed a member of the council of regency that was to rule during the minority of Edward VI., who was but 9 years old (1547.) During the "boy king's" life, Cranmer's influence was great, and was directed to the establishment of that ecclesiastical polity which has ever since endured in England, with the brief interval of Mary's reign, and which now, after the lapse of 3 centuries, affords no indications of decay. He was the founder of the church of England, and of most that is peculiar in the nature of that venerable institution. Most of his actions of that time will bear criticism, but not all. Against the prohibition of the canon law he had a prominent part in the legal murder of Lord Seymour of Sudely, at the instigation of that lord's brother, the protector Somerset. In the harsh treatment of the Catholic prelates he was the principal agent. When it was found necessary to overcome Edward's natural repugnance to the burning of "heretics," Cranmer was employed to convince him that such conduct was proper. He sentenced persons to the stake for the very opposite belief to that for which he had taken part in condemning others in the reign of Henry; and when he was reminded of his horrible inconsistency by one of his victims, the effect was to irritate him against her. This was worse than his assisting at Henry's condemnation of Lambert, which is considered one of the worst deeds of that iron age. Cranmer was an adherent of Somerset in the contests that divided Edward's court, and by the protector he was supported in his ecclesiastical reforms. When Edward resolved to leave the crown to Jane Grey, Cranmer was reluctantly induced to sanction the act, which was as absurd as it was illegal. He adhered faithfully to her, and fell with her. He had nothing to hope from Mary, and his last official act was to serve at the funeral of Edward. The next day, Aug. 9, 1553, he was ordered to confine himself to his palace at Lambeth, and to furnish an inventory of his movables. He bore himself meekly, but he denied, in language worthy of Latimer, that he had consented to the performance of the mass in Canterbury cathedral. For this he was summoned before the council, and on the 13th of October was committed to the tower, on the charges of treason and sedition. Having been attainted by parliament, and it being resolved to proceed against him for heresy alone, he was sent down to Oxford with Latimer and Ridley, to go through the form of disputing with Catholics on the contested points of religion. All were condemned, of course, though the Protestants were not so much as heard. To the demand of the commissioners before whom they were then taken, whether they would return to the old faith, they answered in the negative. Cranmer was then cited to appear at Rome within 80 days, and as he could not do so, he was condemned as contumacious. At first he was firm, but the terror caused by that form of death to which he had sentenced others, and by which Ridley and Latimer had suffered so much, overcame him. He faltered, and then recanted, but not until, in a moment of courage, he had written to the queen in behalf of Protestantism. He signed 6 recantations, and so acted as to show he was the victim of abject fear. But all this was of no avail. Mary hated him because of what he had done against her mother and herself, and it must be allowed that her conduct was natural. Gardiner and Bonner hated him because of the personal oppression they had suffered at his hands. Both queen and bishops were resolved upon his degradation, and equally that it should not save his life. He was ordered to prepare for death. He then was guilty of the falsehood of saying that his recantations had been freely made, and he begged for a short delay in order to give further proof of his repentance. This granted, he made his last confession, in which he declared that he had been the greatest of persecutors, and compared himself to the penitent thief; nor was there any abjectness to which terror is capable of driving the coward, of which he was not guilty. He concluded with begging pardon of his oppressors, humiliating himself before the queen. Had Mary and her associates been equal to the enjoyment of refined vengeance, they would have granted him life and immediate liberty; but they determined that he should know he had degraded himself in vain, and so taste a double portion of the bitterness of death. On March 21, 1555, much to his astonishment, he was directed to prepare himself for the stake. A paper consisting of an abstract of his recan-

tations was given him, which he was to read at the stake. He transcribed and signed it, and kept a copy, which he altered, and made a disavowal of all his recantations. After listening to a sermon in the church of St. Mary, he boldly spoke out, and declared himself a Protestant, saying he died in his former faith, believing neither in the papal supremacy nor transubstantiation. He apologized for his recantations, and declared that the hand which had signed them should first burn. He was burned opposite Baliol college, and when the flames were rising around him he thrust his right hand into them, and is said to have held it there until it was consumed, crying aloud: "This hand hath offended—this unworthy right hand." He showed no unmanly weakness in that terrible hour, repeating, with his eyes cast upward, the words: "Lord Jesus, receive my spirit!" and then expired.—The principal authorities for the career of Cranmer are Strype's "Memorials," the "Lives" of him by Todd and Le Bas, the historical works of Burnet, Hallam, Turner, Lingard, Froude, and Macaulay. Mr. Froude appears to doubt if he suggested the plan of proceeding with respect to the divorce question in which his career as a courtier and a statesman is commonly supposed to have originated; and Lord Macaulay has spoken of him as severely as he speaks of Marlborough. The "Life and Times of Thomas Cranmer," published at Boston in 1841, is a valuable American contribution to the history of the founder of the English church.

CRANTARA (Gaelic, *crean tarigh*, the cross of shame), a military signal employed by the Scottish highland chiefs. It was a firebrand or wooden cross, which, after being dipped in the blood of a goat, was sent by a swift-footed herald to the nearest hamlet, where he delivered it without uttering a word, save the name of the place of rendezvous. The fleetest runner of that hamlet was instantly despatched with the signal to the next, whence it was borne to a third, and so on, till every village within the chief's domain had received the summons. The last time the crantara was circulated in Scotland was during the rebellion of 1745.

CRANTOR OF SOLI, an academic philosopher, and the 1st commentator on Plato, flourished at the close of the 3d century B. C. He studied under Xenocrates and Polemo, and was the author of several works, all of which have perished. Most of his writings related to ethical or metaphysical subjects. One of his most celebrated productions was a treatise on "Grief," of which Cicero made liberal use in his "Tusculan Questions," and in the *Consolatio*, composed by him on the death of his daughter.

CRANWORTH, Robert Monsey Rolfe, baron, late lord high chancellor of England, born at Cranworth in Norfolk, Dec. 18, 1790. He was educated at Cambridge university, and in 1816 was called to the bar, where he soon acquired a lucrative practice. In 1834 he was appointed solicitor-general, and again in April, 1835, retaining the office until 1839, when he was made one of the barons of the exchequer. In Dec. 1850, he was appointed vice-chancellor and raised to the peerage as Baron Cranworth. In Dec. 1852, he was appointed lord high chancellor by Lord Aberdeen, and held the great seal until the formation of the Derby ministry in 1858, when he retired from office.

CRANZ, David, a German missionary and historian, born in Pomerania in 1723, died at Gnadenfrei, in Silesia, June 6, 1777. He became in 1747 secretary to Count Zinzendorf, entered a community of Moravians, went in 1761 as missionary to Greenland, and after his return in 1766 was successively pastor at Rixdorf and at Gnadenfrei. He wrote a *Historie von Grönland* (Barby, 1765; 2d edition, with additions, in 1770), and a *Brüder-Historie*, or history of the Moravian Brethren, published at Barby in 1772, and continued by Hegner, 1791–1816.

CRAPE, a delicate transparent fabric, made of raw silk with the gloss removed. Crapes are either crisped or smooth. The crisped which are double require that the silk should be spun harder than for the single, as the degree of twist regulates the crisping. All crapes are woven and dyed with the silk in the raw state. In finishing, they are stiffened with gum water. Crapes of superior quality are manufactured at Lyons in France, and at Yarmouth and Norwich in England. Bologna, however, claims the invention.

CRAPELET. I. Charles, a French printer, born at Bourmont, Nov. 13, 1762, died in Paris, Oct. 19, 1809. He came to Paris at the time when great attention was beginning to be paid to the improvement of typography in finish and elegance. He practised his profession there for 20 years, and his editions are highly esteemed for their correctness. The most remarkable productions of his press are 12 copies, in letters of gold, of the *Oiseaux dorés* of Audibert. II. Georges Adrien, a printer and author, son of the preceding, born in Paris, June 13, 1789, died at Nizza, Dec. 11, 1842. He maintained the reputation of his father, and the works which he published are esteemed for correctness and beauty of execution. Among them there are editions of La Fontaine, of Montesquieu, Voltaire, Rousseau, and Sismondi's *Histoire des Français*. The idea of publishing a collection under the title of *Anciens monuments de l'histoire de la langue Française* originated with him. He wrote an account of the progress of the art of printing in France and Italy in the 16th century, and its influence upon literature (8vo. 1836), and was the author of "Souvenirs of London," and of a history and description of that city, beside several translations from the English.

CRASHAW, Richard, an English poet and divine, born in London, died in Loretto about 1650. The son of an Anglican clergyman, he was educated at the Charterhouse, London, till in 1632 he went to Pembroke hall, Cambridge,

where he was graduated in 1633, and became fellow of Peterhouse in 1637. In 1634 he published anonymously at Cambridge a volume of Latin poems under the title of *Epigrammata Sacra*, in which occurs the celebrated verse on the miracle at Cana:

Nympha pudica Deum vidit et erubuit.
(The modest water saw its God and blushed.)

The English verse (which often has "conscious" instead of "modest") has been attributed also to Milton and Dryden. Crashaw was afterward admitted to holy orders, and lived for several years in St. Mary's church, near his college, occupied with religious offices, and with composing devotional poems. He is spoken of as now "offering, like a primitive saint, more prayers by night than others usually offer in the day." At this period he was noted as an eloquent and powerful preacher. In 1644, for refusing to accept the covenant, the parliamentary army ejected him from his fellowship, and he removed to Paris, where he became a Roman Catholic. Cowley sought him there in 1646, and finding him in great poverty, obtained in his behalf the favor of Henrietta Maria, queen of Charles I. of England, who gave him letters of recommendation to dignitaries of the church in Italy. He went to Rome, and became successively secretary to one of the cardinals, and a canon in the church of Loretto. His English poems, entitled "Steps to the Temple, Sacred Poems, with other Delights of the Muses," were published in London in 1646 (2d edition in 1648). A posthumous volume appeared at Paris in 1652 under the title *Carmen Deo nostro*. Several of his pieces are admirable translations from Latin and Italian. He was an admirer of mystical writings, especially of those of St Theresa, and his poems are remarkable for the beauty, force, and passion with which they treat religious subjects. He has also left some miscellaneous poems of remarkable beauty. One of the finest of Cowley's compositions is a monody on his death. Editions of his collected works appeared in 1670 and 1785. His complete works, edited by W. B. Turnbull, were published in London in 1858.

CRASSUS. I. Lucius Licinius, celebrated as the greatest orator of his age, born in 140 B. C., died in 91. When 21 years old he distinguished himself by the prosecution of C. Carbo. As consul of the year 95, with Quintus Mucius Scævola, he contributed to the enacting of a law expelling all allies, not citizens of Rome, from the city, which rigorous measure was one of the sources of the social war. Sent as proconsul to the province of Gaul, his administration was distinguished for strict justice. While censor in 92, he caused the schools of the Latin rhetoricians to be closed, as pernicious to the morals of the people. Shortly before his death he vehemently defended the laws proposed by the tribune Marcus Livius Drusus against L. M. Philippus, one of the consuls. Crassus was fond of elegance and luxury; his house on the Palatine hill was remarkable for its splendor, and adorned with works of art. In Cicero's *De Oratore* he figures as one of the speakers, and is supposed to express the opinions of the author. II. Marcus Licinius, one of the first triumvirs, killed near Carrhæ in Mesopotamia, 53 B. C. He was the descendant of a family several members of which had attained high honors in the republic, and borne the surname of *Dives* (rich). His father, who was consul and censor, was in the civil war a zealous partisan of Sylla, and died by his own hand after the victorious return of Marius and Cinna in 87. Young Crassus escaped to Spain, whence he went to Africa after the death of Cinna, and from there to Italy (83) to fight against the Marian party. Enriched with the spoils of the defeated and proscribed party, his avaricious and speculative spirit found ample means to augment his wealth to an immense amount by purchases at auction, by farming, mining, and letting out houses and slaves, and thus fully to deserve the family surname. His riches and hospitality gave him influence and favor with the people, which paved his way to civil and military distinctions, though he was possessed of no remarkable talents. In 71 he was prætor, and received the command against the revolted slaves under Spartacus; he rapidly raised 6 legions, and defeated Spartacus in a bloody battle on the river Silarus, in which that terrible enemy of Rome was slain. Crassus received an ovation, being crowned, as conqueror of slaves, with a wreath of laurel instead of myrtle, and was elected, together with Pompey, consul of the following year. Rivalling the influence of his great colleague, he bribed the people of Rome by extraordinary banquets and distributions of corn, but was finally reconciled with his rival, and united with him and Cæsar in forming the first triumvirate (60 B. C.). Cæsar, who received the province of Gaul, a field for vast conquests, lulled by some minor undertakings the attention of his colleagues, who supported him by the influence of their fame and wealth. The compact was renewed, and Crassus was again elected with Pompey consul for the year 55. According to the new terms, Cæsar was to continue his government in Gaul, Pompey received Spain, and Crassus Syria. Lavish preparations betrayed his intention of entering upon a great expedition against the Parthians, which promised to become a source of boundless conquests and riches. In anticipation of these, his joy is said to have been childish; and the opposition of the tribunes, as well as various omens which alarmed the people, could not deter him from his undertaking. He marched through Macedonia and Thrace to Asia, crossed the Euphrates (54 B. C.), ravaged Mesopotamia, but returned to Syria, where he spent the winter, before starting on a new campaign in 53. He recrossed the Euphrates, following the false advice of an Arabian chief, and was attacked by Surena, the general of Orodes, king of the Parthians, near Carrhæ, supposed to be the biblical Haran. The Romans were defeated with immense slaughter. Crassus retreated to the town, but was compelled by a

mutiny of the soldiers to accept the invitation of the enemy to a conference, in which he was killed. The circumstances of this event are variously related. His head was sent to the Parthian king, who is said to have poured into his mouth melted gold, saying: "Now be satiated with what thou covetedst through life."

CRATER (Gr. κρατηρ, a bowl), the opening on the tops or sides of volcanic mountains, through which the lava and ashes are ejected. The crater of Etna, like many of the most ancient volcanoes, does not retain the bowl-like shape to which the name owes its origin; that of Vesuvius, however, preserves its primitive form.

CRATERUS, a general of Alexander the Great, received after the death of that conqueror, in 323 B. C., together with Antipater, the government of Macedonia and Greece. He assisted Antipater in the Lamian war, and also against the Ætolians and Perdiccas, and fell in a battle against Eumenes (321).

CRATES. I. A comic poet of Athens, flourished about 450 B. C., and was contemporary with Cratinus. Eminent as an actor, he often performed the principal parts in the plays of Cratinus. As a comic poet he was the first Athenian who ventured to follow the example of Epicharmus so far as to bring drunken characters on the stage. Aristotle in his "Poetics" bears testimony to the excellence of his works. Little, however, is really known of them. Meineke, who has made a careful analysis of the statements of ancient writers on the subject, gives the titles of 14 which were ascribed to him. Fragments of 8 of these are still extant. II. A Cynic philosopher, born at Thebes, early removed to Athens, where he became the pupil of Diogenes, and afterward one of the most eminent in that school of philosophers. He flourished about 320 B. C. According to Diogenes Laertius, he lived a Cynic of the straitest sort. Fearing that the quiet of philosophical pursuits would be disturbed by the cares of wealth, of which he had an abundance, he is said to have thrown his money into the sea; or, according to another account, to have placed it in the hands of a banker, with the condition that if his sons should have the misfortune to be fools, they should inherit the property, and that otherwise it should be distributed to the poor. "For," said Crates, "if they are philosophers, they will not need it." III. An Athenian philosopher, the pupil and friend of Polemo, and his successor in the chair of the academy, flourished in the first half of the 3d century B. C. He contributed little to the progress of philosophical investigation, and is known mainly as the instructor of Arcesilaus and others. IV. An eminent Greek grammarian, called also by Suidas a Stoic philosopher, founded the celebrated Pergamene school of grammar, and became the great rival of Aristarchus, of the Alexandrian school. From his work on Homer, he is said to have been called Ὁμηρικος. He wrote commentaries on Hesiod, Euripides, and Aristophanes. Only a few fragments of his works are preserved.

CRATINUS. I. A comic poet of Athens, mentioned by Quintilian and Horace as one of the 3 great masters of the old comedy. He was a native of Attica, born about 520 B. C., died about 445 B. C. His private life seems to have been marked by many irregularities and excesses. Suidas calls him the "wine-bibber," as Aristophanes and Horace, indeed, had done before him. He was already far advanced in life before he entered upon his dramatic career. The "Archilochoi," supposed to have been his earliest production, was not exhibited till he was upward of 70 years of age; but he lived to achieve much for his profession, and at the advanced age of 97 died at the height of his fame, having just triumphed over Aristophanes himself. He found the Greek comedy a mere plaything, employed to excite merriment and laughter, and at once converted it into a terrible weapon for the chastisement of public and private vice. Horace particularly commends the public spirit and the impartial justice with which he exercised his censorship over the morals of his age. The uniform testimony of ancient writers places Cratinus in the first rank as a comic poet. His great rival, Aristophanes, was fully aware of his power. In the "Knights" he compares him to a torrent carrying every thing before it, and tells his fellow citizens that Cratinus was entitled to a high place in their regard, to a choice seat at the Dionysia, and to a public support in the Prytaneum. According to the best authorities he wrote but 21 dramas, 9 of which were successful in the Dionysiac contest. Not a single one of his dramas is now extant; only a few fragments remain to attest the excellence of his admired productions. II. A poet of the middle comedy, contemporary with Plato the philosopher, sometimes confounded with his elder and more celebrated namesake just mentioned. Eight plays are ascribed to him.

CRATIPPUS. I. A Greek historian contemporary with Thucydides. He continued the work of the great historian, and brought it down, according to Plutarch, to the time of Conon. The well-known words of Dionysius: "He wrote what Thucydides left unwritten," evidently show that Cratippus not only continued the history of Thucydides, but also supplied whatever omissions he thought he found in it. II. A celebrated Peripatetic philosopher. He was born at Mytilene, on the island of Lesbos, where he established a school of philosophy; but afterward having repaired to Athens, he became the instructor of Brutus and of M. Cicero, the son of the great Roman orator. Cicero himself pronounces high encomiums upon him in the *De Officiis*, declaring him the ablest of the Peripatetics whom he had ever known, and equal at least to the best of the school. Though highly esteemed by the ancients, he never produced, so far as we can learn, any important philosophical work. Cicero tells us that he believed in inspiration and in dreams, but rejected all other kinds of divination. He is supposed to have been the au-

thor of the work on dreams cited by Tertullian in his work *De Animâ*.

CRAVEN, a S. E. co. of N. C.; area estimated at 1,000 sq. m.; pop. in 1850, 14,709, of whom 5,951 were slaves. It borders on Pamlico sound, and is intersected by the Neuse river, navigable throughout the county. The surface is low, swampy, and in great part covered with pine forests, the turpentine and lumber procured from which are among the chief articles of export. The agricultural products in 1850 were 174,366 bushels of corn, and 92,788 of sweet potatoes. This county was formed in 1729, and was at first a precinct of Albemarle county. It was named in honor of the earl of Craven, one of the lords proprietors of the soil. Capital, Newbern.

CRAVEN, Charles, secretary to the proprietors of South Carolina, and governor of the colony from 1712 to 1716. He was the hero of the Yamassee war in 1715. That tribe of Indians having united the savages from Cape Fear to the St. Mary's, for the destruction of the colony at Ashley river, Gov. Craven immediately proclaimed martial law, laid an embargo on all ships to prevent the departure of men or provisions, and at the head of 1,200 men, a part of whom were faithful blacks, met the Indians in a series of desperate encounters, and finally drove them beyond the Savannah.

CRAVEN, Elizabeth. See Anspach.

CRAWFISH, a macrourous or long-tailed crustacean, of the order *decapoda*, and genus *astacus;* this genus is fluviatile, while the lobster, belonging to the same family but to the genus *homarus*, is marine. The body is elongated and somewhat compressed, and the abdomen large; it is covered by a corneous envelope or carapace, terminating anteriorly in a wide, short, flattened beak, which covers the base of the eye pedicles. There are 2 pairs of antennæ: the 1st pair of moderate length, with 2 terminal filaments; the external, or 2d pair, being much longer, with a large lamellar appendage on the upper surface of its pedicle. The mouth apparatus consists of 2 mandibles, 2 pairs of jaws, and 3 pairs of jaw feet, moving horizontally. The legs are 5 pairs, the 1st the largest, and ending in a 2-bladed nipper or claw, by which objects are seized in the pursuit of prey, and in self-defence; the 2d and 3d pairs are also didactylous, but smaller, and the 4th and 5th are single-pointed. The 5th thoracic ring is simply articulated to the preceding ones. The abdomen is of about the same width for its whole length, presenting on each side a series of laminæ prolonged so as to encase more or less the base of the false or swimming feet; the last segment is very wide, forming, with the 2 laminæ from the 6th ring on each side, a large caudal fin, nearly even when expanded, the external plate having a transverse joint at its posterior 3d, the middle plate being round at the end, with a tooth on each side posteriorly. The sternum forms no plastron, as in the crab; the pincers of the 1st pair of feet are not so large in proportion, and are without the angle seen in the lobster. The swimming feet are 5 pairs, long and narrow; in the females all end in wide leaf-like plates, with ciliated edges; in the males the 1st pair are styliform. The gills are very numerous, disposed in tufts, and arranged in rows at the base of the walking feet, and within the carapace; they are separated by cartilaginous plates, whose motions serve to introduce and expel the water, which issues at an aperture on each side of the mouth. According to Milne-Edwards, the duodenum has a great number of internal villosities, no valve between it and the rectum, the latter smooth, and no cæcal appendage, the opposite of which is the case in the lobster. The eyes have compound facets, and are supported on movable pedicles arising from the 1st segment of the head, and may be in a measure withdrawn into cavities answering the purposes of orbits. The organs of generation are distinct in the two sexes; the number of eggs is very great, and they are carried for a time attached to the false feet, under the tail. Like other decapods, the crawfish changes its shell annually, coming out with a new and tender one, which becomes hard in a few days; at each moult the animal increases considerably in size, and the change appears to be continued through life; the shell, which is an epidermic covering, consists of chitine united to calcareous salts. This genus also has the power of reproducing claws and feet which have been lost by accident. Their food is almost exclusively animal, both living and dead matter being eagerly devoured; fish, mollusks, aquatic larvæ, terrestrial insects, and sometimes their own species, form the principal sources of their subsistence. Their enemies are also many; mammals frequenting the water, aquatic birds, voracious fishes, and even insect larvæ, destroy great numbers of them, especially in their young state. They are considered luxuries on the table, and those who will not eat them catch a great many for bait for white perch and other fishes; they are caught in nets, and may be easily taken from holes and under stones. In some of the Russian rivers they attain a large size, and are caught for the sake of the calcareous masses found in their stomachs before the period of moulting; these concretions, the famous "crabs' eyes" and *yeux d'écrevisses* of the old pharmacopœias, consist of carbonate and phosphate of lime, and are no better than prepared chalk for the correction of stomachal acidity, for which they were formerly much employed. They delight in clear and running streams, but are common in lakes and ponds; they conceal themselves by day, and feed by night. The color is generally a light yellowish brown. The European crawfish (*A. fluviatilis*, Fabr.) has the large claws studded with granulations, and the beak with a tooth on the side near its internal third. Among the American species are the *A. affinis* (Say), and *A. Bartonii*

(Bose.), found in the southern and western rivers; in these the claws and the carapace are less granular. Other species are described in South America and Australia by Milne-Edwards. Crawfish swim rapidly by means of the tail, whose strokes propel them backward; they crawl well on the bottom, and are sometimes seen at a considerable distance from streams, using holes filled with water, and occasional pools, as places of retreat. From their propensity to eat carrion, Audubon calls them "little aquatic vultures." They are fond of burrowing in the mud, and from this habit are often great pests, undermining levees and embankments, frequently to the serious loss of the miller and the planter; it is stated that on account of the depredations of these animals, the owners of the great dam in the Little Genesee river have been once compelled to rebuild it. In the Mammoth cave of Kentucky some of the crawfish are blind; they have the eye pedicles, but no facets, only simple integuments covered with hairs; very probably, as in the case of the blind fish of the same cave (*amblyopsis spelæus*), internal rudiments of a visual organ would be found, especially as it is said that some of these crustacea have well developed eyes, as also do the crickets which live in the cave; the non-development of the external eye may be owing to the absence of the stimulus of light through several generations. There is no evidence that the species within and without the cave are different, and it is altogether probable that the progeny of the blind crawfish would have eyes, if raised under the ordinary influences of sunlight. The popular name of the crawfish is "fresh-water lobster."

CRAWFORD, the name of counties in several of the United States. I. A N. W. co. of Penn., bordering on Ohio, intersected by a number of creeks; area, about 975 sq. m.; pop. in 1850, 37,849. It has an undulating surface, and a soil of good quality, but better adapted to grazing than to tillage. Iron ore and lime marl are found in considerable quantities. Lumber is abundant, and forms one of the chief articles of export. Grain, potatoes, hay, and dairy produce, are the other staples. In 1850 the harvest amounted to 387,556 bushels of Indian corn, 142,414 of wheat, 418,751 of oats, and 165,662 of potatoes. There were 1,267,436 lbs. of butter made. The public schools numbered 9,906 pupils; there were 63 churches, 5 newspaper offices, 140 saw mills, 15 flour and grist mills, 3 woollen factories, 2 iron founderies, 16 tanneries, and various other mills, factories, &c. The county was organized in 1800, and named in honor of Col. William Crawford, who was killed by the Indians at Sandusky, Ohio, in 1782. Capital, Meadville. II. A W. co. of Ark.; area, 585 sq. m.; pop. in 1854, 4,658, of whom 530 were slaves. It borders on the Indian territory, and is bounded on the S. by Arkansas river, here navigable by steamboats. The surface is mountainous, and some of the highest summits in the state are in this county. Boston mountain is estimated to have an elevation of 2,000 feet. Stone coal and other minerals are found in several parts. The productions in 1854 were 360,669 bushels of Indian corn, 20,025 of wheat, 69,600 of oats, and 329 bales of cotton. In 1850 there were 6 churches, 2 newspaper offices, and 405 pupils attending public and other schools. Capital, Van Buren. III. A central co. of Ga.; area, 289 sq. m.; pop. in 1852, 8,912, of whom 4,803 were slaves. It is bounded S. W. by Flint river, and drained by several creeks. The land is uneven, and of various qualities. In the north it is moderately fertile, and in the south sterile. The arable land produces cotton, grain, and sweet potatoes; the rest of the surface is chiefly covered with pine forests. In 1850 the county yielded 7,477 bales of cotton, 339,426 bushels of Indian corn, 35,284 of oats, and 93,100 of sweet potatoes. There were 20 churches, and 367 pupils attending public schoools. Named in honor of William H. Crawford, U. S. senator from Georgia. Capital, Knoxville. Value of real estate in 1856, $1,172,600. IV. A N. co. of Ohio; area, 412 sq. m.; pop. in 1850, 18,177. The surface is level, but elevated, and the soil of moderate fertility. The southern part is occupied by pastures, and the principal production of the northern is wheat. In 1850 the county yielded 275,653 bushels of Indian corn, 133,153 of wheat, 16,000 tons of hay, and 108,874 lbs. of wool. It contained 39 churches, and the public schools numbered 4,740 pupils. Capital, Bucyrus. V. A S. co. of Ind., bordering on Ky., bounded S. by the Ohio river, and drained by Blue river; area, 280 sq. m.; pop. in 1850, 6,524. The valleys of the streams are productive, but nearly all the rest of the land is rugged and sterile. Coal, iron, and limestone are the most valuable minerals. Lumber, flour, pork, and beef are exported in considerable quantities. The productions in 1850 were 183,930 bushels of Indian corn, 2,009 of wheat, 37,397 of oats, and 918 tons of hay. There were 11 churches, and 1,418 pupils attending public schools. Capital, Leavenworth. VI. An E. co. of Ill.; area, 420 sq. m.; pop. in 1855, 10,152. It is separated from Indiana on the E. by the Wabash river, and drained by Embarras river and its N. fork, the former passing through the S. W. part, and the latter flowing along the W. boundary. The surface is occupied in great part by fertile prairies. In 1850 the productions were 453,955 bushels of Indian corn, 16,943 of wheat, 5,001 of oats, and 1,411 tons of hay. There were 7 churches, and 620 pupils attending public schools. Named in honor of William H. Crawford, U. S. senator from Georgia. Capital, Palestine. VII. A S. E. co. of Mo.; area, 1,380 sq. m.; pop. in 1856, 7,672, of whom 237 were slaves. It is intersected by Maramec river, and drained by 2 of its branches. The surface is much diversified, and in many parts hilly. It is occupied by tolerably fertile prai-

ries and tracts of excellent timber. The valleys and river bottoms are generally very fertile, but the county is less remarkable for its agricultural productions than for its great mineral wealth. The hills contain very rich mines of copper and iron, the latter being extensively worked. Lead is also found in various localities, and stone is obtained in the vicinity of the iron district. The productions in 1850 were 297,133 bushels of Indian corn, 26,482 of wheat, 48,440 of oats, and 597 tons of hay. There were 7 churches, and 280 pupils attending public schools. Capital, Steelville. VIII. A S. W. co. of Wis., separated from Iowa by the Mississippi river, bounded S. E. by the Wisconsin; area, 612 sq. m.; pop. in 1855, 3,323. The surface is hilly, and occupied partly by prairies. The productions in 1850 were 9,655 bushels of Indian corn, 9,522 of wheat, 16,644 of oats, and 8,688 of potatoes. There were 4 grist mills, 9 saw mills, 1 newspaper office, 1 church, and 226 pupils attending public schools. Organized in 1818. Capital, Prairie du Chien. IX. A N. co. of the S. peninsula of Mich., recently erected, and not included in the census of 1850. It is drained by the sources of the Au Sable river. X. A newly formed and thinly settled co. in the W. part of Iowa, intersected by Boyer and Soldier rivers; area, about 600 sq. m., very little of which is under cultivation; pop. in 1856, 235. The productions that year were 878 bushels of wheat, 470 of oats, 11,135 of Indian corn, 1,080 of potatoes, 3,867 lbs. of butter, and 310 of wool.

CRAWFORD, George W., an American statesman and lawyer, born in Columbia co., Ga., Dec. 22, 1798. He was graduated at Princeton college, in New Jersey, in 1820, and on his return to Georgia became a law student in the office of the Hon. Richard Henry Wilde in Augusta, and was admitted to practice in 1822. In 1827 he was elected attorney-general, which office he retained until 1831. In 1837 he was elected a representative in the legislature from Richmond co., and, with the exception of one year, he continued to represent that county until 1842. In 1843 he was elected a representative to congress, but the same year was nominated by the whig convention as their candidate for governor, and elected by a large majority. His administration gave great satisfaction, and he was reëlected in 1845. In 1849 Mr. Crawford was appointed secretary of war in President Taylor's cabinet, which office he held until the death of the president, when he resigned. He has since lived in retirement at his home in Richmond co.

CRAWFORD, Nathaniel Macon, D.D., an American divine, born near Lexington, Oglethorpe co., Ga., March 22, 1811, was graduated at Franklin college (university of Georgia), Aug. 5, 1829. He studied law with his father, the Hon. William H. Crawford, and was admitted to the bar, but never practised. In 1837 he was elected professor of mathematics in Oglethorpe university, Ga., which office he held until the close of 1841. In 1843 he was licensed to preach, and was ordained in the Baptist ministry in 1844. He was pastor of the Baptist church in Washington, Ga., during the year 1845, and of the Baptist church in Charleston, S. C., in 1846. From 1847 to 1854 he filled the chair of Biblical literature in Mercer university at Penfield, Ga. In December, 1854, he was elected to the presidency of Mercer university, and held the office during the years 1855 and 1856, when he resigned. He filled the chair of mental and moral philosophy in the university of Mississippi during the spring session of 1857. In September of that year he resigned this position, and accepted a professorship in the western Baptist theological seminary at Georgetown, Ky., where he remained until July, 1858. In the mean time, having been reëlected to the presidency of Mercer university, and strongly solicited to return to that institution, he did so, and is now (1859) its presiding officer. In 1857 he was elected president of the Bible revision association. Dr. Crawford has written many articles for periodicals, and several small works on some of the tenets of his church. In 1858 he published a volume of 442 pages entitled "Christian Paradoxes," which has been favorably received by the denomination and the press generally. He is considered one of the first pulpit orators of the Baptist church in the South.

CRAWFORD, Quintin, an English translator and author, born at Kilwinning, Sept. 22, 1743, died in Paris, Nov. 23, 1814. He went in early life to the East Indies, where he served in the war against Spain. After the peace he became president of the company of the Indies at Manila, and in a short time gained a considerable fortune. Returning to Europe in 1780, he travelled in Italy, Germany, and Holland, and finally established himself at Paris, where he formed valuable collections of books and paintings. Obliged to leave France at the revolution, he resided successively at Brussels, Frankfort, and Vienna, but returned as soon as he was able to Paris, to the task of restoring the collections which had been dispersed and sold in his absence. After the rupture of the peace of Amiens, he was allowed to remain at Paris, through the protection of Talleyrand and the empress Josephine. He was the author of a "History of the Bastile, with a Disquisition upon the Prisoner of the Iron Mask," "Essays on French Literature," "Historical Essay on Swift, and his Influence on the English Government," "Sketches relating to the History, Learning, Religion, and Manners of the Hindoos," and other works, some of which are published in English and some in French.

CRAWFORD, Thomas, an American sculptor, born in New York, March 22, 1814, died in London, Oct. 10, 1857. In early childhood he manifested an extraordinary fondness for art, and from the time when he could guide a pencil correctly until the age of 14 his leisure hours, and many of those which should have been em-

ployed in study, were devoted to drawing and sketching, or to explorations of print shops and picture auctions. His father placed him at a drawing school, and finding him averse to a mercantile or professional life, allowed him to enter the establishment of a wood carver. In this occupation his talent developed rapidly, and at the age of 19 he entered the studio of Messrs. Frazee and Launitz, monumental sculptors in New York. At the same time he attended the schools of the national academy of design. His ambition, however, prompted him to enter a higher walk in his art, and at the expiration of 2 years, during which he executed several monumental designs, and worked upon portrait busts of Chief Justice Marshall and others, he adopted the advice of his friend Launitz, and departed for Italy. He arrived in Rome in the summer of 1835 with a slender purse, but with what to an enthusiastic art student was of more value than money, a letter of introduction to Thorwaldsen, with which he had been furnished by Launitz. The Danish sculptor received him kindly, and invited him to work in his studio, an offer which Crawford accepted forthwith. For several years he labored with an earnestness which excited in his friends mingled feelings of admiration and anxiety. He indulged in no relaxations, and seemed indifferent as to his health or physical wants, but was wholly absorbed in the study of his art. Such devotion could not fail to attract attention, and the young sculptor began to be intrusted with commissions for portrait busts and copies in marble. The sums received for these barely sufficed for his support and the purchase of the necessary materials; but he was glad to work for any remuneration, feeling that he was in no position to refuse, and that excellence could only be attained by incessant labor. As an illustration of his enthusiasm and physical energy, it is stated that during 10 weeks in 1837 he modelled 17 busts to be put in marble, and copied in marble the figure of Demosthenes in the Vatican. In 1839, having previously executed a few original pieces, he designed his "Orpheus," the work which first brought him into notice in America, and which elicited the warm commendation of Gibson and Thorwaldsen, the latter of whom, it is said, called it the most classic statue in the studios of Rome. Mr. Charles Sumner, who saw it in Rome in the latter part of that year, was so struck with its merits, that on his return to Boston he procured, by subscription, the means of sending Crawford an order for a copy in marble. Its reception in America, where it was exhibited with others of Crawford's works, formed an era in the life of the artist, from which dates the commencement of the reputation he subsequently enjoyed. The statue is now in the possession of the Boston Athenæum. Crawford was now enabled to give more attention to ideal composition, and the numerous designs in mythology and sacred history which he undertook indicated a steady gain in executive skill and confidence. To this period may be referred his more purely classic subjects and his scriptural bass-reliefs, remarkable for the spirit and propriety of their treatment. His industry seemed to increase with the favorable turn in his fortunes. He fitted up large studios in the piazza Barberini, which soon became a favorite resort of strangers from the number of striking original works always to be seen there. In 1844 he visited America, and was married to Miss Louisa Ward, daughter of the late Samuel Ward, of New York. During the next summer he modelled a remarkable bust of Josiah Quincy, sen., for the library of Harvard university, and returned to Europe with numerous commissions for new works. In 1849 he made a 2d visit to the United States, and within a few days after reading in a Richmond newspaper the proposals for the monument to be erected to Washington by the state of Virginia, he prepared and despatched his model, which was unanimously adopted as the best offered. From the period of his return to Rome in 1850 until he was incapacitated for work, he was chiefly engaged on that series of grand historical and allegorical pieces which attested the finest development of his artistic powers. One of the most remarkable of these was the bronze statue of Beethoven, which he was commissioned by Mr. Charles C. Perkins, of Boston, to execute for the Boston music hall. The completion of this work at the foundery in Munich was celebrated by a musical festival, at which the royal family of Bavaria and an immense concourse of people were present. It was deposited in its destined place with no less ceremony. The artist declined to receive any remuneration for his personal labor in this work. The colossal equestrian statue of Washington, 25 feet in height, was subsequently cast in Munich under the artist's personal superintendence, and arrived in Virginia in the beginning of 1858. The people of Richmond testified their enthusiasm by dragging it to Capitol hill, where it now stands. Its pedestal rests upon a star-shaped elevation with 6 points, on which are to be placed statues of Patrick Henry, Jefferson, Lee, and other illustrious Virginians. None of the latter were completed at the artist's death, but will be finished from his designs. The admiration which these works excited in Europe procured his admission to the royal academies of Munich and St. Petersburg, and the academy of St. Mark in Venice. Crawford had meanwhile received an important commission from congress to furnish marble and bronze statuary for the new capitol at Washington, and among the most remarkable of his designs were those which he prepared for the pediment and the bronze doors. In the former the figure of liberty, who is supported on either side by allegorical representations of the arts, commerce, civilization, &c., is particularly fine. In the latter are representations of law and justice. The grandest work of this series, however, and perhaps of all which he has designed, is the colossal statue of the genius of America, which is destined for the pinnacle of the capitol dome.

It is a majestic and graceful female figure draped to the feet, and wearing an expression of conscious power and magnanimity. This work, the model of which received the sculptor's last touches, is yet to be cast in bronze. As an illustration of the versatility of Crawford, it may be mentioned that while engaged on these works he executed his touching group of the "Babes in the Wood," and the "Hebe and Ganymede," beside various portrait busts, including one of James Otis for the chapel in the Mt. Auburn cemetery, near Boston. In 1856 he revisited America, leaving his family there, and returned alone to Rome. A cancerous tumor on the brain soon after manifested itself, and he was obliged to renounce the practice of his art. He was successively removed to Paris and London for the benefit of medical treatment, and died after an intensely painful illness. The industry of Crawford finds few parallels among ancient or modern sculptors. During his artistic career he finished upward of 60 works, many of them colossal, and left about 50 sketches in plaster and designs of various kinds, most of which will be finished by his assistants. His chief mythological subjects are the "Genius of Mirth," the "Muse," "Autumn," "Cupid," "Flora," "Io," the "Peri," "Apollo," "Homer," "Diana," "Vesta," "Sappho," the "Archer," "Paris presenting the Apple to Venus," "Mercury and Psyche," "Jupiter and Psyche," "Psyche Found," "Nymph and Satyr," a series of 4 bass-reliefs, "Boy and Goat," &c. His Scriptural compositions included "Adam and Eve," "David and Goliath," "David before Saul," the "Shepherds and Wise Men before Christ," a group of 24 figures; "Christ disputing with the Doctors," 12 figures; "Christ ascending from the Tomb," and "Christ raising Jairus's Daughter;" the "Daughter of Herodias," "Repose in Egypt," "Eve Tempted," "Eve with Cain and Abel," "Lead us into Life Everlasting," a single figure of Christ, "Christ blessing little Children," and "Christ at the Well of Samaria." Among his miscellaneous works, in addition to those mentioned, are the group of the "Dancers," 2 life-size statues of children, which have had much popularity, statues of Channing, Washington Allston, Henry Clay, and busts of Commodore Hull, Charles Sumner, Kenyon the English poet, Mrs. Crawford, the latter a masterpiece of finish, and many others.

CRAWFORD, William Harris, an American statesman, born Feb. 24, 1772, in that part of Amherst co., Va., afterward erected into Nelson co., died in Elbert co., Ga., while on his way to attend the court of which he was judge, Sept. 15, 1834. His father, Joel Crawford, was of Scotch descent, and a frontier farmer in moderate circumstances. Following the tide of emigration then setting southward along the Blue Ridge, he removed in 1779 to Edgefield district, S. C., and settled on Stevens's creek, which enters the Savannah some 30 miles above Augusta. He was a whig in his political principles, and when in 1780 the British overran the states of Georgia and South Carolina, he was taken prisoner, and thrown into Camden gaol, from which imprisonment he was released on the security of some of his loyalist neighbors. In 1783, the revolutionary war being concluded, he removed across the Savannah river into Georgia, and settled on one of its tributaries, Kiokee creek, in the present county of Columbia. The elder Crawford died a few years after, leaving his family in reduced circumstances. The young Crawford had early displayed an aptitude for learning, and by attendance at such schools as the neighborhood afforded, had qualified himself to act as teacher. Upon this occupation he entered at the early age of 16, and followed it at intervals for several years, thus assisting his mother in the support of the family. Dr. Waddell having established his classical academy in Columbia co.—the same at which John C. Calhoun and William Lowndes were not long after pupils—young Crawford resolved to improve the opportunity thus afforded. He entered this academy in 1794, then 22 years old, and remained there 2 years, the latter portion of the time acting as usher. He then became assistant teacher and afterward principal of an academy in Augusta, and having pursued in the mean time the study of the law, was in 1798 admitted to the bar. The following spring he removed to Lexington, Oglethorpe co., and commenced practice. Soon after his admission to the bar he assisted in compiling the first digest of the laws of Georgia. Both his physical and mental endowments were well calculated to insure him success as a lawyer. He was of a very strong constitution, was 6 feet 3 in height, was every way finely proportioned, and, though not graceful in his manners, of easy and agreeable address. He was quick in his perceptions, rapid in combination, and clear and distinct in his opinions, which he maintained with unshaken firmness. He did not go much into detail or incidents, but rested on a few strong points. He indulged in no rhetorical flourishes, and his speeches, always to the purpose, seldom exceeded half an hour in length. In 1802, the then leader of the bar on that circuit having been elected to congress, Mr. Crawford succeeded to his place. The next year he was himself elected to the state legislature, of which he continued a member for 4 years. In 1804 he was married to Susannah Girardin of Augusta, after a 7 years' engagement, which he now first felt himself in a pecuniary position to fulfil. Upon his marriage, which proved a very happy one, he settled on a small estate near Lexington called Woodlawn, where, except when engaged in the public service, he continued to reside for the remainder of his life. By this marriage he became the father of 5 sons and 3 daughters. The only measure of general interest in which he appears to have participated as a member of the state legislature, was a resolution introduced by him and adopted by both branches, urging Jefferson to stand for the presidency a third time. In the

local affairs of the state he took an active interest, and gave such evidences of his ability, that in 1807, on the resignation of Abraham Baldwin as United States senator from Georgia, Mr. Crawford was chosen to fill his place. But he did not reach this elevation without going through what may be considered as at that time almost the ordinary routine of public life in Georgia. He had been engaged in two duels. In the first, which grew rather out of professional than political differences, he killed his opponent, a Mr. Van Allen, a lawyer, lately from New York, and a cousin of Martin Van Buren. His second duel, in which he was himself wounded in the wrist, was fought with Gen. John Clark, who remained for 20 years his bitter political opponent, and the head of a political party warmly opposed to him. Mr. Crawford reached Washington at a very important crisis. The restrictions upon commerce, growing out of Napoleon's decrees and the British orders in council, had thrown the country into a great excitement, which was soon still further increased by the embargo policy recommended by President Jefferson, and adopted by congress. Mr. Crawford had been elected to the senate as a supporter of the administration; but though the embargo was warmly urged as an administration measure, he showed his independence by voting against it. It was impossible, however, if he wished to maintain his political associations, to persevere in this opposition, and at the next session of congress he both spoke and voted against its repeal. The calm and sound judgment of Mr. Crawford, and the moderation of his political views, recommended him to the esteem and confidence of Mr. Gallatin, of whose policy as secretary of the treasury under President Madison he became the exponent in the senate. It was in this character that, in 1811, having then been reëlected to the senate, he sustained with much ability the proposal of Mr. Gallatin for renewing, upon certain conditions, and under certain limitations, the charter of the first bank of the United States. Upon this question the contest was very severe. In addition to those old democratic champions, Smith of Maryland, Leib of Pennsylvania, and Giles of Virginia, the opposition in the senate was led on by the impetuous young Henry Clay, at that time a vehement advocate of the doctrine of the unconstitutionality of a United States bank. After a warm debate the enacting clause of the bill was struck out by the casting vote of Vice-President Clinton, a similar bill in the house being indefinitely postponed by one majority. That session was exceedingly stormy. Toward the close of it a collision took place between John Randolph and Eppes, the son-in-law of Jefferson, both members of the house, which drew out a challenge from the latter. Mr. Crawford, probably from his experience as a duelist, was invited to act as one of the seconds, in which capacity he successfully exerted himself to bring about an explanation without any fighting. When, in March, 1812, Vice-President Clinton was disabled, by the sickness of which he soon after died, from acting as president of the senate, Mr. Crawford was chosen president *pro tem.;* an appointment the more important as after Clinton's death, in case the office of president became also vacant, Mr. Crawford as president of the senate would have succeeded to it. In common with Madison, Gallatin, and other older members of his party, Mr. Crawford was opposed to the policy of war with Great Britain, and in that point of view he was more consistent than some others in warmly opposing any augmentation of the navy. But Madison and Gallatin having yielded to the demands of the younger and more ardent section of the party, Mr. Crawford went with them and voted for the war. In 1813, having just refused the secretaryship of war, Mr. Crawford was appointed minister to France as successor to Joel Barlow. The political confusion of that country, incident upon the downfall of Napoleon, was not very favorable to diplomatic discussions, but he had the opportunity of witnessing some of the most remarkable occurrences of modern history. He also took a warm interest in the negotiations at Ghent, and was decidedly in favor of peace if it could be obtained, without any mention of the impressment question, and that too even without waiting for definite instructions to that effect from Washington. He first received the news of peace at the house of Madame de Staël, where it was communicated to him by the duke of Wellington, with whom he had formed a friendly acquaintance. During his residence in France he acquired the friendship of Lafayette, who appointed him agent for his American lands, and with whom after his return home he carried on a confidential correspondence. In 1815 he asked a recall, and the senate having refused to confirm Gen. Dearborn, whom after the peace Madison had nominated as secretary of war, Mr. Crawford, while still on his voyage home, was appointed to fill his place. The next year, on the retirement of Alexander J. Dallas, he was appointed secretary of the treasury. There were those who desired to support him as a candidate for the presidency instead of Monroe; indeed, he received a large vote in the congressional caucus; but upon Monroe's accession he continued to hold the secretaryship of the treasury, having J. Q. Adams and J. C. Calhoun as his colleagues in the cabinet. The course of events, and especially the experience of the late war, had led a portion of the democratic party to alter their views very essentially as to the powers and duties of the federal government. Abandoning that strict limitation of federal authority, power, and patronage, of which Jefferson had been the champion, many among them had begun to favor a liberal interpretation of the powers of the government, and a generous expenditure of money, especially in facilitating trade and intercourse between the states by means of internal improvements. John C. Calhoun was at this time an active champion

of these new views. They were opposed by Crawford, both in his character of a statesman and as the head of the treasury, at that time limited in its resources, and driven to loans even in time of peace. He was for adhering to the old Jeffersonian policy, and was denounced in consequence in Calhoun's newspaper organ at Washington as a "radical." Thus sprang up a warm political and even personal hostility between these two able men, entered into also by their respective states, between which a strong feeling of jealousy, and even antipathy, transmitted from colonial times, was not yet entirely extinct. This feeling of hostility was aggravated upon the coming up of the question of a successor to Mr. Monroe. Mr. Crawford, ever since the withdrawal of his claims at the former election in favor of Monroe, had been considered as in some sense the destined successor. He was nominated as such by a congressional caucus, held Feb. 14, 1824. That caucus, however, was but thinly attended, and failed to command general respect. All the other candidates, Calhoun, Jackson, Adams, and Clay, joined against him; and among other violent assaults upon him, was one in the house of representatives itself, introduced just at the end of the session, based on certain charges made by Ninian Edwards, late a senator from Illinois, and just appointed minister to Mexico, to which country he was then on his way. Instead of allowing these charges (which involved official misconduct as secretary of the treasury, and had already been brought forward in a Washington newspaper) to lie over till after the presidential election, which seemed to be the object of those who had introduced them, Mr. Crawford and his friends demanded an investigation at once. This was granted, and a committee was appointed, of which Daniel Webster, Edward Livingston, and John Randolph were members. Mr. Crawford, though sick in bed at the time, dictated a conclusive reply, and the affair ended in a unanimous report of the committee declaring the total futility and falsity of the charges, and in the resignation by his accuser of his diplomatic appointment. The disorder under which Mr. Crawford was laboring was paralysis, brought on, it is stated, by the improper use of lobelia for an attack of erysipelas during a temporary absence from Washington. His sickness was long and severe, and though perhaps it had little influence on the vote given for him as president (he obtained all the electoral votes of Virginia and Georgia, 5 in New York, 2 in Maryland, and one in Delaware, 41 in all), it wholly destroyed any chance of his election by the house, and removed him henceforth from the political arena. Mr. Crawford continued for some time a great invalid. He could not see to write, and had not the physical ability to encounter any labor. He was assisted in preparing his last treasury report by Asbury Dickins, then a clerk in his department, who had also assisted in preparing his defence against Edwards. He gradually improved, but never fully recovered. J. Q. Adams offered to continue him as secretary of the treasury, but he declined, and returned home to Georgia. Notwithstanding his political rivalry with Mr. Clay, he still remained on friendly terms with him, and in a letter written in 1828, assured him that as between Jackson and Adams he should have decided as Clay did. Mr. Crawford's pecuniary means were not large, and a vacancy occurring in May, 1827, on the bench of the northern circuit, the same in which he had formerly practiced, he accepted a temporary appointment from Governor Troup to fill it. In November following he was chosen by the legislature for the remainder of the vacant term, in which position (the judges holding office for 3 years only) he was continued at two subsequent elections in 1828 and 1831. During his time there was no court for the correction of errors in Georgia. There was a convention of the circuit judges annually to consult on questions submitted by each other, but no judgment could be rendered, the action of the convention being wholly advisory. During the 7 years that he presided as judge of the northern circuit, Mr. Crawford acted as chairman of this convention. Though his disorder affected him both physically and mentally, and though sometimes annoyed by the "silly speeches" of counsel, he made a much better judge than would have seemed possible to those familiar with his paralyzed state. He was strongly opposed to the nullification movement. To the last, he retained his social temper and admirable conversational talent. He loved to tell anecdotes, and told them well. He was a hearty laugher, negligent in his dress, simple in all his arrangements, and totally regardless of artificial dignity. He was extremely affectionate to his children, teaching them himself, romping with them, arguing with them, and accustoming them to treat him familiarly and confidingly. In the family, Woodlawn was familiarly known as Liberty hall. His wife and several children survived him. In religion, he inclined to the Baptist persuasion, and though not zealous was a sincere believer. He is generally regarded as the greatest of the citizens of Georgia.

CRAWFORDSVILLE, a prosperous town of Union township, and capital of Montgomery co., Ind. It is finely situated in a fertile and undulating region on the banks of Sugar creek, and contains a number of imposing private and public edifices. It is remarkable for its educational advantages, and is the seat of Wabash college, founded in 1835, and regarded as one of the best institutions of the kind in Indiana. The original college buildings, together with a library of 3,000 volumes, were destroyed by fire in 1838. Crawfordsville also contains a county seminary, a female academy, and 2 newspaper offices. A railroad connects the town with Lafayette, 28 miles distant. Pop. in 1853 estimated at 2,500.

CREAM OF TARTAR. The chemical composition of this useful salt is: tartaric acid two equivalents, = 132; potassa one, = 47.2; and

water one, = 9. It is a bitartrate of potassa purified from the crude tartar or argol, which collects in a crystalline deposit upon the bottom and sides of wine casks during the fermentation of the wine. As the saccharine matters which hold this in solution are converted into alcohol, the salt is precipitated in a crude state, together with some tartrate of lime and the coloring matter of the wine. Red wines give a red color to the crude article. When the crude salt is dissolved in boiling water, and this is allowed to cool, crystals of the cream of tartar are deposited and form a crust on the bottom of the vessel, cold water holding in solution only $\frac{1}{30}$ of its weight of the salt, and boiling water $\frac{1}{18}$. The crust is redissolved in boiling water, and 4 or 5 per cent. of pipe clay is added. On evaporating the solution, the clay precipitates with the coloring matter, and the salt of tartar is deposited in white crystals. These are bleached by being spread upon cloths for some days and dried, and then constitute the cream of tartar of commerce. It is usually sold as a powder, and in this state is liable to have been mixed with various substances used for its adulteration, as chalk, clay, gypsum, sand, flour, &c. It is therefore better to purchase it in the crystalline form in which it is received from the French manufacturers. It is, however, never pure, always containing a small percentage of tartrate of lime. Cream of tartar is much used in medicine, as well for its agreeable cooling properties when made into a drink, as for its more powerful qualities as a cathartic when administered in large doses. A refreshing beverage called imperial is prepared by dissolving half an ounce in 3 pints of boiling water, and adding 4 ounces of white sugar and half an ounce of fresh lemon peel. Cream of tartar and tartrate of antimony compose the medicine tartar emetic. Rochelle salt is prepared by adding cream of tartar to carbonate of soda, by which a tartrate of potassa and soda is produced. When decomposed by heat, cream of tartar is converted into a pure carbonate of potassa. Mixed with half its weight of nitrate of potash and deflagrated, it forms the flux called black flux, used for crucible assays. White flux is prepared with two parts of nitre to one of cream of tartar. In making bread, cream of tartar is often usefully employed, mixed with half its weight of carbonate of soda. The excess of acid produces a slow effervescence, and the escape of carbonic acid gas, distending the dough, causes it to rise.

CRÉBILLON, Prosper Jolyot de, a French tragic poet, born at Dijon, Jan. 13, 1674, died in Paris, June 17, 1762. His father placed him in the office of an attorney who happened to be an enthusiastic lover of the drama, and encouraged his young clerk to devote himself to dramatic literature. His first tragedy, *Idoménée*, performed in 1705, though not a masterpiece, was superior to the weak imitations of Racine and Corneille current at that time. His next play, *Atrée*, appeared in 1707, and produced an impression by its gloomy plot and energetic style. *Electre* succeeded in 1709; and 2 years later, *Rhadamiste et Zénobie*, which is still considered his best production. The mainspring of Crébillon's plays is terror, and it must be conceded that he uses it with power. His next tragedy, *Xerxès*, was a failure; and *Sémiramis*, performed in 1717, and *Pyrrhus*, in 1726, were little more successful. He now kept aloof from the stage for 22 years. Having squandered his large earnings and lost his father and his wife, he retired to a miserable garret, where his sole companions were dogs, cats, and ravens, and where he lived neglected by all his friends, except his son, who tried in vain to withdraw him from his isolation. In 1731, however, the French academy elected him one of their number; and the new academician wrote a poem as his reception discourse. Some 14 years later, Mme. de Pompadour, who was dissatisfied with Voltaire, thought of bringing Crébillon into competition with him. The old dramatist received a pension of 1,000 livres, and was encouraged to resume his former calling. He now completed his tragedy of *Catilina*, which was, Dec. 12, 1748, performed in a style of unusual splendor at the king's expense, and warmly applauded by the court party, while his superiority over Voltaire as a tragic poet was loudly proclaimed. The latter, smarting under what he considered an insult, replied by undertaking subjects already treated by his rival, and handling them in a manner evincing a greater degree of skill, if not of genius. Crébillon's last effort was his *Triumvirat*, which he wrote when over 81, and which was received with forbearance and respect. Among French tragic poets Crébillon ranks next to Corneille, Racine, and Voltaire.—Claude Prosper Jolyot de, a French novelist, the son of the preceding, born in Paris, Feb. 14, 1707, died there, April 12, 1777. His character afforded a striking contrast to that of his father. He was a gay companion, full of wit and humor, and he wrote a series of novels which were in accordance with the licentiousness of the age, and brought him not only great fame but also a wife; Miss Stafford, a young, handsome, rich English lady, of noble birth, having been so much pleased with them as to cross the channel, and to offer her hand, which was at once accepted by the lucky author. Crébillon's novels, notwithstanding their popularity during the 18th century, are now but little read. The least objectionable is entitled *Les égarements du cœur et de l'esprit*. He was also a ready and witty song-maker, and aided in the establishment of the lyric society known as *Le caveau*.

CRÉCY, or Cressy (anc. *Crisiacum*), a village of France, in the department of Somme (Picardy), 11 m. N. of Abbeville; pop. 1,785. The village is situated on the small river Maye, a tributary of the Somme, in the midst of a grain and grass-growing country. It has tanneries, soap and oil manufactories, and considerable trade in wood from the adjoining for-

ests. An annual fair is held here, Aug. 25 and 26. The objects of interest are the tower of Edward III., the valley of Cleves, and the stone cross of the king of Bohemia. Cardinal John Lemoine was born here.—Crécy owes its celebrity to the famous battle fought, Aug. 26, 1346, between the English under King Edward III. and the French under King Philip of Valois, in which the French army was destroyed. The English, on one of their plundering expeditions into Normandy, had penetrated within sight of Paris, and were retreating to the coast when the French army came upon them. Some discrepancy exists in the estimate of the respective forces. Froissart, whose statement is followed by Hume and others, makes the English 30,000 to 40,000, and the French 100,000 to 120,000. Turner, in his "History of England during the Middle Ages," says the English army was in 3 divisions: the 1st, under the Black Prince, Edward prince of Wales, comprised 800 men-at-arms, 2,000 archers, and 1,000 Welsh; the 2d, under the earl of Northampton, 800 men-at-arms, and 1,200 archers; and the reserve, under the king, not engaged in the battle, 700 men-at-arms and 2,000 archers. Allowing for retainers, the total number may be computed at 17,000. It is difficult to comprehend how a greater number of fighting men could be assembled on the coast with the imperfect means of transport then at command. Reducing the estimate of the French in the same ratio, we may assume the battle to have been fought between 17,000 English and 50,000 to 60,000 French. Even these numbers give it the magnitude of a great battle. Edward saw the danger to which a hasty retreat would expose him in face of the enemy's superior force; he therefore determined to make a stand, in hopes to check their further advance. Selecting a rising ground near Crécy, he drew up his army on the ascent, and threw up trenches on his flanks, with a wood in his rear which he also secured by intrenchment. Villani alleges that Edward had 6 pieces of artillery, which he posted so as to sweep the enemy's advance. Artillery had been recently invented, and was known both in France and England, but does not appear to have been in use in the field until the present occasion. Philip was confident that he had only to force the English to an engagement to destroy them utterly; hence he neglected precautions, and advanced his troops pell-mell from Abbeville, with little attention to order or discipline. His advanced guard of Genoese bowmen began the attack, but rain having fallen, their arrows fell short. The English, taking their bows from their cases, sent a shower of clothyard shafts that drove the Italians back on the cavalry of the duke d'Alençon, who, enraged at their cowardice, ordered his troopers to cut them down. The English artillery opened fire, and the prince of Wales (aged 15) charged with his men-at-arms on the struggling mass. An opportune movement of the French retrieved their fortunes, and for a long time the battle hung doubtfully. Lord Cobham despatched Sir Thomas Norwich to the king requesting him to send the reserve to the assistance of the prince. "No," said Edward; "tell my boy he must win his spurs." This speech invigorated the English. They again charged. The duke d'Alençon was killed; the French line was broken, and the Welsh, rushing into the *mêlée*, with their long knives stabbed the horses and butchered those who fell. Philip made a final effort to recover the day, but without effect. The rout had become a flight. Edward's reserve, and indeed the whole English army, pursued the fugitives, sparing none, till darkness put an end to the bloodshed. Next morning the English were guilty of an act which disgraces their victory. Fog having come on, many parties of French were wandering in search of the main body; the English set up on the eminences the French standards they had taken, and all who were allured by the signal were massacred. Thirty thousand French perished, including 2,600 knights and gentlemen, and 4,000 men-at-arms. Beside the duke d'Alençon, the king's brother, the kings of Bohemia and Majorca, the dukes of Lorraine and Bourbon, the counts of Flanders, Aumale, Blois, Vaudemont, the archbishops of Nimes and Sens, and many other French lords and German barons, were slain. Froissart relates the singular fate of King John of Bohemia. Being old and blind, he ordered the bridle of his horse to be tied on each side to the horses of two cavaliers of his train, and thus guided, charged into the battle, where he fell, together with his attendants. His crest, consisting of 3 ostrich feathers, with the motto *Ich dien* (I serve), was, according to the custom of chivalry, adopted by the Black Prince, and is still the crest of the prince of Wales. The English loss was, comparatively small. In brief, this battle broke, for a time, the power of France, and enabled the English in the following year to become masters of Calais.

CREDI, Lorenzo, a Florentine artist, born about 1453, died about 1536. He was a fellow pupil of Leonardo da Vinci in the school of Verocchio, and so closely followed his style that some of his copies of Leonardo's works are scarcely to be distinguished from the originals. His "Holy Families," of which he painted a great number for private collections, are gracefully designed and highly finished. His most esteemed works are a "Madonna and Child with Saints Julian and Nicholas," now in the Louvre, and the "Birth of Christ," at Florence.

CRÉDIT MOBILIER, a joint stock company founded in Paris, upon the principle of limited liability, under the sanction of the government, by a decree dated Nov. 18, 1852, with a capital of 60,000,000 francs, divided into shares of 500 francs, payable to bearer, for the transaction of general banking business, and with the professed object of aiding the progress of public works, of promoting the development of national industry, and of consolidating into a common stock the shares and bonds of trading compa-

nies. According to M. Isaac Péreire, one of the original founders of the company, "it is to play, with respect to the fixed capital employed in industry, a part analogous to that which banks of discount fill with respect to its circulating capital." It is authorized to subscribe for or to acquire public securities as well as shares and bonds in industrial enterprises, particularly railways, canals, mines, and other public works; to issue its own bonds for an amount equal to its subscriptions and purchases, and, after the complete issue of the original capital of 60,000,000 francs, to issue its bonds equal to 10 times this amount, *i. e.* to 600,000,000 francs. By the terms of its charter, the company has unlimited power to engage in the most extensive operations, the only restriction being not to sell in advance public securities, nor to buy them on time. The following was the status of the company on Dec. 31, 1857:

ASSETS.

	Francs.
Rents, debentures, railway and other shares	83,063,991 41
Investment in various securities, continuations and advances on shares, debentures, &c.	49,841,450 12
Premises and furniture	1,449,436 50
Balance on hand and dividends due, Dec. 31, 1857	7,261,925 28
Total	141,616,803 31

LIABILITIES.

	Francs.
Capital	60,000,000 00
Deposits, current accounts	68,546,431 62
Bills payable, and sundries	3,911,264 65
Interest and dividends	3,025,373 75
Reserve fund	2,000,000 00
Balance of profit and loss account	4,133,733 29
Total	141,616,803 31

Showing a decrease in operations of about 40,000,000 francs compared to Dec. 31, 1856, and of about 50,000,000 francs compared to Dec. 31, 1855. The net profits of the company show considerable fluctuations. They were, in 1853, 3,500,000 francs; 1854, 9,800,000; 1855, about 28,000,000; 1856, about 15,000,000; and in 1857, only 4,133,733 29. M. Péreire, in his financial statement of Dec. 31, 1857, attributes the unfavorable result of 1857 mainly to the financial crisis, and the violent fall of the Crédit Mobilier shares at the beginning of 1858 to the attempt upon the emperor's life.—Among the most famous enterprises of the Crédit Mobilier, from the time of its foundation, may be mentioned the consolidation of the Paris gas and omnibus companies; the creation of the company of the *grand hôtel du Louvre* in the rue de Rivoli, and of the maritime company of clippers; the immense operations in railways in Spain, Russia, Switzerland, and Austria; loans to an aggregate amount of about 1,500,000,000 francs to French railway companies; and various other colossal transactions. By one of the most eloquent opponents of the company, M. Berryer, it has been characterized as "the greatest gambling house which the world has ever seen."—Prominent among the continental institutions which, with some modifications, have been formed after the model of the Crédit Mobilier, is that of Geneva, founded with the assistance of that of Paris in 1853, and that of Vienna, established in the early part of 1856. The Germans have been most active in founding similar companies, and not less than 3 books on that established at Vienna were published in 1857, and another book in the same year on that founded in Leipsic in 1856.

CREEKS, or MUSKOGEES, a southern tribe of North American Indians, now established in the Indian territory, who occupied prior to their removal the territory S. of the Alleghanies and S. W. of the Savannah, including the whole of the present state of Georgia and the greater part of Alabama. The Muskogee tradition, of immemorial antiquity, is that a long time ago some strange wandering clans of Indians from the northwest found their way down into Florida, into what was afterward known as the country of the Seminoles. Meeting with plenty of game, they established themselves there in the vicinity of the powerful Appalachian tribes, by whom they were styled Seminoles, signifying wanderers or lost men. Increasing in numbers and power, they excited the jealousy of their neighbors; wars ensued, and finally the Seminoles became masters of the country. The game of the region in process of time became insufficient, and emigrations followed. They spread northeastward almost to Cape Fear, and westward as far as the Tallapoosa and Coosa rivers, branches of the Alabama, where they were encountered by the powerful Alabama nation. They gained the friendship of this tribe, and incorporated it into their own body. They now distinguished themselves from their ancestors, the Seminoles, by the name of Muskogees, the English name of Creeks being afterward given them from the character of much of the country in which they were found. Other accounts make the Seminoles to have wandered from the Muskogees, who were settled in the country N. of Florida. Though spread over a fourfold wider territory than the Choctaws, they did not surpass them in population, their fighting men numbering about 4,000. They were famed as brave warriors, and extended their power and importance rather by the union of subject tribes than by increase of their original stock. By a liberal and protective policy long exercised toward vanquished and declining tribes, they encouraged their incorporation with themselves. The Alabamas and Coosades were the first who adopted the ceremonies and customs of the Creeks, and became part of the nation. The Natchez, or Sunset Indians, from the Mississippi, united with them some time prior to the revolution, after being driven out of Louisiana. Subsequently the Shawanese joined them in large numbers. The confederacy was divided into the upper and lower Creeks, the former having their principal seat upon the head waters of the Alabama, the latter near the junction of the tributaries which form the Appalachicola. In 1705, the Creeks aided the English Carolinians against the Spaniards of Florida. In

1715 they supported the Yamassees in the attack upon South Carolina, which was defeated by the efficient conduct of Gov. Craven. In 1721 the Savannah was fixed as their eastern boundary, though they permitted the English to maintain a post on the Altamaha. In 1733 Oglethorpe met them on the bluff of Yamacraw, on the Savannah, and they agreed in formal council to yield to the colonists all the lands below tide water between the Savannah and the Altamaha, except 3 islands on the coast. Six years later Oglethorpe again visited them at Cowetas, on the Chattahoochee, and by a new treaty they acknowledged themselves subject to the king of Great Britain, ceded to the English, with some reservations, the coast from the Savannah to the St. John's as far into the interior as the tide flows, and were confirmed in the possession of the rest of the territory between those rivers and between the sea and the mountains. During the war of the American revolution, the Creeks adhered to the British. After the conclusion of peace, the Georgians claimed that by treaties concluded in 1783, 1785, and 1786, this tribe had ceded to that state a considerable tract of their lands W. and S. of the Oconee. The Creeks, having an able chief in M'Gillivray, whose father was a Scotchman, denied the validity of these treaties, and, though they had always been allies of the English colonists against the Spaniards, now entered into close relations with the Spanish government of Florida. This was the period of their greatest power, when they numbered 6,000 warriors. British gunsmiths had long resided among them, so that they were well supplied with arms, which they could skilfully employ. In 1787 war broke out between them and the Georgians, who suffered severely. In 1789 they first entered into negotiations with the United States, and were disposed to acknowledge the president as their "great father" instead of the British king, but abruptly broke off the conference when they found that the commissioner did not propose to restore their lands. Mutual depredations prevailed on the frontier between the Creeks and Georgians, till the boundaries were settled by a treaty in 1796, according to which the tribe was to receive an annuity of $6,000, and to be provided with 2 blacksmiths, in exchange for permitting certain posts and trading houses in their territory. They had of late years made some progress in civilization, and, though still for the most part hunters, cultivated corn and sweet potatoes, and had a few slaves. In 1813 the example of Tecumseh, who visited them, excited them anew to war. Young men began "to dance the dance of the Indians of the lakes," and old men regretted and wished to revive the original savage simplicity of the nation. The upper Creeks especially betrayed a hostile disposition, and had long caused apprehensions on the part of the whites in Alabama and Georgia. On Aug. 30, 1813, Weatherford, a half-breed chief, at the head of 1,500 warriors, surprised Fort Mimms on the Alabama, and but 17 persons out of a garrison of 275 survived the carnage. Four invading columns, amounting to more than 7,000 men, were speedily organized in Tennessee, Georgia, and the Mississippi territory, to avenge the massacre. Gen. Jackson, the first in the field, captured 2 villages (Oct. 28 and Nov. 2) in the "hickory ground" between the Coosa and the Tallapoosa, in the latter of which no quarter was given. On Nov. 9 the savages were again defeated by him with great loss at Talladega, and soon after they were successively routed by each of the other 3 invading forces, which, however, failed to meet in the heart of the Creek country. In Jan. 1814, the fiercest party of the savages, called Red Sticks, attacked Gen. Jackson on his march, and obliged him to fall back to Fort Strother, from which he had advanced. He soon after received reenforcements, attacked on March 24 the main body of the Red Sticks at the great bend (also called the great horse-shoe) of the Tallapoosa, and ended the Creek war by a defeat and massacre from which not more than 20 warriors were believed to have escaped. A treaty was concluded on Aug. 9, by which the Creeks surrendered a large part of their finest territory. In 1818 they made 2 large additional cessions, for which they received $20,000 down, and an annuity of $10,000 for 10 years; and in that year they joined Gen. Jackson in the campaign against the Seminoles. On Feb. 12, 1825, they ceded all their lands in Georgia; but corruption being proved on the part of their agent, M'Intosh, he lost his life and the treaty was abrogated. By a new treaty, Jan. 24, 1826, they ceded all their lands in Georgia E. of the Chattahoochee, and on Nov. 15, 1827, all their remaining lands within the actual limits of Georgia. On March 2, 1832, they ceded all their lands E. of the Mississippi, and agreed to emigrate at the option of the United States. On Feb. 14, 1833, the federal government fixed their boundaries in the Indian territory, and agreed to patent their lands, in fee simple, during their existence as a nation and occupancy of them. Under this arrangement they have been removed. They occupy a fine country, next N. of the Choctaws and Chickasaws, on the northern side of the Canadian river. They have entirely abandoned the chase, and devote themselves to the cultivation of the soil and the raising of stock, the latter being a profitable pursuit. Few are engaged in trade or indicate any aptitude for the mechanic arts. They retain more of the government by hereditary chieftainship and circles than any other of the transferred tribes, and in their new locality are still divided into upper and lower Creeks. They have a written constitution; and the members of their council, which has an annual session, and their principal chief, are elected by the free citizens. They are owners of slaves, and are said to owe to them much of their advancement in agriculture. By the census of 1856, the entire tribe numbered

14,888, showing a great decrease during the preceding 20 years, their aggregate in 1833 having been 22,664, exclusive of about 1,000 slaves. There is a fund of $200,742, held in trust by the United States for the benefit of Creek orphans.

CREEPER, a bird of the order *passeres*, tribe *tenuirostres*, and family *certhidæ;* to the subfamily *certhinæ*, containing 5 genera, and to the genus *certhia* (Linn.), belongs our common brown creeper (*C. familiaris*, Linn.). The bill is moderate, slender, curved, with compressed sides and acute tip; the wings are moderate and rounded; the tail long and graduated, with the ends of the feathers rigid and acute; tarsi shorter than the middle toe; all the toes long and slender, with curved and sharp claws. There are 2 species, one inhabiting Asia, and the other Europe and North America; those who consider the American bird different, because found here, without being able to give any specific characters for it, may call our bird *C. Americana* (Pr. Bonap.). The creepers are found wherever trees are thick, climbing up the trunks with the aid of the tail, running along and on the under surface of branches in search of insects concealed in the bark. The upper parts of our species are reddish brown, the head darker, the rump lighter; all the feathers have a central dull whitish streak; wings deep brown, the coverts tipped with dull yellow, and the secondaries barred with the same; lower parts and band over eye silvery white; sides tinged with brown; webs of the quills, except of the outer three, crossed with a dull yellowish band; tail yellowish brown; length of bird 5½ inches, extent of wings 8½; the female is smaller and darker. It is extensively distributed over this country, alighting on all kinds of trees, preferring the tallest, in company with the smaller woodpeckers and nut-hatches. It breeds in holes in trees, often taking the abandoned nests of woodpeckers and squirrels; the eggs are 6 to 8, of a yellowish white color, with irregular purplish dots, especially at the larger end. It feeds on ants, larvæ, small insects, and particles of lichens, in the winter coming into the orchards near houses. It is an exceedingly active and restless bird, shooting down from the top of an examined tree to the base of another, which it ascends as before. To the same family belong the tree-creepers (*dendrocolaptinæ*), larger birds, with long curved bills, peculiar to South America; their habits are the same as those of the genus *certhia*. The black and white creeper is the *mniotilta varia* (Lath.), of the family *luscinidæ*.

CREFELD (Ger. *Krefeld*), a flourishing town of Rhenish Prussia, the principal seat of silk manufacture in Prussia, connected by railway with Cologne and Düsseldorf, 12 m. from the latter city; pop. about 40,000. Its most important public edifices are a Roman Catholic church, 2 Protestant churches, a synagogue, an orphan asylum, and a deaf and dumb institution. The silk manufacture was introduced in the 17th century by a colony of Huguenot refugees. It employs about 2,500 looms in the town and its vicinity; and the annual products are estimated at $5,000,000. There are also manufactories of woollen, cotton, and linen fabrics in Crefeld, as well as potteries, tanneries, and distilleries. It was formerly a place of considerable strength, and its walls are still standing.

CREICHTON, John, an Irish soldier of fortune, born in the county of Donegal in 1648, died in 1733. He entered the horse guards of Charles II., and displayed great zeal and activity in the campaign of that corps against the Covenanters of Scotland. When James II. was succeeded on the throne by William III., he attempted to excite a rebellion, but was imprisoned at Edinburgh. After several years he was permitted to return to Ireland, where in his old age he met Swift, who was interested in his history, and urged him to write a narrative of his adventures. His "Memoirs," revised by Swift, appeared in 1731, and contain curious Scottish particulars relative to the reign of Charles II. and James II., and interesting notices of characters and events which served as materials for Sir Walter Scott in the composition of his "Old Mortality."

CREIGHTON, John Orde, a commodore in the U. S. navy, born in the city of New York, died at Sing Sing, March 18, 1846. He entered the navy as midshipman in June, 1800, and served under Commodore Preble before Tripoli. In 1807 he became a lieutenant, and was attached to the frigate Chesapeake in June of that year, when she fought the British ship Leopard. He was afterward attached to the frigate President, and was first lieutenant of that ship in her action with the British ship of war Little Belt, May 16, 1811. In 1813 he commanded the brig Rattlesnake, was promoted to the rank of master commandant in that year, and to that of captain the year following. In 1829–'30 he commanded the squadron on the coast of Brazil.

CRELL, or Crellius, Johann, a theologian of the school of Faustus Socinus, born near Nuremberg in 1590, died in Cracow, June 11, 1633. He removed to Poland in 1612, and officiated at Cracow as rector of the Unitarian divinity school, and afterward as preacher. He made some valuable contributions to theological literature, among others a German translation of the New Testament. He also wrote a reply to Grotius's *De Satisfactione Christi*.—There were 2 other Socinian theologians of the same name: Christoph, who died Dec. 12, 1680, and his son Samuel, born in 1657, died June 9, 1747.

CRELL, Nikolaus, prime minister of Christian I., elector of Saxony, born in Leipsic about 1550, beheaded at Dresden, Oct. 9, 1601. Anticipating great danger to the cause of the reformation from the sectarian conflicts among the Protestants, he recommended an approximation to Calvinism (Crypto-Calvinism), with a view of putting an end to their conflicts and of presenting a united front against the Roman Catholics; but by order of Christian's successor, the intolerant regent Frederic William, he was doomed to 10 years' imprisonment and finally put to death.

CREMA, a town of Lombardy, in the province of Lodi-Crema, on the Serio, 25 m. E. of Milan; pop. about 9,000. It is well built and fortified, and has several handsome churches and palaces, as well as manufactories of lace, hats, thread, and silk. Crema was founded in the 6th century by some fugitives whom the oppressions of Alboin, the first Lombard king of Italy, had driven from their homes. During the wars of the Guelphs and Ghibellines it was destroyed by Frederic I., but was afterward rebuilt. In 1797 it was captured by the French.

CREMERA, now Aqua Traversa, a small river of Etruria which falls into the Tiber, a short distance above Rome. On the banks of this river the 300 Fabii encamped, when, after marching from Rome, they undertook to wage war against Veii, and here they were surprised by their enemies, and cut off, 477 B. C.

CRÉMIEUX, Isaac Adolphe, French minister of justice in 1848, born of Jewish parents at Nimes, April 10, 1796, studied law at Aix, and was admitted to the bar of his native town in 1817. His success there established his reputation at Paris, where, however, he was not fortunate in his first important forensic effort as counsel for Guernon-Ranville, a minister of Charles X., who had been arraigned as one of the authors of the fatal ordinances of July, 1830. Overcome by the excitement of the occasion he fainted, and was unable to continue the defence. But he soon regained his prestige in the courts, and after having purchased from Odilon Barrot his office and function as advocate, he defended Armand Marrast, Raspail, and other eminent republicans prosecuted by the government, with great ability before the court of appeal. In 1842 he took his seat in the chamber of deputies on the extreme left as deputy from Chinon. He opposed the game laws, supported free trade principles, and by his systematic attacks on the policy of the government contributed not a little to pave the way for the revolution of 1848. When this at last broke out, he told Louis Philippe and his queen, whom on the day of their flight he met in the place de la Concorde, that there was no hope left, and recommended them to leave France immediately. He then proceeded to the chamber of deputies, inclined to support the regency of the duchess of Orleans; but when this was rejected, he proposed a provisional government, of which he became a member, the ministry of justice being intrusted to his charge. On June 7, 1848, he left the government in consequence of a prosecution against his friend Louis Blanc, but remained as a member of the constituent assembly. On Dec. 10, 1848, he voted for Louis Napoleon's election to the presidency, without however ceasing to advocate in the legislative assembly the views of the extreme republican party. When the day of the *coup d'état* came (Dec. 2, 1851), he was arrested, but soon released; he has since resumed his practice as a lawyer. His appearance is unprepossessing, but his eloquence is remarkable and full of oriental vivacity. He is wealthy and hospitable. His *salon* is a favorite resort of musicians, he being himself a great amateur. He is also distinguished as a zealous defender of his Jewish brethren, among whom he earned great popularity by accompanying Sir Moses Montefiore to the East in behalf of the persecuted Jews of Damascus in 1840.

CREMNITZ. See Kremnitz.

CREMONA, a province of the Austrian crownland of Lombardy, bounded N. by the provinces of Brescia and Bergamo, E. by Mantua, S. by the Po, and W. by the Adda. Its greatest length is about 45 m., its breadth about 15 m. Area, 523 sq. m.; pop. about 200,000. The principal products are flax, wine, oil, cattle, and horses. It produces wine to the extent of about 2,000,000 gallons annually. Silk is the most important manufacture. The province formed part of the duchy of Milan until 1800, when, conquered by the French, it constituted the eastern part of the department of Alto-Po until 1814, when it came into possession of Austria. It is divided into 9 districts and 186 communes; contains 11 small towns and 162 villages.—Cremona, the capital, pop. about 37,000, 45 m. from Milan, contains 45 churches, of which the cathedral is the most remarkable, rivalling, in the opinion of Lanzi, the pictorial magnificence of the Sistine chapel, and containing many works of art. The greatest architectural celebrity, however, of Cremona is the Torazzo, or belfry tower, ending in a spire, the highest of all the towers in N. Italy, reaching the elevation of nearly 400 feet, with about 500 steps to ascend to its summit. There are also many sumptuous palaces, with fine picture galleries, and a *campo santo*, now used as the repository of the archives, which contains an underground vault and a curious mosaic pavement. Cremona is the seat of a bishop, of the provincial authorities, and courts of law; contains a citadel, a gymnasium, a lyceum, an academy of fine arts, infant schools (founded here in 1829, previous to their establishment in any other Italian town), and schools opened at certain hours on Sundays and other holy days. It carries on an extensive trade by means of the Po, and the various canals communicating with that river. Cremona was a Roman colony, founded in 219 B. C.; it was often attacked by hostile Gallic tribes, and was destroyed by them in 193. In A. D. 69 it was plundered and burned by the troops of Vespasian, who subsequently rebuilt it. In later periods it was often conquered, and had many misfortunes; last of all in 1849, when it was bombarded by the Austrians.—Cremona is the general name applied to the violins made at Cremona, by the Amati family and Stradivarius, in the 17th and 18th centuries. They excel all others in purity of tone, and bring enormous prices. The name is also erroneously given to a stop in the organ which is intended to imitate the krumhorn, a species of cornet.

CRENIC ACID, Crenates (Gr. κρηνη, a

spring or fountain), an acid and its compounds, so named by Berzelius from having been first found by him in spring water, being among the products of vegetable decomposition, and constituents of humus. This acid and the apocrenic acid associated with it differ from the extract of mould or geine of Berzelius in containing nitrogen. Liebig, Graham, and other distinguished chemists, do not recognize the existence of this substance. The following description is given of it as obtained by Berzelius: a sour, yellow mass, reddening litmus, soluble in water and alcohol; forming salts (crenates) with bases, which salts are soluble in water, but not in alcohol; obtained from ochreous sediments, by boiling with caustic potash, saturating with acetic acid, and precipitating with acetate of copper the crenic acid as a crenate of copper. This is decomposed by sulphuretted hydrogen, and purified by washing with alcohol. Its formula is given as $C_{24}H_{12}O_{16}$, or $C_7H_8NO_6$.

CREOLE, a corruption of the Spanish word *criollo*, which signifies one born in America or the West Indies, of European ancestors. In this sense, all the native white people of the United States are creoles. But the word in its English use has undergone both a limitation and an extension. It is limited to persons born within or near the tropics; and it is made to include persons of all colors. Thus the term creole negro is employed in the English West Indies to distinguish the negroes born there from the Africans imported during the time of the slave trade. The application of this term to the colored people has led to an idea common in some parts of the United States, though wholly unfounded, that it implies an admixture, greater or less, of African blood. The creoles of the West Indies and the adjacent coasts of the continent are distinguished by marked physical peculiarities from their European ancestors. Bryan Edwards, who had ample opportunities for observation, and who is a very competent observer, describes them, in his "History of the West Indies," as obviously a taller race on the whole than the European, but in general not proportionately robust. He had known several who were full 6 feet 4 inches in height, but they wanted bulk to come up to the idea of masculine beauty. This peculiarity, however, it is to be observed, is not confined to the creoles of the tropics. The same remark has been made respecting the descendants of Europeans born in the United States and in Australia. The creoles are distinguished (and this is an exclusive peculiarity of them) for the freedom and suppleness of their joints, which enables them to move with great ease, agility, and grace. From the same cause they excel in penmanship, and in every thing requiring flexibility of movement. The effect of climate is likewise obvious in the structure of the eye, the socket being considerably deeper than among Europeans, thus affording a protection against the glare of the sun. Their skin feels considerably colder than that of Europeans—a circumstance observed in a still stronger degree of the negroes, and going to show an effort of nature to protect their bodies against the heat. Even though living in the same way with Europeans, they are rarely subject to those inflammatory disorders, the yellow fever included, which prove so often fatal to the former. This is particularly true of the creole women of the West Indies, who live in general very quiet and regular lives, and who in their diet are abstemious even perhaps to a fault. Simple water or lemonade is the strongest beverage in which they indulge, and a vegetable mess at noon, seasoned with Cayenne pepper, constitutes their principal meal. To a stranger newly arrived, they appear as if just risen from a sick bed. Their voices are soft and spiritless, every step betrays languor, while their cheeks lack entirely the bloom of the rose. They have, however, in general beautiful black hair, and the finest eyes of any women in the world—large, languishing, and expressive. They are also noted for their fine teeth. The early display of mental powers in young creole children, and their superiority in this respect over European children of the same age, has been noted by all travellers. It is difficult, however, to rear white children in that climate; though perhaps the difficulty arises in no small degree from the mode of living indulged in.. The peculiarities of the white creole are to be found also in the mixed race, with more of force and vivacity on the part of the latter, the women especially, as being less enervated by the climate. A high degree of tenderness and compassion, and great adhesiveness of affection, characterize the creole women of all colors. There may be observed also a marked distinction between the creole negroes and those imported from Africa. The former are more slender, agile, and graceful, though not less strong or capable of labor, with quicker perceptions and more volatile dispositions. If the white race deteriorates by its transfer to the West Indies, the black race evidently improves physically as well as mentally. How far the native-born whites of the high tropical tablelands of Mexico and South America resemble or differ from the white natives of the lower and hotter regions, no traveller seems yet to have accurately noted.

CREON. I. A mythical king of Corinth, in whose reign Jason returned to Greece with the sorceress Medea. Visiting Corinth on his way home, the hero beheld the beautiful Creüsa, the only daughter of the king, and became enamored of her. Creon promised to give her to him in marriage if he would divorce Medea. Jason consented to do so, and the king at once ordered Medea to quit his dominions. The sorceress begged to be allowed to remain for a single day, and when this request was granted she prepared in the interval a magical robe, which she sent as a present to Creüsa, who, unconscious of danger, put it on, and was burned to death. Creon, who had kissed her while in the agony of death, also caught fire and perished.

II. A king of Thebes, who, alarmed by the ravages of the Sphinx, offered his crown and his sister Jocasta to any one that could solve the enigma propounded by the monster. Œdipus, having succeeded in doing so, ascended the throne and married Jocasta, not knowing that she was his mother. The fruit of this marriage was 2 sons, Eteocles and Polynices, who, after their father's death, having long been at enmity, finally slew each other in single combat. Creon, now resuming the government, ordained that Polynices should remain unburied, and that any who infringed this decree should be buried alive. Antigone, sister of Polynices, buried her brother in disregard of this edict, and was imprisoned in a cave. Here she instantly killed herself, whereon Hæmon, her lover, rushed to her prison-house, and slew himself on her corse.

CREOSOTE, an oily, colorless liquid, of a burning and bitter taste, and a peculiar smoky odor. It was first obtained by Dr. von Reichenbach, in 1830, among the products of the distillation of wood, and named from the Greek κρεας, flesh, and σωζω, to preserve, in reference to its peculiar antiseptic properties. It possesses neither acid nor alkaline reaction. It boils at the temperature of 397°, and does not freeze at 17° below zero. At 68° its specific gravity is 1.037. It evaporates without residue, leaving upon paper a temporary greasy stain, and upon the skin a white spot. In concentrated form it acts as a caustic. It may be inflamed from a candle, and then burns with much smoke. It is but partially soluble in water, but is itself a powerful solvent of the resins, fats, indigo, camphor, &c. Its composition is variously stated. According to Ettling it consists of carbon 77.42, hydrogen 8.12, and oxygen 14.46. Its most remarkable quality is that for which it was named. Meats are preserved by soaking them in a dilute solution of creosote for a quarter of an hour, and then draining off the water and drying. Hams and tongues acquire a very delicate flavor after being immersed for 24 hours in a mixture of 1 part of pure creosote with 100 of water or brine. A process has been patented in England for impregnating salt with the volatile products of wood tar; meats prepared with it are both smoked and salted. It is the creosote in pyroligneous acid and in the smoke from wood that gives to these the property of curing meat. Either crude pyroligneous acid or wood tar may be used to furnish creosote. The liquid distilled off the latter divides into 3 layers, the lowest containing the creosote. The acetic acid also present in it is removed, after separating this layer from the other, by means of carbonate of potash. The oil which after some time collects upon the liquid is distilled, producing a heavy liquid, with other lighter fluids. The latter is agitated with phosphoric acid, and again distilled to remove ammonia. It is then mixed with solution of caustic potash of specific gravity 1.12, which dissolves the creosote, but leaves the eupione insoluble. This is decanted off. The liquid is then left for some time exposed to the air till it acquires a brown color. Sulphuric acid is then added, which sets the creosote free, so that it may be decanted; but it requires to be again treated with caustic potash and sulphuric acid, and the process repeated until the creosote, on exposure for some time to the air, ceases to turn brown. It still requires, after thorough washing with water, to be distilled from hydrate of potash, or from a strong solution of caustic potash. The first portions that come over are water, and are rejected. Creosote is known to be impure by turning brown on exposure to the air; strong acetic acid also detects its usual impurities, dissolving with the creosote, and leaving them floating on the surface. As a medicine, creosote has been much used, both as an external application and in doses inwardly administered. It is introduced into ointments and applied to wounds, burns, ulcers, and scaly eruptions. It checks hemorrhage, nausea, and vomiting, and applied to an aching tooth, often instantly relieves the pain. It has been successfully given in diarrhœa, cholera morbus, cholera infantum, &c.; indeed, there is hardly a substance in materia medica that has been administered to such a great variety of diseases, and, in many of them, with such decidedly favorable results. In an overdose it is a poison, and no antidote is known; emetics and stimulants are the only treatment. A few drops of creosote added to a pint of ink will prevent mouldiness.

CRESCENDO, in music, an Italian term signifying that the notes over which it is placed are to be gradually swelled. It is common to designate it by the following sign <.

CRESCENT (Lat. *crescere*, to increase), originally an epithet applied to the moon in its first quarter, when its disk is enlarging and its horns are acute. Any figure or likeness of the new moon was afterward termed a crescent, which became a favorite form for ornaments. The Syrian Astarte and the Greek Artemis were often represented with it placed horizontally over their brows, having its horns turned upward. An ivory crescent was worn as a sort of buckle for the cothurnus by wealthy Athenians, and Roman matrons enlarged it as a decoration for the hair. Throughout antiquity the crescent was especially a Byzantine symbol, and it appears on Byzantine imperial medals from the time of Augustus. When the Turks became masters of Constantinople they adopted this symbol, inscribed it upon their standards, banners, and mosques, and named their dominion the empire of the crescent.—In 1448 a military order of the crescent was instituted by René of Anjou. It was composed of 50 noble knights, each of whom wore an enamelled crescent on the right arm, from which was suspended a number of small wooden columns equal to that of the combats in which he had been engaged. In 1799, after the battle of the Nile, the sultan Selim III. presented to Nelson a splendid cres-

cent adorned with diamonds. It became a favorite ornament of the English admiral, who often declared himself a knight of the crescent. This circumstance induced the sultan to found in 1801 the order of the crescent, to be conferred as an honor upon foreigners who had deserved well of Turkey.

CRESCENTINI, Girolamo, a masculine soprano singer, born near Urbino, Italy, in 1769, died at Naples in 1846. He was received with the utmost enthusiasm all over Europe, especially in Vienna. He was a great favorite with Napoleon I., who engaged him for his private chapel in Paris in 1806; but subsequently he returned to Naples, where he taught music with great success, and published collections of exercises in musical vocalization.

CRESCENZI, Pietro de', a Bolognese nobleman, born about 1230, died in 1320, the author of the most valuable work on agriculture of the middle ages, entitled *Opus Ruralium Commodorum*, which contained not only the personal experiences and observations of the author, but the best information that could be gained from the agriculturists of antiquity. It has been translated into several modern languages, and the best Latin edition is that of Gessner, 2 vols., Leipsic, 1735.

CRESPEL-DELLISSE, Louis François Xavier Joseph, a French scientific agriculturist, born in Lille, March 22, 1789, established the first important manufactory of beet-root sugar in his native city, in 1810, in concert with Messrs. Dellisse and Passy. Subsequently he founded nearly 20 agricultural establishments in various parts of France, of which he made his refinery at Arras the centre.

CRESS, the name of several species of plants, with acrid or pungent leaves, most of which belong to the natural order *cruciferæ*. The water cresses (*nasturtium* and *sisymbrium*) are the most common varieties. They grow abundantly on the brinks of rivulets and small ponds, may be eaten as a salad, and are valued as antiscorbutic medicines.

CRESSON, Elliott, an American philanthropist, born March 2, 1796, died Feb. 20, 1854. He was a successful merchant in Philadelphia, where he resided all his life, and a member of the society of Friends. His benevolent disposition was especially turned toward the Indian and negro population of the United States. At one time he proposed to become a missionary among the Seminoles of Florida, and afterward engaged in establishing the first African colony of liberated slaves in the territory of Bassa Cove. In the winter of 1838–'39 he made the tour of the New England states as agent of the national colonization society, and the next winter was spent in a similar mission in the southern states. He everywhere recommended his measures with the eloquence of sincere conviction, and met with much favor and success. He sailed to England in Dec. 1840, where he spent 2 years in advocating the project of colonization, as also 3 years from 1850 to 1853. His time and labor were contributed without pay, and by his will he distributed his estate to a great variety of charities. He bequeathed in this way an amount of $122,000, mostly to institutions already established, but a bequest of a landed estate of over $30,000 was to establish a home for aged, infirm, or invalid merchants or gentlemen, who may have become unable to procure the comforts appropriate to their condition in life.

CRESSY. See Crécy.

CREST (Lat. *crista*), originally the reddish caruncle and tuft of feathers which rise on the heads of some birds, as the cock. It also designates the plume or other ornament worn by warriors and cavaliers on the top of the helmet or casque. By Herodotus the invention of martial crests is attributed to the Carians, whose painted bucklers, and casques mounted with feathers, gained them the appellation of cocks. The crests of the Homeric heroes were often bunches of horse hair, and both the Greeks and Romans esteemed the capture of an enemy's crest an honorable feat of war. Crests, made of the feathers of the ostrich or heron, or of painted wood or parchment, were worn by knights at mediæval jousts and tournaments. When the shield was not borne, they afforded the principal criterion of nobility.

CRESWICK, Thomas, an English landscape painter, born at Sheffield, Yorkshire, in 1811. His first pictures, consisting of views in North Wales and Derbyshire, were exhibited at the royal academy in 1828. His pictures are generally elaborate, with admirably pencilled foliage and atmospheric effects, and a precision of drawing never degenerating into stiffness. He was elected an associate of the royal academy in 1842, and an academician in 1851. His pencil is discernible in several recent illustrated works.

CRETACEOUS GROUP (Lat. *creta*, chalk), a series of stratified rocks forming the upper division of the secondary formation, distinguished as containing the last strata of which the fossil animal remains are wholly of extinct species. The group is subdivided into upper and lower; the former is often called from its principal member the chalk, and the latter for the same reason the greensand. The group underlies the tertiary beds of the London and Paris basins, rising up toward the straits of Dover on each side, along the coast of which its white chalk cliffs form prominent objects in the scenery. The formation is represented in New Jersey by beds of yellowish limestone and of greensand, which contain fossil shells, some of which belong to the same species, and most of them to the same genera, with those found in the cretaceous rocks of Europe. The same genera of fish also are common to the group of the two countries. The formation is traced through the eastern part of North Carolina and central part of Georgia, and after sweeping round the southern termination of the Alleghanies in Alabama passes through that state and Mississippi northward into Tennessee and Kentucky. It is recognized

near Council Bluff on the Missouri, in Texas, upon the Andes near Bogota, S. A., and also in Hindostan. Thus at widely separated points in the ancient seas of 4 continents were similar deposits produced during the same geological period, characterized by the animal remains they include, of the same general type, and often of the same species. For relations of this group to those which precede and succeed it, see GEOLOGY; and for further details regarding its members, see CHALK, GAULT, and GREENSAND.

CRETE. See CANDIA.

CRETINS (called in Carinthia, *Tockem;* in Styria, *Tosten;* in Austria, *Trotteln;* in the Tyrol, *Talken;* in Saltzburg, *Totteln;* in Würtemberg, *Fexen;* in Sardinia and some other countries, *Lallen;* and in many portions of Germany, *Gescheipf*), persons in whom partial or complete idiocy is combined with great bodily deformity. The most vivid and accurate description of their appearance is that given by Berchtold Beaupié in his *Dissertation sur les Cretins:* "Who is this melancholy being who bears the human form in its lowest and most repulsive expression? I see a head of unusual form and size, a squat and bloated figure, with a stupid look, with blear, hollow, and heavy eyes, with thick projecting eyelids, and a flat nose. His face is of a leaden hue, his skin is dirty, flabby, covered with tetters, and his thick tongue hangs down over his moist livid lips. His mouth, always open and full of saliva, shows teeth which are going to decay. His chest is narrow, his back curved, his breath asthmatic. I see indeed arms and legs, but his limbs are short, misshapen, lean, stiff, without power and without utility. The knees are thick and inclined inward, and the feet flat. The large head drops listlessly on the breast, the belly resembles a bag, and the integuments are so loose that they cannot retain the intestines in its cavity. This loathsome idiotic being hears not, speaks not, and only now and then utters a hoarse, wild, inarticulate sound. Notwithstanding his greediness, he is scarcely able to support life. One passion alone seems sometimes to rouse him from his usual insensibility; it is the sexual instinct in its rudest brutality. At first we should be inclined to take this being for a gigantic polypus, something in imitation of a man, for it scarcely moves; it creeps with the painful heaviness of a sloth; and yet it is the monarch of the earth, but dethroned and degraded. It is a cretin." The name cretin is of uncertain origin; Viréy derives it from *Chrétien*, Christian, because the inhabitants of the countries where cretinism prevails were very generally disposed to regard the cretins as incapable of sinfulness ("souls without sin," they call them), and hence regarded them as favored of God, or "good Christians." Blackie, however, whose essay on this subject gives evidence of very thorough research, derives it from the Romance or Grison *cretina*, a corruption of the Latin *creatura*, a creature. This unfortunate class are far more widely distributed than has been generally supposed. Throughout the whole sub-Alpine region in Europe, as well as in some of the more level regions, they are found, and often in great numbers. The goitre or bronchocele, so prevalent throughout the whole of the Alpine countries, is often accompanied by cretinism, and is, with very few exceptions, always found on the cretin. Switzerland, and especially the cantons Valais, Vaud, Uri, Aargau, Grisons, and Glarus, seems to be the home of this frightful deformity. It is endemic in portions of Rhenish Prussia, Baden, Sardinia, Bavaria, upper Austria, along the banks of the Danube, particularly in Judenburg, Bruck, Gratz, Marburg, and Cilly, in Würtemberg, Denmark, Norway, in the Alpine departments of France, in portions of Turkey and Russia, and in the highlands of Scotland. In Africa, it has been found prevalent along the northern slope of the Atlas range. In Asia, the districts around the base of the Himalaya range furnish great numbers of cases, as well as China, Chinese Tartary, and Sumatra. In South America, cretins are found in considerable numbers on the eastern or Atlantic slope of the Andes, and scattered cases occur along the Alleghany, Green mountain, and Hoosic ranges in the United States. In some parts of Canada cases have also been observed. The number of cretins in the sub-Alpine districts of Europe, whether considered actually or relatively to the population, is frightfully large. In some localities in Switzerland, Rhenish Prussia, and the Alpine districts of France and Savoy, the number is so great, that in whole villages not an able-bodied man can be found.—The causes of cretinism are involved in some obscurity, though within the past 20 years many of the ablest medical men in Europe have been investigating the subject with great care. The localities in which it is most prevalent in the Alpine districts are low-lying valleys, narrow, and exposed to the direct rays of the sun but for a few hours each day, and usually having but one outlet. In these, the air is often stagnant and the heat intense; the water is also in some cases charged with mineral impurities, especially the salts of lime; the food of the inhabitants is often scanty in quantity, and inferior in quality; they are in many cases grossly intemperate, and intermarriage with near relatives, and those affected with goitre or incipient cretinism, is common. In other countries it occurs on open plains, but in other respects under circumstances analogous to those already named. Whatever may be the obscurity in regard to the causes of this fearful disorder, there is none in regard to the indications to be fulfilled in its treatment. The life of the cretin is usually short; few are found above 30 years of age, and any treatment having in view the improvement of their health must, to be of benefit, be applied to the young. The recovery of a patient beyond the age of 12 years is almost hopeless. The first thing to be accomplished is the removal of the young cretin, as soon as possible after the disease exhibits itself (for in many of the cases cretinism is not developed till the period of dentition, and

sometimes even not until the 6th or 7th year), to a pure bracing atmosphere. It has been ascertained that on the Alps it seldom occurs at an elevation of 3,000 feet above the level of the sea, and never at the height of 4,000 feet. Hence, those who have attempted its treatment in Europe have preferred elevated locations. The treatment requires an abundance of pure water, for drinking, washing, and bathing; warm and cold baths and douches; friction of the skin with brushes and stimulating liquids, to rouse its action; warm clothing; gymnastic exercises of the simplest character, passing on to those more difficult and fatiguing as they can be borne; the administration of some of the mineral tonics; nourishing and abundant, but simple food; iodine in some form, cod-liver oil, and the administration of some of the phosphates to give more firmness to the bony structure. Galvanism and electro-magnetism are also of benefit. As the essential nature of the disease seems to be a combination of rachitis (rickets) with retarded mental development, the bodily treatment must resemble as far as possible that ordinarily adopted in the treatment of rachitis and other scrofulous affections. The effort to develop the mind must follow, and with considerable interval, the attempt to restore the body to a healthy condition. The method of training for this purpose is similar to that employed in the instruction of idiots. The measure of success has been somewhat greater than with idiots, partly perhaps from the fact that instruction has usually been commenced at an earlier period, and partly because the mental paralysis (if we may be allowed the expression) was less profound than in the case of the idiot. The idea of restoring the cretin to health and to the exercise of his mental faculties had occurred to several individuals, and had been made the topic of some essays in the early part of the present century, by Fodéré, Wenzel, Viréy, Abercrombie, and others; yet no systematic effort for the purpose was made till 1839, when Dr. Guggenbühl undertook the establishment of an institution for the care and cure of cretins. He located this institution on the Abendberg, in the canton of Bern, in 1840, and has devoted his life to the work of their training. That, like the good abbé de l'Épée, whom in many respects he resembles, his enthusiasm may at times have led him to regard the intellectual progress of his pupils as beyond what they had actually attained, and to mistake answers learned by rote for the results of mental activity, is very possible; but, granting all that his detractors say to be true, he has undoubtedly restored many of this abject and degraded class to intelligence, activity, and life. There are now 5 other institutions on the continent expressly for the treatment of cretins, aside from those intended for the instruction of idiots and imbeciles not affected with cretinism. They are Dr. Erlenmayer's at Bendorf, with 25 or 30 pupils; Dr. Zemmer's at Mareaburg, with about 60 pupils; Dr. Müller's at Winterbach, with about the same number; a small one at Ecksberg, in Bavaria; and another in the valley of Aosta, in Piedmont, occupying the old lepers' hospital at the monastery. These all owe their origin to the example of Dr. Guggenbühl, but they have hardly attained to his measure of success. Some of the idiot schools also admit a few cretins; but the entire provision for their instruction in Europe furnishes accommodation for not more than 250 children, while at the lowest estimate there are more than 50,000 cretins on the continent. Several of the smaller governments of Germany have, however, taken the preliminary steps for the organization of cretin hospitals.

CREUSE, a department of central France, traversed by the river Creuse, from which it derives its name, and by other streams, none of which are here navigable; area, 2,133 sq. m.; pop. in 1856, 278,889. It is very mountainous, and contains granite, coal, gypsum, and potters' clay. The soil is poor, except in the N. E. part; agriculture is backward; the climate is damp and changeable; and the domestic animals are of an inferior breed. The crops of grain are insufficient for domestic consumption. Fruit, rape seed, and hemp, however, are raised abundantly, and quantities of honey are collected. The chief manufactures are carpets, tapestry, coarse woollen goods, cotton, leather, paper, glass, and porcelain. There are no canals, but the department is traversed by a railway from Châteauroux to Limoges. It is divided into 4 arrondissements, 25 cantons, and 261 communes. Capital, Guéret.

CREUTZ, Gustaf Filip, count, a Swedish poet and diplomatist, born in Finland in 1726, died in 1785. His poems were published in 1795, including *Atis og Camilla*, a pastoral epic in 5 cantos. While Swedish ambassador to Paris, he concluded, April 3, 1783, a commercial treaty with Benjamin Franklin, as representative of the United States. On his return to Stockholm he was appointed minister of foreign affairs, and chancellor of the university of Upsal. Gustavus III. purchased his library, which is now in the palace of Haga, and on April 26, 1786, the king in person pronounced his eulogy, before a chapter of the Swedish order of the seraphim, of which Creutz was a member.

CREUZER, Georg Friedrich, a German philologist and antiquary, born at Marburg, March 10, 1771, died in Heidelberg, Feb. 16, 1858. He was the son of a bookbinder, commenced his studies in his native city, and completed them at the university of Jena. After his return to Marburg he was appointed to a professorship of Greek, and subsequently of rhetoric, poetry, and Greek literature, which, however, he soon gave up, having accepted in 1804 the professorship of philology and ancient literature at the university of Heidelberg. Here he remained industriously engaged as a teacher till 1845, and as an author to the end of his life. The philological seminary, which was founded at Heidelberg in 1807 according to his

plans, has since exercised a marked influence upon that branch of science in Germany. His literary fame rests chiefly on his "Symbolics and Mythology of the Ancient Nations, and particularly of the Greeks" (4 vols., Leipsic, 1810–'12; 3d edition, 4 vols., Leipsic and Darmstadt, 1837–'44). This work, which contends for a bold and mystical theory as to the extreme antiquity and oriental origin of the Greek mythological, or rather theological systems, drew upon the author a series of critical attacks from G. Hermann, J. H. Voss (in the "Letters on Homer and Hesiod," and in the letter to Creuzer "On the Essence and Treatment of Mythology"), Lobeck, and a host of minor writers. The most remarkable of his other publications are: the edition of Plotinus's *Opera Omnia* (3 vols., Oxford, 1835); those of Cicero's *De Natura Deorum*, *De Divinatione*, *De Legibus*, *De Republica*, &c., executed in conjunction with G. H. Moser; "Historical Art of the Greeks" (Leipsic, 1803); *Dionysus, seu Commentationes de Rerum Bacchicarum Originibus et Causis* (2 vols., Heidelberg, 1808); "Sketch of Roman Antiquities," (2d edition, 1829); "Contributions to the History and Antiquities of Rome" (1836; French, in the *Mémoires de l'institut royal*, 1840); "Contributions to the Gallery of Ancient Dramatists" (1839); his autobiographical works entitled "From the Life of an Old Professor" (1848), and "Paralipomena of the Life of an Old Professor" (1858); "Contributions to the History of Classical Philosophy" (1854). A collection of his "New and Corrected Works" (1837–'54) contains a new edition of his German writings. Several of his works have been translated into foreign languages.

CREUZNACH, a Prussian town and watering place in the district of Coblentz, picturesquely situated on the river Nahe, 8 m. from Bingen, pop. about 9,000, with extensive salt works in the neighborhood, and saline springs, which are chiefly used for the cure of scrofulous diseases. In the vicinity are the ruins of the castle of Ebernburg, destroyed by the French toward the end of the 17th century, in former times a place of refuge for Ulrich von Hutten, Melanchthon, and other friends of Franz von Sickingen, to whom it then belonged.

CREWE, a market town of Cheshire, England, 32 m. S. E. of Liverpool, and important as a diverging point of 5 lines of railway, leading to Manchester, Birmingham, Chester, and other large towns. Pop. in 1851, 4,491.

CRIBBAGE, a game at cards played by 2 persons with a full pack of 52 cards. The points constituting the game, 61 in number, are scored by pegs on a board perforated with the necessary number of holes, called the cribbage board. The advantage lies with the dealer, who makes up a 3d hand for himself, called the crib, partly out of the hand of his opponent, to offset which the latter at the commencement of the game is entitled to score 3 points. There is a variety of this game called 3-handed cribbage, played by 3 persons with a triangular board. Four-handed cribbage is played by 4 persons in partnership of 2 and 2, as in whist.

CRICHTON, James, commonly called the "admirable Crichton," born probably in the castle of Cluny, in Scotland, Aug. 19, 1560, died in Mantua, July 3, 1583. He was of high descent, his father being lord advocate of Scotland, and his mother being a Stuart of the lineage of the reigning family. He was educated in Perth, till at the age of 10 he was sent to the university of St. Andrew's, then reputed the first school of philosophy in Scotland. Aldus Manutius mentions Rutherford, Buchanan, Hepburn, and Robertson as eminent scholars who were his masters. His ardor in study and progress in knowledge were astonishing. In his 12th year he took the degree of bachelor of arts; in his 14th, that of master; and, though the youngest of all, he was then esteemed the third scholar in the university. Before his 17th year, according to the current narrative, he had mastered the whole circle of science, could speak and write 10 languages, had excellent skill in painting, drawing, riding, fencing, dancing, singing, and playing on musical instruments, and possessed extraordinary physical beauty, symmetry, and strength. He soon after repaired to Paris, and according to Sir Thomas Urquhart, who is supported by no other authority, immediately determined, in compliance with mediæval scholastic usage, to challenge the philosophers and scholars of the city to a public disputation. To this end he affixed placards to the gates of the different schools, halls, and colleges of the university, and to the pillars before the houses of men of learning, inviting all learned persons to meet him on that day 6 weeks, before 9 o'clock in the morning, at the college of Navarre, where he would "be ready to answer to what should be propounded to him concerning any science, liberal art, discipline, or faculty, practical or theoretic, not excluding the theological or jurisprudential habits, though grounded but upon the testimonies of God and man, and that in any of these 12 languages: Hebrew, Syriac, Arabic, Greek, Latin, Spanish, French, Italian, English, Dutch, Flemish, and Slavonian, in either prose or verse, at the discretion of the disputant." The interval he passed in hawking, hunting, tilting, throwing the lance, games of chance, and other amusements of the gay city, provoking the satire of the students by his nonchalance; but on the appointed day he encountered the gravest philosophers and divines in presence of over 3,000 auditors, acquitted himself with marvellous learning during a disputation of 9 hours with the most eminent doctors, and was presented by the rector amid the acclamations of the assembly with a diamond ring and a purse full of gold. From this time he was known by the epithet of "the admirable." On the very next day he entered a tilting match at the Louvre, and bore off the ring from all competitors. After serving two years in the civil wars and distinguishing himself alike for

martial and mental prowess, he proceeded to Italy, and was in Rome in 1580. There, according to Dr. Mackenzie, who is but partially supported by Boccalini, he gave another demonstration of his talents and knowledge in a disputation before the pope and all the highest dignitaries of the church and the universities. His challenge was: *Nos Jacobus Crichtonus, Scotus, cuicunque rei propositæ ex improviso respondebimus.* He soon proceeded to Venice, where a Latin poem addressed to Aldus Manutius the younger gained him the friendship of that celebrated printer, and where he was intimately associated with Sperone Speroni, Lorenzo Massa, and Giovanni Donati. He was presented to the doge and senate, and delivered before them an oration which was equally applauded for its brilliant eloquence and consummate grace. He also disputed on questions of divinity, philosophy, and mathematics, with so much ability that Imperiali says "he was esteemed a prodigy of nature." After residing for 4 months in Venice, where he suffered a severe illness, he went in 1581 to Padua, the fame of whose university was then spread throughout Europe. In honor of his arrival the learned men of the place were convened in the house of a person of rank, and Crichton, being presented to them, began his performances by an elegant poem in praise of the city, the university, and the persons present. He then during 6 hours disputed with the doctors on topics of science, especially on the errors of Aristotle and his interpreters, delighting the assembly as much by his modesty as by his wonderful learning and judgment. In conclusion he gave an extemporaneous oration in praise of ignorance, with so much ingenuity, says one of his biographers, that he reconciled his audience to their inferiority. Some one having charged him with being a literary impostor whose attainments were only superficial, he caused a placard to be posted, in which he undertook to refute innumerable fallacies of Aristotle and the schoolmen, and to answer his antagonists, on any topic which they might propose, either in the common logical way, or according to the secret doctrine of numbers and mathematical figures, or in any one of a hundred different spècies of verse. The trial, before an audience containing many competent judges of such pretensions, was held in the church of St. John and St. Paul, where for 3 days the young man maintained his propositions with such spirit and energy before an immense concourse of people that he is said to have obtained praises more magnificent than were ever before heard by men. This, the last of his scholastic contests, was styled by Aldus Manutius, who was a spectator of his triumph, a "miraculous encounter." He proceeded from Venice to Mantua, where, according to Sir Thomas Urquhart, as much a fabler as a historian, he fought a famous gladiator, who had foiled the ablest masters of fence in Europe, who had marked his way to Mantua by blood, and had recently slain the 3 best swordsmen in that city. Crichton, having challenged him, is said to have shown such dexterity in the fight that he seemed but to be in play, and at length to have pierced the heart of his opponent while "his right foot did beat the cadence of the blow." There is other evidence that Crichton was attracted to Mantua, and that the duke of that city made him preceptor of his son, a riotous and passionate youth. For the amusement of his patron, he composed a comedy, in which he himself represented 15 different characters with wonderful effect, and which was esteemed one of the most ingenious satires ever made upon the follies of mankind. This was the last display of his extraordinary talents and endowments, and immediately preceded his tragic death. On a night of the carnival he was assailed in the street by 3 armed persons in masks. Turning upon them with his sword, he at length disarmed the principal aggressor, who proved to be his pupil, the son of the duke. Crichton immediately fell upon his knee, and presented his sword to the prince, who instantly pierced him through the body. In consequence of this event the court of Mantua went into mourning for 9 months, and it was said that the elegies and epitaphs written on his memory and affixed to his hearse exceeded in bulk the works of Homer. Though his splendid reputation and career are linked with romance, and though the 4 Latin odes and the few prose fragments which alone remain of his compositions do not convey an impression of remarkable powers, yet the historical evidence is sufficient to prove that he was a very extraordinary person in respect of capacity and energy, and that he possessed wonderful proficiency in science, literature, and gentlemanly accomplishments.—Sir Thomas Urquhart's "Discovery of a Most Exquisite Jewel" (London, 1652) was written about 70 years after Crichton's death, and abounds in extravagant opinions; his unsupported testimony is therefore not authoritative. Dr. Mackenzie, in his "Lives of Scotch Writers," quotes from Pasquier an account of the exploits at Paris of a wonderful youth, which might have applied to Crichton, but that the year 1445 is given as the date of his appearance. Neither Tytler, Pennant, nor Dr. Johnson (81st "Adventurer") made rigorous examination of the ancient authorities. The chief contemporary evidence is given by Aldus Manutius, who was indisputably a witness of Crichton's intellectual exertions at Venice and Padua, and whose *Paradoxa Ciceronis* has been the foundation of subsequent biographies. An Italian broadside printed at Venice in 1580, discovered by Tytler, confirms the current account of Crichton's accomplishments. Imperiali, in his *Musæum Historicum* (Venice, 1640), gives information derived from his father, who as a youth had seen Crichton at Padua. Scaliger also relates traditions of him as a "very wonderful genius" which he obtained

in Italy. There are several other confirmatory allusions to him in writings belonging to the first half century after his death.

CRICKET, an insect belonging to the order *orthoptera*, the group *saltatoria*, and the family *achetadæ*. Like other insects of the order, the crickets have straight wings, which, when not in use, are folded lengthwise along the back, the upper wings having a narrow border which is folded down so as to cover also the sides of the body; the jaws move transversely like those of beetles; they do not undergo a complete metamorphosis, the young resembling the parents except that they have no wings; in the pupa state they have the rudiments of wings, eat voraciously, and grow rapidly. In the *saltatoria*, which include also grasshoppers and locusts, the thighs of the hind legs are greatly developed, enabling them to take long leaps. In the family to which the cricket belongs, the wing covers are horizontal, the antennæ long and tapering, the feet 3-jointed (except *œcanthus*, which has 4 joints to the hind feet), 2 tapering downy bristles at the end of the body, between which, in the females, there is a long and sharp piercer. The common house cricket of Europe (*acheta domestica*, Linn.) is about an inch long, of a yellowish or clay color mixed with brown; it dwells in the cracks of walls and floors, and in warm places, as the vicinity of ovens, where it remains concealed during the day, coming forth at night in search of bread, meal, and almost any article of domestic economy which contains moisture; it is said also to devour other insects. The female has a long ovipositor, and the male makes a loud noise or chirp by rubbing the hard internal border of one wing cover against a horny ridge on the under surface of the other; for this familiar sound the cricket has been immortalized in the verse of Cowper and the prose of Dickens, and its merry chirp is interwoven in some of the most cheering superstitions of England; its very presence in a house was a sign of good luck, and its flying away a very bad omen. It is a most indefatigable musician, commencing its tune at twilight and keeping it up without intermission till daybreak; its note is so agreeable to some that it is kept in cages by the fireside, as a pet songster, and Scaliger is said always to have had a box of them singing on his table, though this last refers more particularly to the field cricket. This species (*A. campestris*, Fabr.) is larger than the preceding, of a blackish hue, with the base of the wing covers yellowish; in July the female lays about 300 eggs, which are hatched in 15 days; the young have no wings, and feed on vegetable matters, changing their skins before winter; they remain torpid in winter, and become perfect insects in the following June. This species is spread over Europe, where it affords great sport to children, who hunt for it with an ant attached to a hair; from the eagerness with which it comes out of its hole in the earth when any foreign body is presented to it, thus falling into the hands of its enemies, has arisen the expression prevalent in France, "silly as a cricket;" in England the people are more apt to say "merry as a cricket." Their holes are made at first horizontal and then vertical, and they retreat into them backward; they eat grass, seeds, and fruit, carrying them to their holes; they are fond of drinking the dew on leaves and flowers, but are very careful to avoid wetting themselves in their journeys. The young live together in peace under stones and sticks, but when they have attained the full size they are constantly fighting with each other; the field crickets are sometimes made use of in ridding a dwelling of house crickets, the larger instantly declaring war against the smaller species and driving them out. The boys in Germany are very fond of keeping crickets in boxes for the sake of their song, and for the purpose of making them fight; what the game cock is to the Havanese, and the bull-dog to the English, the cricket is to the youth of Germany; according to the direction in which they meet, they will butt like rams, kick like horses, or scratch like cats, never ceasing till one leaves the field or is disabled. There are several species of cricket in America, though there is no house cricket. Our common field species (*A. abbreviata*, Harris) is named from the shortness of its wings, which do not extend beyond the wing covers; it is about ¾ of an inch long, black, with a brownish tinge at the base of the wing covers, and a pale line on each side most distinct in the female. Another species (*A. nigra*, Harris) is entirely black, with very short wings, and measuring ⅜ of an inch in length. Crickets are generally nocturnal and solitary, but some species are often seen in the daytime crawling along our garden paths in great numbers. Our nocturnal crickets do not excite the same pleasant associations as the European species do; they do not enter our houses unless by accident, and their monotonous notes, continued during the autumn nights, are to most persons dismal and sad. Where crickets are numerous, they injure vegetation, eating the tenderest parts of plants, destroying great numbers of melons, squashes, potatoes, &c.; they devour other insects, and thus in a certain degree are of service. They may be destroyed by arsenic mixed in grated vegetables, or in bottles partly filled with fluid, into which they crowd to drink; cats are fond of them, playing with them like mice before eating them; swine also devour them eagerly. There is here a third species (*A. vittata*, Harris, genus *nemobius* of Serville), destitute of wings, varying in color from rusty black to dusky brown, with black lines on the back and posterior thighs; it is about ⅔ of an inch long, social in its habits, frequenting the meadows and roadsides in the daytime. There is another kind inhabiting shrubs, vines, and trees, concealing itself in the daytime among the leaves; these are very noisy, producing their sounds by the rubbing of the wing covers, and if one gets into a chamber it will effectually prevent sleep; the antennæ and legs are very long and slender,

and the piercer is only half as long as the body. They form the genus *œcanthus*, and are called tree or climbing crickets; there are 3 species in the United States, of which the *Œ. niveus* inhabits Massachusetts. The male is of a pale ivory color, with the upper side of the 1st joint of the antennæ and between the eyes ochre yellow, and a minute black dot on the under side of the 1st and 2d joints of the antennæ; the length is about ¼ an inch. They sometimes pierce peach twigs for the purpose of laying their eggs, and they injure the tobacco plant by eating holes in the leaves. They are difficult to catch, from their extreme shyness. The eggs are laid in the beginning of autumn, but are not hatched till the following summer; they attain maturity by the 1st of August, and in southern climates before that time. The females are the largest, and are almost white, dusky beneath, with 3 dusky stripes on the head and thorax, and the wings with a greenish tinge and larger than the covers.

CRICKET, an athletic game much played in England and America, which, according to Strutt, takes its origin from the ancient game of club-ball, which was played with a straight bat, but without wickets. In an illustration of club-ball found in a Bodleian MS. dated 1344, a female is represented in the act of throwing the ball to the batsman, who elevates his bat to strike it, while behind the woman are other figures of both sexes waiting to catch or stop it. By name, cricket cannot be traced further back than to a passage in Phillips's "Mysteries of Love and Eloquence," in 1685. In the beginning of the last century, it is alluded to in an old ballad published by D'Urfey, "Of a Noble Race was Shenken:"

> Hur was the prettiest fellow
> At foot-ball and at cricket.

Of the ancient mode and of the rules for playing cricket but little has come down to us; the game is now governed by a set of laws, arising from the necessities of the play, elaborated by nearly a century's practice, and forming a complete code. Till within the last 80 years cricket was but rarely played in England, though there is plenty of evidence of its existence as a game in the 16th century, and probably even earlier than that. In America its introduction has been quite recent, and it has become generally popular only within the last 4 years. It is now the favorite outdoor game, both of town and country. It lasts from spring till autumn, though chiefly played in the latter, depending a great deal on the weather, as it requires a dry sod, as well as freedom from any present fall of rain. The essentials for playing are: 1, the ball; 2, the bat; 3, the wickets; 4, a field of as short and level turf as can be obtained. It is also well to have a line of 22 feet in length, and a frame of wood 6 feet 8 inches by 4 feet, for measuring the ground and fixing the bowling and popping creases, a tent in case of rain, scoring books, gloves and leg guards to protect the hands and legs in fast bowling, and spiked shoes to prevent slipping.—The game is played either as "single wicket" or as "double wicket." Single wicket requires one wicket, one popping crease, one bowling crease, one ball, one bat; and it may be played by any number of players, arranged in two sides, not exceeding 7 or 8 on each side. The laws of this game differ somewhat from those of double wicket, which is played with one ball, 2 bats, 2 wickets, 2 popping creases, 2 bowling creases, and 2 sides of players, one of which must consist of 11, and the other, though not limited, is usually of the same number. The laws of the game in the United States are the same essentially as those in England, and the code, revised by the Marylebone club, held as the highest authority in this game, is as follows:

Double Wicket.

1. The ball must weigh not less than 5¼ oz. nor more than 5½ oz., nor measure less than 9 inches in circumference nor more than 9¼ inches. At the beginning of each innings either party may call for a new ball.
2. The bat must not exceed in width 4¼ inches, nor in length 38 inches.
3. The stumps must be 3 in number, 27 inches out of the ground; the bails 8 inches in length, the stumps of equal and sufficient thickness to prevent the ball from passing through.
4. The bowling crease must be in a line with the stumps, 6 feet 8 inches in length, the stumps in the centre, with a return crease at each, toward the bowler at right angles.
5. The popping crease must be 4 feet from the wicket, parallel to it, and unlimited in length, but not shorter than the bowling crease.
6. The wickets must be pitched opposite each other by the umpires, at the distance of 22 yards.

Of the remaining rules we give a brief abstract:

7. Neither party without the consent of the other shall alter the ground.
8. After rain, both parties consenting, wickets may be changed.
9. The bowler shall bowl with one foot behind the bowling crease, and after bowling 4 balls shall change wickets.
10. The ball must be bowled, not thrown or jerked; the hand in delivery must not be above the shoulder.
11. Bowler at his wicket may require striker to stand on either side.
12. If bowler tosses the ball over the striker's head, or bowls so wide that it is beyond batsman's reach, one run shall be counted to party having innings by the umpire.
13. If the bowler deliver a "no ball," or a "wide ball," the striker shall be allowed as many runs as he can get, and shall not be put out except by running out.
14. At the beginning of each innings each umpire shall call play.
15. The striker is out if the bails be bowled off, or stump bowled out of the ground;
16. If the ball, from stroke of bat or hand, but not wrist, be caught before it touch the ground, and held;
17. If, in striking, both feet are over the popping crease;
18. If he knock down his own wicket;
19. If he prevent the ball from being caught, the striker of the ball is out;
20. If the ball be struck and he strike it again;
21. If his wicket is knocked off before he can ground his bat over the popping crease;
22. If any part of his dress knock the wicket down:
23. If he touch or take the ball, except at the request of the opposite party;
24. If he stop a ball by any portion of his person, which ball would otherwise have hit the wicket.
25. If the players cross, he that runs for the wicket that is down is out.
26. No runs are counted, the ball being caught.
27. The striker being run out, that run is not counted.
28. "Lost ball" being called, the striker is allowed 6 runs; he shall have all that he has run if there are more than 6 before calling "lost ball."
29. The bowler may put striker out if before delivery the striker is beyond the popping crease.
30. The striker shall not leave his wicket and return to finish his innings after another has been in without the consent of the opposite party.

31. No substitute shall be allowed without the consent of the opposite party.
32. Opposite party must also consent as to what place substitute may have.
33. Opposite party count 5 if any fieldsman stop the ball with his hat.
34. The ball having been hit, the striker may guard his wicket with his bat, or any part of his body, save his hands.
35. The wicket keeper shall not take the ball for the purpose of stumping until it has passed the wicket; he must not move till the ball be out of the bowler's hands.
36. The umpires are sole judges of fair and unfair play.
37. The umpires in all matches shall pitch fair wickets.
38. They shall allow 2 minutes for each striker to come in, and 10 minutes between each innings; when they call "play," the party refusing loses the match.
39. They are not to order a striker out unless appealed to by the adversaries.
40. If one of the bowler's feet is not on the ground behind the bowling crease, and within the return crease, the ball so delivered must be declared by the umpire "no ball."
41. If either of the strikers run a short run, it must be called by umpire "one short."
42. No umpire shall be allowed to bet.
43. No umpire, but with the consent of both parties, may be changed during the match.
44. After the delivery of 4 balls the umpire must call "over," but not until the ball shall be finally settled in the wicket keeper's hand.
45. The umpire must call "no ball" instantly on delivery of wide ball when it passes the striker.
46. The players who go in second shall follow their innings if they have obtained 80 runs less than their antagonists, except in all matches limited to one day's play, when the number shall be 60 instead of 80.
47. No person shall use the bat after one of the strikers has been put out until the next striker shall come in.

Single Wicket.

1. When there shall be less than 5 players on a side, bounds shall be placed 22 yards each in a line from the off and leg stump.
2. The ball must be hit before the bounds to entitle the striker to a run.
3. When the striker shall hit the ball, one of his feet must be on the ground and behind the popping crease, otherwise it is "no hit."
4. When there are less than 5 players on a side, neither byes nor overthrows shall be allowed, nor shall the striker be caught out nor stumped out.
5. The fieldsman must return the ball so that it shall cross the play between the wicket and the bowling stump, or between the bowling stump and the bounds.
6. If the striker has made one run, if he start again he must touch the bowling stump.
7. The striker is entitled to 3 runs for "lost ball" (referring to law 28 of double wicket).
8. When there are more than 4 players on a side there shall be no bounds; all hits, byes, and overthrows shall then be allowed.
9. The bowler is subject to the laws of double wicket.
10. Not more than one minute shall be allowed between each ball.

In single wicket the stumps are driven into the ground, subject to the laws 3 and 5 of double wicket; in front a popping crease is marked off, as in law 5; at 22 yards' distance a bowling stump is fixed; a bowling crease must be marked at the proper distance, as in law 4, and here the bowler must deliver his ball, as defined by laws 9, 10, 12, 13, and 14. The game is defended by the batsman, or striker, who stands at the popping crease. The attack is conducted by the other side, placed in the field according to their numbers.—Double wicket usually consists of 2 sides of 11 players each; one of these has the innings by lot, and 2 of their party defend the wicket with their bats. By the other side, who are now fielding, the attack is maintained; if the bail is knocked off, or the stump is bowled out of the ground, the striker is out, and is replaced by another till all the side are put out. If, on the other hand, the ball is struck, each run counts one, and the side which makes the greatest score is the winner. Two captains are chosen, one for each side, generally the 2 best bowlers, and they choose their assistants, and allot each their respective places when fielding. When matches are made between 2 clubs, the men are selected by a committee from each club. One bowler at a time is indispensable, who bowls 4 balls, called an "over;" then the whole of the fielders walk over to the opposite side, and another over of 4 balls is delivered from the opposite wicket by another bowler. For fast bowling the men are stationed as follows: Immediately behind the wicket is the wicket keeper, whose duty it is to stop the ball, an office of no little labor and risk, for which tubular gloves and leg and body guards are absolutely required. Behind the wicket keeper are the long stop and assistant; the short slip is in a line with, and on the right of, the wicket keeper; the long slip is in the same line further to the right; the leg is behind and to the left of the wicket keeper; behind the bowler and on his left is the long field off, to the bowler's right the long field on; to the right of the striker are the mid wicket, cover point, and point. The duty of these is merely to stop the ball, and they take their names from the places assigned. There are 2 kinds of bowling, fast and slow; the fast is almost always "round-handed;" the straight underhand balls are much more easy to guard; where, however, the ball twists, the matter is much more difficult. In round-handed bowling the ball has a turn on its own axis, independent of its forward motion, and when it appears as if running clear of the wicket, it yet will twist and take the outside stump. Where the bowling is slow, and there is but little hard hitting, the fielders are brought nearer in, to get, if possible, near catches, from the tendency of good slow balls to rise if only tipped. The terms descriptive of the varieties of balls are "lengths" and "not lengths," the latter consisting of toss, tice, long hop, half volley, and ground ball. In bowling, the ball should be delivered with a run, and should be held with the seam across, so that the ends of the fingers touch it.—The dress of a cricketer is almost always a light flannel jacket, with trousers of the same, or of white duck; a straw hat or light cap is generally adopted; leg guards and body guards are used in batting and wicket keeping; and gloves, Oxford shoes, or shoes with spiked soles, complete the arrangement.

CRILLON, a French family derived from the Piedmontese Balbes who emigrated to France in the 15th century. I. Louis des Balbes de Berton de Crillon, the hero of the reigns of Henry II., Francis II., Charles IX., Henry III., and Henry IV., born at Murs in Provence in 1541, died in 1615. He was the first to assume the name of Crillon, from a small estate of that name situated in the present department of Vaucluse. Having become glorious by his exploits, the name was adopted by the whole family. As the youngest of 6 brothers, he was destined for the order of the knights of Malta, studied with zeal and dili-

gence at the school of Avignon, and eagerly pursued bodily and chivalric exercises. Under Francis de Lorraine, duke of Guise, he completed his education as a warrior and cavalier in his 16th year. Under the command of the duke he was the first on the walls of Calais, which had been for 2 centuries in the hands of the English, and was now taken after a siege of 8 days (1558). He equally distinguished himself at the capture of Guines. Adored for his extraordinary bravery by the army, he was presented by his commander, the duke of Guise, to Henry II., as the chief instrument of his victories, and richly rewarded by numerous clerical estates, it being at that period customary in France to bestow benefices on laymen, to be managed for their benefit by members of the clergy. In the ensuing civil wars of France he served against the Huguenots, defeating the conspiracy of Amboise, formed against the Guises (1560), and fighting in the battles of Rouen, Dreux, St. Denis, Jarnac, Moncontour, and St. Jean d'Angély. As a knight of Malta he fought under Don John of Austria at Lepanto, against the Turks (1571), was wounded, and sent with the news of the victory to Charles IX. of France, and Pope Pius V. Already called "the brave" by the court of France, and "the man without fear" by the army, he became the object of general admiration. He now had his first duel with Bussy d'Amboise, who, meeting him in the street, asked him haughtily: "What is the hour?" and was answered: "The hour of your death!" He afterward saved the life of Bussy, and won his friendship. He took no part in the massacre of St. Bartholomew's (1572), which he freely condemned, though he continued to serve against the Huguenots. The duke of Anjou, brother of the king, having been elected king of Poland (1573) after the extinction of the house of Jagiello, he followed him to that country through Germany, where he defended his dignity against the insults of the irritated Protestants, and on his flight thence, when he succeeded as Henry III. to the throne of France. On his return he was distinguished with new honors by the cities of Venice and Lyons. When, after the battle of Coutras (1587), Henry III. openly commenced hostilities against the league, and the states assembled at Blois decreed the assassination of the duke of Guise, who had followed his father in the leadership of the Catholics, the monarch offered Crillon the honor of killing the duke, which he refused. He afterward fought for the king against the league, and, after the assassination of Henry III., served with equal fidelity the new king, Henry IV. The battle of Ivry (1590) ended his services in the civil wars. Henry IV., who called him "the brave of the brave," said: "I have never feared any but Crillon;" and wrote to him after the battle of Arques: "Hang yourself, Crillon; we have conquered without you." In the war against Spain, Crillon was active again. The peace of Savoy ended his military career, when he retired to Avignon.

The chivalric bravery of Crillon was equalled by his generosity, which prompted him even to pardon an attempt at his own assassination. The estates of the family were inherited by Thomas, the 3d of the brothers, and made in the 4th generation a duchy by Benedict XIII. II. The 2d duke of Crillon was Louis, born in 1718, died in 1796 at Madrid. Having entered the French army at the age of 13, he fought under Villars in the campaign of 1733 in Italy, and distinguished himself in Germany. Entering the Spanish service in 1762, he conquered Minorca (1782), and was rewarded by the title of duke of Mahon, and became captain-general of the provinces of Valencia and Murcia. His *Mémoires* (Paris, 1791) contain many particulars valued by men of military science. III. Louis Antoine François de Paule de Crillon, duke of Mahon and grandee of Spain, son of the preceding, born in 1775, died in 1832. Made a colonel in the Spanish army at the age of 15, he was captured with his regiment on the invasion of France in 1794. After the peace he served, with the permission of his government, as volunteer under Moreau; then again in Spain, where he became commander of a division, governor of Tortosa, and in 1807 captain-general of Guipuzcoa, Alava, and Biscay, in which capacity he faithfully guarded the northern fortresses against the generals of Napoleon, until he was expressly commanded by the king, who rejected his warnings, to surrender them to the French. After the fall of the Bourbons he swore allegiance to Joseph, brother of Napoleon, and was made lieutenant-general of the Spanish army, and successively captain-general of Navarre, Toledo, and Cuenca. Proscribed by the returning Bourbons in 1814, he fled to France, where he remained, and received the title of lieutenant-general. Of the 2 sons of his brother, Félix Dorothée, who was peer of France, and died in 1820, one served under the restoration, in the army, and as peer of France, the other under Napoleon and the restoration.

CRIMEA, a peninsula forming the southern extremity of the Russian empire in Europe. It extends between lat. 44° and 46° N. and long. 32° and 37° E.; greatest extent from E. to W. 190 m., from N. to S. 123 m.; area about 8,000 sq. m. This peninsula is connected with the main body of the empire by the narrow isthmus of Perekop, the breadth of which is less than 5 m. Though only the 260th part of European Russia, the Crimea, in consequence of its geographical, commercial, and strategetical position, is one of the most important divisions of the empire, commanding as it does the navigation of the Black sea. It has a coast line of 550 m. Along its N. E. shore there extends a long and narrow inlet of the sea of Azof, from which it is separated by a tongue of land, or rather a sand bar, about 70 m. in length and 1 to 1½ m. in breadth. This inlet is so shallow that in some places it has the appearance of a morass, and its very name (Sivash, or Putrid sea) indicates its general aspect. The eastern part of the

Crimea forms a minor peninsula, stretching eastward to the strait of Yenikale, the Cimmerian Bosporus of the ancients. While the N. portion of the peninsula is only a continuation of the steppes of S. Russia, barren, cheerless, and swept by chilling winds, the S. portion, sloping from a mountain chain which stretches from Sebastopol to Kaffa as a barrier, enjoys a semi-tropical climate and a great richness and variety of vegetation. Hence the N. portion has from time immemorial been occupied by nomadic tribes, eking out a scanty subsistence by cattle-raising; while on the S. slope higher forms of culture have been developed by the Greeks, the Genoese, the Tartars, and the Russians, successively. There is only a comparatively narrow belt of arable soil on the northern slope, and on this belt the most important towns are situated, such as Sebastopol, Bakhtchissarai (the old capital of the Tartar rulers), Simferopol, Staroi Krym, and Karasoo-Bazar. To the northward of this belt extends the steppe, its monotony relieved only by numerous herds of cattle and thousands of cranes, storks, and gulls, swarming around the salt-water lagoons and marshes. The mountain chain (Jaila), mentioned before, appears to be a western continuation of the Caucasus, from which it is separated only by the strait of Yenikale. In the Tchatir-dagh, or Tent mountain (the Trapezus or Table mountain of the ancients), it attains to an elevation of 5,051 feet above the level of the sea, and terminates to the southward of Sebastopol in the promontory called Crion Metopon (Ram's Face) by the Greeks, and Ai Burun (Holy Cape) by the Tartars. The S. coast, to which the principal chain sends several small branches, is exceedingly picturesque in appearance. Wherever the slope of the hillsides is not too steep, they are covered with vineyards and the country houses of the rich; the valleys, watered by numerous small streams, are carefully cultivated and produce rich crops of grain and fruit; the mountains abound in valuable timber. The N. steppe, on the other hand, is almost entirely destitute of fresh-water springs and rivers, and its soil is generally impregnated with salt.—The 2 principal rivers of the Crimea are the Salghir, which rises from a cavern near Simferopol, at the northern foot of the Tchatir-dagh, and empties into the Putrid sea, and its tributary, the Karasoo (Black Water), which rises from the same mountain a little further E. Of the smaller streams, the Alma, running a little N. of Sebastopol from E. to W., has become widely known by the battle fought on its banks, Sept. 20, 1854.—The climate of the Crimea is salubrious and delightful in the springtime, but irregular and generally very hot in summer, a temperature of 100° F. being quite common. The autumn is considered unhealthy, fever and ague prevailing at that time of the year in the lowlands. In winter the weather is often extremely severe, more so than in most other parts of Europe in the same latitude. The apples raised in the southern Crimea are excellent, and command high prices in the market of Moscow. All the various kinds of grain, including maize, also peas, hemp, and tobacco, are grown in the fields; olives, melons, watermelons, gourds, cucumbers, in gardens; quinces, plums, peaches, apricots, cherries, mulberries, walnuts, hazlenuts, chestnuts, are among the vegetable products of the Crimea. Of wild animals, only deer, wolves, badgers, foxes, hares, weasels, and jerboas are found; camels are employed on the northern steppes, where also buffaloes and oxen, sheep and goats, are raised. The horses of the Crimea are more remarkable for activity and intelligence than beauty. The birds most common are crows, owls, thrushes, blackbirds, partridges, quails, kingfishers, pigeons, and poultry, geese, swans, ducks, teals, gulls. Among the insects, the hideous *rana variabilis*, scorpions, tarantula spiders, and scolopendras may be mentioned. Bees are abundant; so are fish on the coast, but not in the rivers. The production of grain increased from 350,000 quarters in 1841 to 850,000 in 1851. Agriculture is most developed in the district of Berdiansk, peopled by foreign settlers. The Crimea possessed in 1851 about 2,000,000 sheep, half of which were fine-wooled, 85,700 horses, and 248,260 horned cattle. The salt manufacture is monopolized by government; the most celebrated salt mines are those of Perekop and Eupatoria. The number of vines increased from 5,929,500 in 1832 to 35,577,000 in 1848; and the entire vintage of the Crimea amounted in 1851 to about 3,500,000 gallons. The Crimean wines which are exported are generally of a secondary quality, and are chiefly used for mixing with other wines. The vineyards of Prince Woronzoff are highly esteemed, and yield a sparkling wine, something like champagne. The principal articles of export are salt, wine, honey, wax, leather, hides, wool, lamb skins, and morocco leather; and an active transit trade exists, corn, seeds, tallow, tobacco, and silk being brought here for barter with European, and especially Russian manufacturers.—The population of the peninsula is a mixture of the Greek, Italian, Tartar, and Slavonian nationalities. There are, beside, Armenians, Caraite Jews, Greeks, gypsies, and also 9 German colonies established in 1804–'5, and reënforced in 1816–'17 by 1,400 Swabian families, but numbering at present only about 1,800. The Tartars (Mohammedans), in former times so numerous that they were able to muster 100,000 warriors, still constitute the principal part of the population, the entire number of which is given at 200,000.—The Crimea, with a part of the province of Taurida, was acquired by Russia toward the end of the 18th century. Its aboriginal inhabitants, the Cimmerians, having been driven out by other Scythians, left only a small remnant (the Tauri) in the mountain recesses, and from them the ancient name of the country, Tauris or Chersonesus Taurica, was derived. It was celebrated by the legends of Iphigenia and Orestes; was the chief possession of the Greek kingdom of the Bosporus; was held under Roman protection,

and subsequently conquered by the barbarian tribes which invaded the eastern provinces of the Roman empire. Early in the middle ages it belonged to the Byzantine empire. Toward the end of the 12th century the Genoese and Venetians obtained a foothold. Kaffa and Cherson were established by the former, Tana by the latter. The Tartars overran the peninsula in the 13th century, and maintained their rule for more than 200 years, when they became subject to the Ottomans. Still all their municipal institutions were left undisturbed by the conquerors, who even allowed the Tartars to retain their own khans (princes), though as vassals of the sultan. In the latter portion of the 17th century the Russians began to covet the Crimea, and in 1771 they succeeded so far as to wrest it from Turkey and clothe it with a nominal national independence. In 1783 the khan Shahin Gherai, having been expelled from the Crimea by the anti-Russian party, ceded his country to Russia, and in 1784 the peninsula and its adjoining provinces were annexed to the empire. The peninsula is divided into 4 districts: Simferopol, Feodosia, Yalta, and Eupatoria. The capital, Simferopol, has only 8,600 inhabitants, and has lost all vestiges of its former splendor as the residence of the Tartar khans. It had been outgrown by Sebastopol before the destruction of that place in 1855, and by Eupatoria (Kozlov), Bakhtchisarai, Feodosia, and Kertch. The latter, the old *Panticapæum*, is almost the only town in Russia that is built entirely of stone; its population amounts to about 10,000 souls. Karasoobazar, situate to the N. E. of Simferopol and containing about 15,000 inhabitants, is the principal seat of what little industry the Crimea can boast of.—The Crimea was, in 1854 and 1855, the principal theatre of the war between the allied western powers and Russia. The armies of the allies effected a landing at the bay of Eupatoria, Sept. 14, 1854. On their southward march toward Sebastopol they encountered the Russian forces, commanded by Prince Mentchikoff, on the banks of the Alma. A bloody battle was fought (Sept. 20), in which the Russians were compelled to retreat. On Sept. 25 the British forces seized Balaklava, and on Oct. 9 the regular siege of the southern portion of Sebastopol commenced, the Russians having sunk vessels in the entrance to the harbor and thus rendered the city unassailable by maritime force. On Oct. 25 and Nov. 5, the Russians vainly attempted to annihilate the besieging forces in the battles of Balaklava and Inkerman, but afterward confined themselves mainly to the defensive, their frequent sorties being intended more to harass and retard the siege than to relieve the place definitively. Among these conflicts some assumed almost the character of regular field battles; for instance, an unsuccessful attack of the French upon a new redoubt (Feb. 23, 1855), their first assault upon the Malakoff and Redan (June 18), and the battle of the Tchernaya (Aug. 16), in which the Russians, numbering 50,000 infantry and 6,000 cavalry, made a last effort to break the aggressive force of the enemy. The trenches having been driven so near the Russian defensive works that another assault could be ventured, the final bombardment was opened Sept. 5, and lasted for 3 days. On Sept. 8 the Malakoff and Redan were stormed and taken by the allies after a desperate struggle. The Russians, after having blown up their extensive fortifications on the southern shore of the harbor, retreated to the north side, which the allies never seriously attempted to conquer. The latter, having destroyed the costly docks, arsenals, and ship yards of Sebastopol, remained inactive in their camp, and, with the exception of the capture and sack of Kertch on the strait of Yenikale, no further feats of arms were accomplished. The forces of the allies were withdrawn in the summer and autumn of 1856. In the latter part of 1858, two brothers of the emperor made a tour of inspection in the Crimea, and it was rumored that it was the intention of the government to establish a city like Sebastopol at or near the strait of Yenikale.—On April 10, 1856, Col. Munro exhibited in the London society of antiquaries a great number of relics discovered beneath a spot between Balaklava and Sebastopol which had been used throughout the war as the provision depot of the English camp. The first intimation of the antiquities was the turning up of a coin of Romanus, and at length an oblong enclosure was cleared out measuring 150 feet by 93, having at one end a circular form and walls 10 feet in thickness, comprising a Cyclopean wall and an inner wall of wrought masonry. These remains are supposed to be those of a temple, dating from 400 to 200 B. C. Beside a beautiful small female head in terra cotta, presumed to be Astarte or some other divinity, which has been presented to the queen of England, 16 vases and fragments of pottery, glass beads, fibulæ, spear heads, and other antiquities, were discovered on the same occasion in the Crimea. On Dec. 5, 1856, Dr. Duncan McPherson, who had officiated as inspector-general of hospitals of the Turkish contingent, gave before the same society a description of the excavations conducted under his care, on the site of Pantecapæum and the Mons Mithridates, in the immediate vicinity of Kertch; and has since published a splendid illustrated work in folio, with drawings of tombs and other relics, including some curiously constructed chambers. Many of these antiquities have since been deposited in the British museum.

CRIMINAL LAW. This branch of jurisprudence is the earliest in development, but the latest to be reduced to a rational and consistent system. The predominance of penal laws may be seen in the early legislation of every nation. The reason is, that in a rude state of society personal violence is the most pressing subject for which laws are required. Laws are accordingly enacted for the emergency, and, as might be expected, having reference to the immediate occasion, they partake rather of blind popu-

lar impulse than the calm deliberation of legislative wisdom; not that the laws are in fact dictated by the will of the people, but the legislators themselves are under the influence of the same prejudices that actuate the popular mind. The consequence is, that excessive severity at first prevails, which in the course of time is meliorated by evasion of the laws, and the contrary extreme of undue laxity has in many instances succeeded. The latter effect can be guarded against only by a timely revision of the laws, and an accommodation of them to the more humane views resulting from an advance of civilization. But, as we shall have occasion to show more particularly in the course of this article, the practical wisdom required for such a revision is the very latest growth of civilization, and belongs to the highest branch of political science. It has indeed been erroneously supposed that criminal law is extremely simple as compared with the laws relating to property. This idea has grown out of the fact that legislation respecting crimes has by necessity been called for when as yet the state of society was unsettled. Laws were made for individual cases, and by consequence were destitute of sound legal discrimination; yet by long use, and for want of the capacity required for systematic review and amendment, they have become fixed in all their incongruity. This irregular character of criminal laws is not peculiar to one or a few nations, but is observable in all systems of jurisprudence which have not in a later and more mature age undergone revision. Hence criminal law has more a statutory or positive character than the more gradually developed system of laws affecting property. In the absence of general principles and of all harmonizing method, each statute or provision of law is isolated, distinct, and positive, and therefore precludes all reasoning by analogy and all modification for the sake of conformity to the changing circumstances of society. So far, then, criminal law may be said to be simple, inasmuch as each statute is the law of the particular case referred to, and there can be no expansion or reproduction by analogy. Yet there are principles applicable to this branch of the law, which may, in like manner as the elementary rules of civil law, be developed into a harmonious system. Another peculiarity of criminal law, or rather of its administration at an early period, is the want of discrimination as to the palliative circumstances of crime. Motives are comparatively little considered in early penal laws, or in the judicial proceedings founded upon them. Gibbon's remark, that "the life or death of a citizen is determined with less caution and delay than the most ordinary question of covenant or inheritance," is true only of a jurisprudence which has retained its early crude legislation respecting crimes without subsequent revision. To a considerable extent this was the state of the English criminal law at the time Gibbon wrote, but it has since that time undergone a radical change. There is a third characteristic of the early administration of criminal law, viz.: the comparative disregard of the rules of evidence. The fact of being charged with a crime, especially if there be some strong circumstance of suspicion, naturally induces a prejudice against the accused. He is deemed guilty until he proves himself innocent; contrary to the more humane axiom of a later age, that a man is to be deemed innocent until he is proved to be guilty. The very atrocity of the crime of which a man is accused is an aggravation of popular prejudice, and in a semi-civilized community is almost equivalent to condemnation. The patient investigation of a case, the careful weighing of all the evidence, particularly that which is derived from circumstances, and the impartial judgment unswayed by popular excitement or the exacerbated passion of the injured party, belong to a more advanced stage of civilization and jurisprudence. Illustrations of the foregoing remarks will be found in the penal laws of nations the most celebrated for their legislation. The laws of Draco, which on account of their undiscriminating severity were said to have been written in blood, are not to be deemed the mere expression of the cruel heart of the legislator, but rather the reflection of the sanguinary disposition of the Athenian people at that period. So the decemvirs who prepared (perhaps merely compiled) the 12 tables did not declare crimes nor impose penalties abhorrent to the popular disposition, but rather were actuated by the same impulses and prejudices which prevailed in the minds of the people. It was not indeed a democratic influence, for some provisions were made expressly for the support of patrician power over the plebeian commonalty; but, allowing a certain degree of discrimination in the estimation of crimes as affecting one or the other class politically, the code of the decemvirs may be assumed to be a fair expression of the temper of the Roman people. Upon analysis of these celebrated laws, all the defects which we have specified as incident to early legislation become apparent. The penal largely predominates over the civil, and in respect to crimes and their penalties there is an absence of what we should deem a just discrimination respecting the relative measure of crimes and the punishment due to each, and there is a want of due regard to motives or other palliative incidents. Mutilation of the person was punished by the retaliatory infliction of the same injury upon the wrong doer. A false witness was to be thrown headlong from the capitol. The killing of a man, or making use of magical words to hurt him, or the preparing of poison for him, or giving it to him, were subject alike to the penalty of death. A parricide was adjudged to be sewn up in a sack and thrown into the river; the addition to the contents of the sack of a cock, a viper, a dog, and an ape, were the fanciful devices of those who executed the law, and not prescribed by the law itself, though in the Institutes of Justinian they appear as if the whole

had been originally so enacted. Slander by words or defamatory verses was punished by beating with a club, and the authorities cited by Gibbon seem to prove that the punishment extended to death. This was undoubtedly a political law, intended in the first instance for the protection of the decemvirs themselves against any rude complaint by the people. It remained, however, unrepealed, though, like other enactments, probably unexecuted, except for tyrannical purposes. The treading down of another's corn field at night was punished with death; but the cutting down of trees, whatever might be the value, was subject to a mere fine of 25 pounds of brass. But the most apt illustration of the irrational severity of these laws was the treatment of an insolvent debtor, who, without any other imputation of fraud than the fact of owing the debt and not having paid it, could be taken home by the creditor and kept 60 days, fettered with irons not exceeding 15 pounds in weight; at the end of which time, if the debt remained unpaid, he could be brought before the people on 3 market days, on the last of which his body could be cut into pieces according to the number of creditors, or, if they preferred, he could be sold into foreign slavery. The excessive severity of a law defeats the very object had in view in enacting it. "The criminal code of the decemvirs," says Gibbon, "was abolished by the humanity of accusers, witnesses, and judges; and impunity became the consequence of immoderate rigor." Magistrates were prohibited from inflicting on a free citizen any capital or even corporal punishment. All cases affecting the life or liberty of a Roman citizen were, by the laws of the 12 tables, to be tried by the *comitia centuriata*. The multiplication of these cases led to the giving power annually to the prætors to sit in judgment on state offences, with a certain number of judges drawn from the rolls of citizens; and new prætors were appointed with special powers for the trial of offences relating only to individuals. There was a general amelioration of the laws by the operation of these different provisions. As there was no arrest until sentence had been pronounced, the judgment could be evaded by going into voluntary exile, and the interdiction of fire and water (*i. e.* exile) became the extreme limit of judicial severity even upon conviction in capital cases. A new administration of criminal law was, however, introduced with the imperial government. The senate was made the instrument of imperial power, for the condemnation of criminals charged with offences against the state; and the ordinary magistrates became invested with powers which under the republic had been reserved to the people, either in the *comitia* or in the popular body of *judices*, who sat with the prætor. Any Roman citizen might be a public accuser and prosecute criminal actions, but it seems not to have been usual, except when some political object was sought, or where the accuser had some relationship to the injured party, either by blood or professionally, as in the case of patron and client. It was a peculiarity of the Roman criminal law that, however mild it became in respect to free citizens, it was enforced against slaves and foreigners with all the stringency of its ancient severity.—The laws of the Germanic nations equally illustrate the propositions above stated, and especially the absence of all classification of crimes, and the disproportion of penalties to the different degrees of moral turpitude. The Salic law contained 343 penal articles, and only 65 on all other subjects. Of the penal laws, 150 related to cases of robbery, 74 of which referred to the stealing of animals; cases of violence against the person were the subjects of 113 articles, of which 30 related to mutilation of the person, and 24 to violence against women. The want of generalization is noticed by Guizot, as proving defect of intellectual development and the precipitation of the legislator in enacting laws: "Every case of robbery, of violence in the very fact, is taken hold of in order to immediately inflict a penalty; and there was no idea but of adding a new article of law whenever a new crime was committed, however trifling its difference from those which had been already provided for." Yet these laws present the same contrast that we have seen in the Roman, in the mildness of the penalties inflicted upon free men, and the cruelty of the punishments to which the slaves, and even bond laborers (*coloni*), were subject. Composition (*wehrgeld* or *widrigeld*), a pecuniary mulct, was the penalty enforced upon a free man, varying in amount with the atrocity of the offence; but upon slaves and laborers, tortures and death were freely inflicted. Similar provisions were contained in the laws of the Ripuarian Franks, the Burgundians, and the Anglo-Saxons. It was, however, understood that the injured party had a right to refuse composition, and to seek satisfaction by his own hand; which last alternative was regulated by certain rules, and hence received the designation of judicial combat. This was a peculiar feature of the Germanic law, and was not confined to criminal cases, but became a common mode of deciding questions of fact even in civil suits; and the right was reciprocal, that is to say, either party had the right to call the other to a decision of the controversy by combat. So either party had the right to challenge witnesses, and even judges, to combat, upon the allegation that the testimony was untrue or the judgment unjust. Montesquieu maintains that the judicial combat was introduced as a natural consequence of what he calls negative proof, that is, the denial of the charge by the party under oath, which was a purgation in criminal cases, and was also admitted in civil cases with the addition of the oaths of a certain number of others, called *conjuratores* or *compurgatores*, who merely deposed that they believed the party. The defect of this kind of proof, as well as of the other mode of determining facts, viz., by ordeal, rendered the trial by combat a necessity;

at least it was far more satisfactory to the rude minds of that period than either of the others, in which perjury and deception were palpable. Another mode, which was much in vogue among the Anglo-Saxons, and which was maintained for a long period in the English law, was the compurgation before alluded to. Whether the compurgators were the same as the *sectatores* spoken of in the Saxon laws is uncertain. It has been supposed by some writers that they had a function somewhat similar to that of the *juratores* of a subsequent period. In one respect they were alike, inasmuch as they stated upon oath their opinion of the case, which opinion was not founded upon evidence, but upon some private knowledge which they were supposed to have of the matter in controversy. There was probably a distinction, however obscure; the one (the juratores) became the modern jury, the other (the compurgators) continued to be called rather as witnesses, though they testified only to belief in what the party had sworn. The proceeding by compurgators was called wager of law, which took the name from the formality of giving gage or security that the party would at a certain day make his law, that is, that he would take an oath and bring 11 compurgators to swear that they believed him. In modern practice it seems to have been admitted only in an action of debt, instances of which may be seen in 2 Salk. 682, and 2 Barn. and Cress. 538; but at the period of which we speak it was a method of proceeding in criminal as well as civil cases. The juratores appear to have been in the first instance charged with the preliminary inquiry as to the guilt of any person charged with certain crimes, and upon their finding him guilty he was put to the ordeal or compurgation. This seems to have been the practice in the reign of Henry II. But we learn from Bracton, who wrote in the reign of Henry III., that the practice then was to commit the decision of the case finally to the jury, unless there was a demand of combat by one of the parties, or unless the defendant elected to wage his law. There was still, however, nothing like the modern proceeding upon a jury trial. The jurors were not expected to decide upon evidence produced by the parties, but upon their own knowledge or information collected by them. The direction of the judge was, that whereas such a man is charged with such a crime, the jury are to make known the truth thereof. Prosecutions for crime were usually upon appeal of a private party. Any one of legal capacity to sue could prosecute for treason, but ordinarily only near kindred by blood were admitted to bring suit for homicide; a woman could prosecute only for the death of her husband, or for a rape committed upon herself, and the appeal in the former case is said by Bracton to have been only *de morte viri inter brachia interfecti*. In other cases the party injured was in general the prosecutor. There was, however, as before mentioned, another mode of charging a person with crime, viz., *per famam patriæ*, a sort of indictment by the *patria* or jury. It does not appear how the prosecution was conducted in such a case; but as there was never any attempt to determine facts according to rules of evidence, it is probable that the first finding or indictment was conclusive, unless the party accused purged himself or took some exception to the jury.—It would exceed our limit to pursue the history of the English criminal law through all its changes. Passing to its present state, we find forms of proceeding eminently adapted to sound judicial investigation. The function of the *patria*, or jury of inquisition, spoken of by Bracton, is now performed by a grand jury, not less than 12 nor more than 23 in number, upon whose indictment most criminal cases are brought before the courts for trial. The exceptions are: 1, cases of homicide where a coroner's inquisition has been returned; 2, actions which, by statute, may be brought by a private prosecutor, or informations by the master of the crown office upon the relation of a private individual; 3, informations filed *ex officio* by the attorney-general in cases of atrocious misdemeanor endangering the government. All criminal prosecutions, except the few cases where by statute a common informer is authorized to bring an action, are in the name of the king, and conducted by his law officers. Private suits for crimes, which were formerly allowed under the name of appeals of felony, were long since practically abandoned, and were finally abolished by statute 59 George III., c. 46. So also the wager of battle by the same statute, and wager of law by 2 and 4 William IV., c. 42. The indictment, which is the basis of the arraignment and trial of criminals, was formerly required to be drawn with great technical strictness, and was often quashed for defect of form. Thus it was necessary to set forth the full name of the person charged and a designation of his business and place of residence, also the time and place when and where the offence was committed. Certain technical words were also required, as descriptive of the crime charged, as (when pleadings were in Latin) the words *proditorie et contra ligientiæ suæ debitum*, in treason; *murdravit*, in an indictment for murder; *rapuit*, in rape; and so in other cases. No expressions equivalent in meaning could be substituted; and after the pleadings were, by statute 4 George II., c. 26 (1730), converted into English, the corresponding vernacular terms, as "murdered," "ravished," &c., were retained with the same strictness. And so in felonies it was necessary to charge that the act was done *felonice;* in burglary, *burglariter*. In indictments for murder it was required also to state the dimensions of the wound, and in all indictments the value of the thing which was the subject of the offence, as in larceny, or with which the offence was committed, as in murder. In the former case, it was said to be required in order to distinguish whether it was grand or petty larceny; in the latter case, because the

instrument with which a homicide was committed was forfeited as a deodand. This absurd regard to mere form has been, however, abrogated: 1st, by statute 7 George IV., c. 64, which prohibited an arrest of judgment or a reversal on writ of error for any of these formal defects, but which still left the objections to be taken advantage of by demurrer; and finally, by 14 and 15 Victoria, c. 100 (1851), commonly called Lord Campbell's act, by which the court is directed to disregard the omission of mere formal words, as "with force and arms," or "against the peace," &c., or any mistake in time or place; and a statement of the manner or means by which the deceased came to his death is dispensed with, and amendments of indictments either in matters of form or substance are allowed upon such terms as the court shall deem reasonable. As to the designation of crimes and their punishments, the English law was, until a recent period, in a chaotic state. Statutes had been accumulated according to the exigencies occurring at different times, until, by their number, such was the difficulty of determining what was obsolete and what in force, and of reconciling apparently conflicting provisions, that practically the common people had no knowledge of the penal laws to which they were subject, and cases were constantly occurring of the trial and conviction of criminals charged with offences, the nature of which, as defined by law, and the penalties prescribed therefor, they were entirely ignorant of; their ignorance, according to the old maxim, *ignorantia juris non excusat*, being no defence. So also the extreme and disproportioned severity of ancient laws enacted in a turbulent period, or in an unsettled state of society, still prevailed in England at the beginning of the present century. According to Blackstone, there were 160 offences which by various acts of parliament had been declared felonies without benefit of clergy, that is to say, punishable by death. It will be sufficient to mention the cases of grand larceny, or stealing above the value of 12 pence; embezzlement of a master's goods by a servant; burning stacks of corn, hay, &c., in the night time; killing horses, sheep, and other domestic animals; breaking down dikes or bridges, or breaking away the banks of fish ponds; cutting down trees in an avenue, or growing in an orchard; the malicious tearing or defacing of the garments of a person passing in the street; all of which, and various other acts of no greater degree of criminality, were thus punished. The origin of this severity in the majority of such cases was no doubt owing to the great prevalence of a particular grievance in some locality, and, according to the former mode of reasoning, the frequency of an evil called for increased severity of punishment; but it has happened that when the emergency has ceased the law remained. Common humanity was outraged by the continuance of such a system of criminal law in a civilized community; public attention was at last directed to the necessity of reform, and a revision has been made by several different statutes, chiefly the following: 7 and 8 Geo. IV., c. 27 (1827), for repealing various statutes relating to benefit of clergy and for other purposes; 7 and 8 Geo. IV., c. 29, for consolidating and amending laws relating to larceny; 7 and 8 Geo. IV., c. 30, for consolidating and amending laws relating to malicious injuries to property; 9 Geo. IV., c. 31 (1828), 1 Victoria, c. 85 (1837), which is a revision of the last preceding act, in respect to attempted homicide; 1 Victoria, c. 86, in respect to burglary and stealing in a house; 1 Victoria, c. 87, respecting robbery and attempting to rob; and 1 Victoria, c. 89, as to burning dwelling houses and other buildings, destroying vessels, exhibiting false signals, &c. From examination of these statutes, it is apparent that it was difficult to make a thorough change at once, and many successive efforts against ancient prejudices were required. Thus by one of the acts of 1827 the distinction between grand and petty larceny was abrogated, and every theft which had come under either denomination was declared to be simple larceny, punishable only by transportation or imprisonment, with the addition of whipping, in the discretion of the court. Yet by the same statute stealing from the person was punishable by death; so also the breaking into a dwelling house with intent to commit a felony, or breaking in and stealing from a dwelling house a chattel of any value, or stealing from a dwelling house and at the same time putting any one in fear, or stealing to the value of £5, stealing a horse, cow, &c., or killing with intent to steal the carcass or skin, were all punished by death; so also, by the act of 1828, an attempt to murder by administering poison, or by suffocating, or strangling, or by shooting with loaded weapons, or stabbing, &c. In the amendatory acts of 1837, transportation or imprisonment was substituted in most of the cases in which capital punishment had been retained by the previous acts. By the existing laws of England, the cases in which the penalty of death is inflicted are the following: treason; murder; burglary with intent to kill, or accompanied with violence to any person; robbery, if at the same time any injury be done by a weapon; burning a dwelling house, there being a person therein at the time; crimes against nature, called buggery and sodomy; casting away a vessel, whereby the life of any person is endangered; exhibiting false signals, with the intent to bring vessels into danger. In all other cases, the penalty is penal servitude or imprisonment for different periods, according to the degree of the offence. In the United States, by the federal laws, capital punishment is inflicted, in cases within the jurisdiction of the U. S. courts, for treason, murder, arson, rape, piracy, robbery of the mail (if it be with jeopardy to the life of any person), rescuing a person convicted of a capital crime, burning a vessel of war, and corruptly casting away or destroying a vessel belonging to a private owner. The severity of the punishment in the case of rape is because

the offence of which the U. S. courts would have cognizance must be committed on board of a vessel on the high seas or in foreign parts. By the laws of the several states capital punishment is generally limited to three cases, viz.: treason, murder, and arson.—It remains to speak of some principles recognized in criminal law as to the nature of crime in respect to individuals and to the community, the degree of guilt of the person accused, and the rules of evidence by which the offence is proved. I. It is common to divide wrongs into private and public injuries, and it has been erroneously supposed that when the offence is of such magnitude as to become the subject of a public prosecution, the private right is merged. As respects some lesser crimes, as assault and battery, obtaining money by false pretences, libel, and the like, there is a right of private action independent of the proceeding by indictment, and it is not necessary that the individual injured should procure a criminal conviction at all. In cases of larceny, robbery, and other wrongs affecting property, it is generally assumed that there must first be a conviction of the crime before there can be a civil suit for a recovery of the property taken, or damages in lieu thereof. The only reason assigned for this in the English law is, that the injured party may thereby be more strongly induced to procure a conviction of the offender for the benefit of society. It seems, however, not to be admitted in this country as satisfactory. In the state of New York, by statute, the right of private suit is not in any manner affected by the fact that the wrong complained of was a felony (2 R. S. 292). Provision is made by law in England and in the United States for the restoration of property to the owner which had been stolen or otherwise obtained by a criminal act, upon conviction of the offender (21 Henry VIII., c. 11; 2 Rev. Stat. N. Y., 746, § 31); and in the state of New York, redress is given for all other private injuries by a suit against the trustees of the estate of a convicted felon (2 Rev. Stat. 700). In England, as felony worked a forfeiture of the personal estate of the convict, including estates in land for life or a term of years, there was usually nothing to look to as an indemnity for private injury; yet the right of prosecuting for such injury after conviction of the offender is admitted in some old cases; and so after acquittal, if there has been no collusion, an action for damages can be maintained (12 East. 409). II. As to the degree of guilt of the persons accused. This involves several inquiries, the first of which is capacity of mind. There must be the *mens doli capax;* for although ignorance is not in general admitted as an excuse for crime, yet this is to be understood of such only as have sufficient understanding to distinguish between right and wrong. The precise limit of capacity cannot be defined. A vicious life undoubtedly produces hardness and insensibility, and there is often to be seen such natural depravity as is wholly inconsistent with the existence of any moral discrimination. Yet the law does not take into account any such perversity of nature, if there is any intellectual power, which is rather vaguely denominated reason. In what degree this power must exist is not susceptible of being defined by any general rule, and is often the subject of perplexing doubt in the application of the rule to particular cases. Children before the age of discretion are exempt by law from responsibility for crime, but the exact period when such discretion shall be pronounced to commence is not fixed. By the Saxon laws the age of 12 was fixed as the earliest possible development of legal understanding; between that and the age of 14 there might be guilt according to the actual capacity. But the rule of the English law now is, that capacity is not to be judged by age in any case, except that under the age of 7 a child cannot be held guilty of felony; but there is a reported case of a child of 8 years of age who was convicted of arson and hanged; so a girl of 13 was convicted and executed for killing her mistress. In all cases capacity is to be judged by actual proof. Idiocy and lunacy excuse from the guilt of crime. If there was a total want of reason at the time the act was committed, whether the deprivation be permanent or temporary, the law acquits from all guilt; but if there be partial reason, as if there is thought and design, or faculty to distinguish the nature of actions, then there will be legal responsibility for every act. Intoxication is not admitted as an excuse for criminal misconduct. In this respect the rule of the common law is different from that of the civil law. By the latter, capital punishment was never inflicted for acts committed in a state of ebriety. The 2d ground of exemption is where there was no criminal intent, but the act has been committed either by accident, mistake, or necessity. Accident excuses, except where it has happened when a man was engaged in the commission of some unlawful act. A distinction is also made in respect to such unlawful act, as whether it was what is termed by the law *malum in se*, or only *malum prohibitum*, the criminality being less for any accident occurring in the latter case than in the former. There was much good sense in the rules of the Roman law in respect to culpability for accident. Gross negligence was held as culpable as a wrong intent (*non minus ex dolo quam ex culpa quisque hac lege tenetur*). Thus, if a man was lopping a tree near the road, and it should fall and kill a person passing by, he was held guilty if he had omitted to give proper warning. If a soldier exercising in a place appointed for that purpose should accidentally kill a slave by throwing a javelin, he was without fault; but if it had happened in a place where he had no right to exercise, he was held guilty. Mistake is admissible when it relates to a fact, though, as before mentioned, mistake of law is no excuse; as if a person should kill another that he supposed was breaking into his house, and it should turn out to be a member of his own fam-

ily, he would be excused on the ground of having mistaken the person. Necessity, as a legal excuse, includes that class of cases which the law designates as duress. In the English law one other case is also included, viz.: the criminal misconduct of the wife by the command or in the presence of her husband. The reason given in this case is, that the wife is supposed to be under the power of her husband; but a better reason may probably be derived from the old law, by which the husband had the benefit of clergy if he could read, but the wife had not, and the rule was introduced from a motive of humanity. The exemption was allowed only in felonies other than treason and murder, but was not admitted as a defence to a charge of any misdemeanor less than felony. As the reason of the rule does not exist in this country, it may be presumed there is no such exemption other than what may arise from actual coercion. Duress is compulsion by the menace of death or other bodily harm, or by actual force. Blackstone limits the expression "bodily harm" to mayhem, or loss of limb, according to which the fear of being beaten would be no duress, so neither would the fear of imprisonment. In this country, on the contrary, a threat of any bodily harm, or even of the destruction of property, would be held to be a duress in that connection. But when it is set up as a justification for the commission of a criminal act, perhaps nothing less than the fear of losing life, or of some permanent bodily injury, would be admitted as a legal excuse. As to the law relating to principals and accessories, there is less discrimination than is called for by our natural sense of justice, as well as by a due regard to public policy. An accessory before the fact, who is one that has procured or advised the commission of the crime which is the subject of prosecution, is properly held liable in equal degree with the principal for the act which has been committed, and all its natural consequences, but not for another and distinct crime which may have been committed by the principal while engaged in the commission of the offence to which he had been instigated. As if A procures B to beat C, and in consequence of such beating C should die, A is guilty of murder; but if A hires B to beat a man, and he should set fire to his house, this being a distinct offence, A is not indictable for it as accessory. An accessory after the fact is one who, knowing a felony has been committed, receives, relieves, and assists the felon. The rule of the common law, by which even furnishing necessaries to a felon will render a man an accessory after the fact, is unreasonably severe. By statute of the state of New York, only he is held as an accessory after the fact who has aided the criminal to avoid arrest, conviction, or punishment (2 R. S. 699). The criminality of an accessory after the fact is in England and this country deemed less than that of the principal. The punishment is imprisonment only, even if the offence committed by the principal is punishable by death. III. The rules of evidence and mode of proceeding in criminal trials can be but briefly referred to. The most important principle of the English and American law, and what chiefly distinguishes it from the criminal codes of other countries, is that the person accused is not compelled to testify. In the preliminary examination upon arrest, where the arrest precedes indictment, he is indeed allowed to make his statement, and such statement may be used as evidence against him. But he is usually informed by the magistrate that he is not bound to answer the charge unless he chooses to do so. Another rule, which follows naturally from the preceding, is that it is not necessary to prove the guilt of the accused by more than one witness, except in the case of treason and perjury. In the tribunals of some other countries a different rule prevails, because it is the general practice to put the accused under rigid examination; and if he denies the crime, it is an oath in his own favor, which ought not to be overbalanced by a single oath against him. It was the ancient practice in England not to allow the accused to produce witnesses; and when the courts so far relaxed this strictness as to hear witnesses for the defence, it was still without oath, and the evidence was therefore of less weight. But by statute 1 Anne, c. 9, witnesses are required to be examined on oath for the prisoner as well as against him. The privilege of defence by counsel was, until a recent period, denied in the English courts in trials for treason and felonies, while by a strange inconsistency it was allowed in trials for misdemeanor. In cases of treason, which was a class of trials in which there had been the greatest outrage of common rights, relief was given by statute 7 and 8 William III., c. 3, which allowed counsel to be assigned to the prisoner upon his request; and in cases of felony, by statute 6 and 7 William IV., c. 114, by which all persons arraigned upon a criminal charge are allowed to make defence by counsel. In the United States, this right was thought of such importance that it was secured by article 6 of the amendments to the federal constitution, and in the several states a similar provision has been made either by the constitution or by law. In France, the practice formerly was to hold the accused to answer in person without the aid of counsel; but it is now an admitted right that every person charged with a criminal offence is entitled to the aid of counsel for his defence, and it is made obligatory upon the judge to assign counsel when the accused has none. (See *Code des délits et des peines*, art. 187 and 321; *Code d'instruction criminelle*, art. 294, 295.)

CRINOÏDEA (Gr. κρινον, a lily, and ειδος, shape), animals in shape like a water lily, consisting of an expanded or spreading disk upon the end of a long, slender, jointed stem. The name was given by Mr. Miller, author of an elaborate work, entitled "Natural History of the Crinoïdea, or Lily-shaped Animals." They constitute an extinct family of echinoderms of the radiated division of animals, and in the forms of the encrinite and pentacrinite were

wonderfully abundant in the limestones of the silurian period. Their remains now constitute the great portion of the material of strata which extend over large districts of country, and are several feet thick.

CRISPIN AND CRISPINIAN, the tutelary saints of shoemakers, put to death about A. D. 287. The tradition is that they were brothers belonging to a noble Roman family; that, becoming converts to Christianity, they took refuge in Gaul from the persecution under Diocletian; and that they preached the gospel at Soissons by day and exercised the trade of shoemakers by night. They had converted multitudes before their martyrdom under Maximian. Their names are found in the principal early martyrologies, and their festival is observed on Oct. 25. They were the patrons of the religious community of *Frères cordonniers*, founded in Paris in 1645, suppressed in 1789, and which has since reappeared and been dissolved.

CRISSA, an ancient town of Phocis, called "the divine" by Homer. It occupied a beautiful situation at the foot of Mount Parnassus, with lofty mountain heights towering above it, and with the beautiful Crissæan plain spread out beneath it. The modern town of Chryso, occupying the same site, contains some few remains of this interesting city. Crissa and Cirrha were long regarded by scholars as but different names for the same place, but Ulrichs, Leake, and Grote have shown that Cirrha was the port town of Crissa. The taxes which Cirrha levied upon pilgrims on their way to Delphi caused the first "sacred war," which resulted in the destruction of the town. The fate of Crissa itself is not known.

CRITIAS, an Athenian, pupil of Gorgias the Leontine and of Socrates. He was a man of uncommon energy of character, possessed high and varied culture, but was absolutely wanting in moral principle. He was at once politician, poet, and orator. Some fragments of his elegies are still extant; a work of his on politics is sometimes mentioned, and Cicero tells us that some of his speeches, then extant, would place him as an orator by the side of Pericles. The moral instructions which he received from Socrates, however, seem to have produced but little impression upon his corrupt nature. He is now known in history mainly as the cruel and vindictive leader of the 30 tyrants. In that memorable but brief reign of terror which immediately succeeded the Peloponnesian war, he rioted in slaughter and blood. He was conspicuous among his colleagues for rapacity and violence, and punished with death the suggestion of moderate measures. He was slain in an engagement with Thrasybulus, who with his band of patriots marched to the relief of the city (404 B. C.).

CRITO, a friend and disciple of Socrates, whom he is said to have supported with his fortune. He made every arrangement for the escape of his master from prison, and used every argument which ingenuity or affection could suggest to induce him to save his life by fleeing from his persecutors. His eloquence was, however, in vain, and Socrates drank the fatal cup. Crito is a prominent interlocutor in one of Plato's dialogues, which is named after him. He was himself a voluminous writer on philosophical subjects, but all his writings have perished.

CRITOLAUS, a celebrated Achæan demagogue, who incited his countrymen to insurrection against the Romans. He commanded the Achæan army at the battle of Scarphæa, 146 B. C., and when overthrown by Metellus, he either committed suicide or perished in the marshes of the coast.

CRITTENDEN. I. An E. co. of Ark., separated from Tenn. by the Mississippi river; area, 994 sq. m.; pop. in 1854, 3,459, of whom 1,032 were slaves. Its western border is formed by the St. Francis river. The surface is level and alluvial, and part of it often overflowed by the Mississippi. Portions of the land are quite swampy, but the rest is generally fertile. In 1854 the productions were 217,500 bushels of corn, and 1,275 bales of cotton. Capital, Marion. II. A W. co. of Ky., formed in 1842; area estimated at 420 sq. m.; pop. in 1850, 6,351, of whom 848 were slaves. It is separated from Ill. by the Ohio river, and bounded by the Cumberland on the S. W. It has a level or gently undulating surface, except in the eastern part, where it is hilly. The soil is generally good. Hard coal, lead, and iron are found in great abundance. In 1850 the productions were 386,705 bushels of corn, 5,759 of wheat, 45,460 of oats, 505,637 lbs. of tobacco, and 12,545 of wool. There were 14 churches, and 600 pupils attending public schools. Capital, Marion.

CRITTENDEN, JOHN JAY, an American statesman, born in Woodford co., Ky., about 1785. While he was still young, his father, who was a farmer, was killed by the fall of a tree, leaving his mother to bring up, with slender means, a large family of children, among whom several were noted for intellectual ability. Mr. Crittenden commenced life as a lawyer in Hopkinsville, but soon removed to Frankfort, where he enjoyed an excellent practice and won distinction as an advocate. In 1816 he was elected from Franklin county to the Kentucky house of representatives, of which he was for several years speaker. He took his seat in the U. S. senate, Dec. 1, 1817, his term commencing at the same date with the presidency of Mr. Monroe, whom he supported. During his 2 years of service, he moved the reimbursement of fines under the sedition law of 1798, which he pronounced unconstitutional; spoke warmly in favor of a bill introduced by Mr. Morrow of Ohio, which was designed to open the public lands to actual settlers; and as chairman of a committee to whom a house bill, putting fugitives from labor on the same footing with fugitives from justice, was referred, reported it back with several amendments, one of which provided that the identity of the alleged fugitive should be proved by other evidence than that of the claimant. From 1819

to 1835, Mr. Crittenden practised law at Frankfort, occasionally representing his county in the state legislature. President J. Q. Adams nominated him judge of the U. S. supreme court in 1828, but the senate refused to confirm him, and Mr. McLean was subsequently put in his place. In 1835 he was again chosen U. S. senator, served a full term, and was reëlected, but in 1841 resigned, having accepted the post of attorney-general under President Harrison. On Sept. 11 of the same year, with the other members of the cabinet, excepting Mr. Webster, he tendered his resignation to President Tyler in a brief and dignified letter. He was immediately elected to the senate for the residue of Mr. Clay's term, that senator having resigned, March 31, 1842, after the passage of the tariff bill; and Mr. Crittenden was reëlected for a full term from March 4, 1843. In 1848 he retired, having received the whig nomination for governor of Kentucky, to which office he was elected by a large majority. He was attorney-general in President Fillmore's cabinet from July 20, 1850, till the accession of President Pierce. In the spring of 1854 he was induced by long standing relations of friendship with the Ward family to undertake the defence of Matthew F. Ward, indicted for the murder of Prof. W. H. G. Butler in his school at Louisville. This step created at the time much popular excitement against Mr. Crittenden. He had previously been reëlected to the U. S. senate for a term which expires in 1861. In early life Mr. Crittenden belonged to the republican and subsequently to the whig party. He is now called an American. He was one of Mr. Clay's most devoted friends, and supported him in most of those measures with which his name is identified. He has always favored the protective policy, and voted for the tariff of 1842 and against that of 1846. He was for a U. S. bank and against the sub-treasury system. In 1835 he opposed Mr. Calhoun's bill empowering postmasters to take from the mails documents hostile to slavery. He opposed the remission of Gen. Jackson's fine for contempt of court in declaring martial law at New Orleans. The question of apportionment coming up in 1842, Mr. Crittenden favored the smallest ratio of representation, arguing that with more representatives the house would become more democratic. In 1841, a bill establishing a preëmptive system in favor of actual settlers on the public lands being under consideration, he moved an amendment denying the privileges of the act to aliens who had not made a declaration of their intention to become citizens, which he supported in several speeches. Upon the Oregon question Mr. Crittenden spoke often, deprecating haste and excitement, favoring peace, though not at the expense of honor, and supporting such measures as seemed likely to conduce thereto. The same tone runs through his speeches on the annexation of Texas, which he opposed as unconstitutional, unwise, and unnecessary, and on the Mexican war, which he strove to bring to a peaceful termination as soon as practicable. He manifested a similar spirit in 1858 in the debate upon the alleged illegal exercise of the right of search by Great Britain. In 1848 he opposed Mr. Hannegan's bill providing for the military occupation of Yucatan, as subsequently in 1858 he took ground against interference in the affairs of Central America. It was Mr. Crittenden who in 1847 introduced the bill in the senate which authorized the purchase of provisions and the employment of public ships for the relief of the starving in Ireland and Scotland, supporting it in an eloquent and feeling speech. In 1848 he offered a resolution congratulating France upon the successful revolution of February, from which, in common with most Americans, he anticipated the establishment of a lasting republican government in that country. He opposed the admission of Kansas under the Topeka constitution in 1856; voted against the repeal of the territorial laws, and in favor of Mr. Toombs's Kansas bill, on the ground that, however objectionable some of its features might be, it was a measure of peace. In 1858 he opposed the admission of Kansas under the Lecompton constitution, on the ground not only that that instrument did not represent the will of the majority of the people, but that it was a fraud upon them. From his age, ability, and position as the representative of a slave state, as well as from the bold and dashing style of its delivery, his speech on this question carried great weight with it. He subsequently offered a substitute for the bill, which, somewhat modified, afterward passed the house, but was defeated in the senate. It provided for the submission of the Lecompton instrument to the vote of the people of Kansas; if a majority approved, it was to become their constitution; otherwise they were empowered to form a new constitution. Throughout the acrimonious Kansas debates Mr. Crittenden never forgot that he was an American senator, and more than once found himself arbiter of disputes between others. He is sometimes called the patriarch of the senate, a designation to which his character as well as his age entitles him. He has always been considered an excellent extemporaneous debater, and has not yet lost the fire and spirit of his youth. Mr. Crittenden has been twice married; his second wife, who is now living (1859), was the widow of Gen. Ashley of Kentucky.

CROATIA, one of the crown lands of the Austrian empire as reorganized by the fundamental statute of 1849, consisting of the former kingdom of Croatia (a dependency of Hungary), the kingdom of Slavonia, the Croatian Littorale, and the town and territory of Fiume. Croatia (or the 4 counties of Agram, Warasdin, Kreutz, and Fiume) and Slavonia have an aggregate area of about 7,000 sq. m.; pop. in 1851, 878,456; in 1854, 967,136. Croatia is bounded N. by Styria and Hungary, E. and S. by the Military Frontier district, W. by the Adriatic, Illyria, and Styria. It is mountainous, being almost wholly filled up by the continuations of

the Julian and Dinaric Alps. Its principal rivers are the Save, with its tributary the Kulpa, the Drave, and the Mur. The 2 last form the fertile island of Muraköz, area nearly 350 sq. m. The climate is mild and wholesome, at least in the interior. Croatia is poor in natural resources. The grape and chestnut are cultivated extensively, but grain and fruit are grown only in the county of Kreutz and the Littorale. The mountains, although poor in minerals, abound in valuable timber, but very little use is made of it. A fine marble is worked in the Littorale.—The inhabitants, principally Croatians and Rascians or Servians, with a small proportion of Germans, belong with few exceptions to the Roman Catholic church. They are very little cultivated, in fact semi-barbarians. Their idiom is an Illyrian dialect belonging to the S. branch of the Slavic languages. The industry and commerce are scarcely worth mentioning. Wine and timber are the only articles of export to the neighboring provinces. For the domestic trade Agram, Karlstadt, and Old Sziszek are the principal marts. The Littorale has some shipping and ship-building; also several extensive paper manufactories. Public education was in a deplorable state until 1851. Up to that time there was only one school for every 29 sq. m. and every 3,743 inhabitants. Since then, the Austrian government has introduced a complete system of common school education, the results of which are as yet not very perceptible. There are also in Croatia 5 colleges and 2 academies. The province is governed by a ban (governor). Justice is administered by 57 district courts, 4 superior courts, 3 supreme courts, and a court of appeals.—Croatia, which in antiquity formed a part of Pannonia, was a province of the Roman empire from the time of Augustus, being attached to Illyricum. It was conquered by the Goths, recovered under Justinian, invaded by the Avars, and in the 7th century settled by Croats, who after long struggles with the Franks finally formed a vassal state of the Byzantine empire. Toward the end of the 10th century the princes of Croatia assumed the royal title. It was conquered by the Hungarians in 1091, by Venice in 1117, and again by the Byzantines in 1168. Having once more been independent for a century, it was ultimately annexed to Hungary in 1342, and subjected to the Hapsburg dynasty in 1527. In 1848 the hatred of the Croatians against the Magyars made them one of the principal instruments of the Austrian government in crushing the Hungarian revolution.

CROCKETT, David, an American backwoodsman and member of congress, born at Limestone, on the Nolachucky river, in Tennessee, Aug. 17, 1786, died in Texas, March 6, 1836. His father, of Irish birth, after various other avocations, opened a tavern on the road from Abingdon to Knoxville, where David passed his youth from 7 to 12 years of age, making acquaintance with hard times and doubtful characters. He was sent to a country school, but on the 4th day quarrelled with the schoolmaster, and after playing truant for a time in the woods fled from home to avoid a flogging threatened both by his father and master. For 5 years he roamed about the middle states with drovers and carriers, till in his 18th year he returned home, attended school for 2 months, learning his letters for the first time, and soon after married and went to live in the wildest portions of the state, distinguishing himself as a hunter. In 1813 he served in the Creek war under Gen. Jackson, and after the peace settled on Shoal creek, in a desolate region of Tennessee. A community of reckless characters having flocked together after 2 years, it was found necessary to establish a temporary government, and he was appointed one of the magistrates. He soon after became a candidate for the legislature, and though he had scarcely yet read a newspaper he made a successful electioneering tour by the skilful use of his rifle, his companionable habits, and his faculty for telling amusing stories. He was twice reëlected to the legislature, but devoted himself especially to bear hunting, till in 1827 he was elected by the party of Gen. Jackson a representative in congress. At Washington he immediately obtained general notoriety by the eccentricity of his manners and language, and was regarded as a gifted and genial specimen of the "half horse and half alligator." In 1829 he was again chosen to congress, but soon after changed from a partisan to an opponent of Jackson's administration; and in 1831 it required his most strenuous exertions to secure a reëlection. From this time the influence of Jackson became predominant in the West, and especially in Tennessee, and Crockett therefore withdrew from the political arena of the United States. He sought a new career in Texas, then in revolt against Mexico, and after a series of military exploits met his death while bravely defending Fort Alamo, in San Antonio de Bexar. The fort, containing about 140 Texans commanded by Col. Travis and under him by Col. Crockett, was attacked in the latter part of February by a Mexican army numbering 2,000 men. Amid scarcity of provisions and constant watching, shells and assaults were successfully withstood till on March 6 only 6 of the garrison survived. These, including Col. Crockett, then surrendered, but by order of Santa Anna the latter immediately perished with a dozen sword thrusts. The exaggerated stories of his wit and peculiarities afterward made him almost a mythical person. His autobiography was published at Philadelphia in 1834.

CROCODILE, a genus of reptiles which, with the alligator of America and the gavial of the Ganges, constitute the family of crocodilians. Some authors elevate the family into an order, the *emydosauri* of Gray, the *loricata* of Fitzinger, and the *rhizodonta* of Prince Bonaparte, the latter including the large fossil *ichthyosaurus* and *plesiosaurus*. In the class of reptiles they are higher than the saurians, and second to the *testudinata;* among them are included some of the largest, most powerful,

and best protected of their class. The crocodilians, including the alligator and gavials, are characterized as follows: the skin is tough and thick, and protected by firm scales, of different shapes and sizes, forming a coat of mail sword and bullet proof; different species have been distinguished according to their arrangement on the neck; they are square on the upper and under surfaces of the body and on the tail, large and ridged longitudinally on the back, small and rounded on the sides of the body and neck and limbs; on the head the skin is applied directly on the bone, following its eminences and depressions, and unprotected by scales, in this differing from the true saurians; the scales are thinnest below, and of a lighter color, almost white, the upper tints being greenish with dark spots, or an obscure brown. Under the jaw, in the longitudinal folds of the skin, open the ducts of odoriferous glands, which secrete a viscid matter having a strong and disagreeable musky odor; similar pores open near the cloaca. For the details of the skeleton the reader is referred to Cuvier, Meckel, Oken, and other writers on comparative anatomy. The vertebræ are concave anteriorly and convex posteriorly, and are 7 or 8 in the neck, 12 in the back, 5 in the loins, 2 in the sacral region, and from 34 to 42 in the tail; the number is the same in individuals of a species at all periods of life. The vertebræ of the neck have long articulated transverse processes, or cervical ribs, which prevent any extensive lateral motion of the neck; on the under surface of the caudal vertebræ is a series of V-shaped bones, the hæmal arches, for the protection of the vessels. The ordinary ribs are 12 to 13 on each side. The sternum is prolonged even to the pelvis, and gives attachment to 6 or 7 pairs of cartilages, not extending to the spine; these serve to strengthen and protect the abdominal walls, and are represented in man by the transverse lines of the rectus abdominis muscle; the sternum is also prolonged as a point in advance of the ribs; there are no true clavicles, and the bones of the pelvis remain separate. The lower jaw is longer than the cranium, because the condyles of the temporal bones, corresponding to ossa quadrata, are placed considerably behind the articulation of the head with the spine, and are united to the skull as in the turtles; the gape of the mouth is really longer than the extent of the head, from this backward situation of the glenoid cavity. The muscles which move the jaws arise so far back, that they act in part upon the whole head, explaining the assertion made from the time of Aristotle to that of Cuvier, and at various times believed and disputed, that the crocodile has the ability to move both jaws; when the lower jaw is fixed upon the ground, the action of the muscles may raise the whole head, and with it the upper jaw, otherwise immovable. The jaws have no lateral motion, and none from before backward, the articulation being a simple hinge joint. There are no cutaneous lips, the teeth being visible even when the jaws are closed. The teeth are numerous, conical, isolated, unequal in size, hollowed at the base, arranged in a single row, implanted by a true gomphosis in the substance of the maxillary borders in special alveoli directed from before backward, and provided with a kind of gum; the new teeth push up into the hollow of the old, and cause their absorption; the new teeth are larger, but the same in number at all ages. The tongue is flat, wide, fleshy, and attached all around to the jaw bone; it is not divided at the tip, and cannot be extended, being apparent only when the jaws are separated, and forming the floor of the mouth; it cannot be used to seize or retain their prey, nor for respiratory purposes; it is for the most part smooth, except at the base, where irregularly contorted folds are prominent. The nostrils open at the end of the muzzle, near together, and may be closed by valves; their cavity forms 2 canals extending along the cranium, and opening, not into the mouth, as in other reptiles and birds, but into the posterior fauces behind the soft palate, as in mammals; the hyoid bone sends upward a rounded cartilaginous continuation, which can be made prominent at the will of the animal; the soft palate hangs down to meet this, by which the cavity of the mouth can be completely shut off from the fauces; by this arrangement, when the animal is under water, with only the tip of the nose in the air, and even with the mouth filled with water, respiration can be perfectly carried on; and by the same mechanism the act of swallowing can be accomplished beneath the surface. Unlike the saurians, this family have the external opening of the ears protected by 2 folds of the skin, resembling lids, by which the meatus can be closed; the opening is just behind the eyes. The eyes are very small, and provided with 3 lids, an upper and lower, with a third or nictitating membrane moving transversely, transparent, and evidently designed to protect the cornea and permit vision under water; the pupil is a vertical slit, and the crystalline lens almost spherical. The anterior limbs have 5 toes, the external 2 without nails; the posterior limbs are 4 toed, more or less webbed, the external one without a nail; the limbs are so short that they barely raise the body from the ground, and are almost at right angles to the spine; their gait is, therefore, slow and awkward. The tail is longer than the trunk, flattened on the sides, surmounted with crests continued from the back, and serrated below; the powerful muscles of the dorsal region are carried to their greatest development in the sides of the tail, which is the principal organ of locomotion in the water. The stomach is muscular, but in no way resembling the gizzard of a bird; in this cavity are frequently found stones and pieces of wood, which were once supposed to be swallowd intentionally to assist in triturating the food, or

for the purpose of distending the stomach during the season of hibernation which some of them undergo; it is altogether probable that such foreign bodies have been accidentally swallowed during the repasts of the voracious animal. The lungs consist of 3 principal cavities, communicating freely with each other; the walls are divided into innumerable cells, the fleshy compartments of which form a very intricate network, resembling the columnæ carneæ of the heart; when fully expanded, they will contain a large quantity of air. The most interesting organ is the heart, as it shows an approach to, and as it were the connecting link with the birds. In reptiles generally the heart consists of 3 cavities, a ventricle and 2 auricles—the ventricle receiving both arterial and venous blood, and sending this mixed fluid over the system at the same time that it sends to the lungs blood of which a portion has just been received purified from them. In the crocodilians the ventricle has a complete division into right and left, and the circulation is so arranged that while the head and anterior half of the body receive pure arterial blood when the animal is in the air, the posterior half receives a mixed arterial and venous blood; the mingling of the 2 bloods taking place, not in the heart itself, but by an opening between the 2 aortas—a fact unknown to naturalists till the time of Meckel and Panizza. For full details on this point the reader is referred to the "Journal of the Boston Society of Natural History," vol. vi. pp. 113–118. The ordinary course of the circulation would be through the venæ cavæ to the right auricle, thence to the right ventricle; from this more than half of the venous blood goes to the lungs by the pulmonary artery, the rest being distributed to the lower extremities through the left or venous aorta; from the lungs the pure blood comes to the left auricle, thence it passes to the left ventricle, and then by the right or arterial aorta to the head and anterior extremities and body generally, after mixture with the venous blood. In the common circulation, or when the animal is in the air, there would probably be but a trifling, if any, mixture of the bloods through the opening in the aortic wall, and during the contraction of the ventricles the pressure of the valves of the aortæ against the opening would prevent the mingling; but during the diastole of the ventricles, when the valves close to prevent regurgitation into the heart, the aortic opening would be free, and the bloods could mix in whichever direction the pressure was the strongest; the opening, however, performs its special function after the animal has been under water a long time, when there is no respiration nor pulmonary circulation, no blood in the left ventricle, and none sent through the true aorta; were it not for this opening, the head and anterior limbs, which are supplied by the right aorta, would be unprovided with blood; it has been naturally concluded that venous blood is sent through the opening from the left aorta to supply these parts. By its 4 cavities the heart of the crocodilians resembles that of the birds, and also, by the mixture of the blood in the vessels, that of the fœtal mammalia. Meyer compares the left aorta to the ductus arteriosus, and he believes this structure to be a temporary condition, disappearing as the animal advances in age. In the dissection alluded to above, the specimen was 7 feet long, and old enough to be impregnated; the edges were firm and well defined, like those of a persistent foramen; and physiological reasons have been given why it should be permanent in this family, when the respiration ceases during submersion and hibernation. In the males the genital organs are simple; as in turtles and birds, the cloaca is longitudinal. The female alone prepares the hole in the sand in which the eggs, sometimes 60 in number, are placed probably during the night; she covers them with sand and leaves to hide them from the ichneumon and certain reptiles which feed upon them; the eggs are hatched in from 3 to 6 weeks, according to season and latitude. The amphibious habits of the crocodilians are indicated by the nostrils, separation of the posterior fauces from the mouth, shape of the limbs and tail, and structure of the lungs and heart. The crocodiles proper are distinguished from the alligators by their head being longer in proportion to the breadth, by the less number of teeth (30 below and 38 above, according to Cuvier), by the 4th lower tooth on each side being received into a groove in the upper jaw instead of a pit when the mouth is closed, by the dentated crest on the external border of the hind legs in most of the species, by the complete webs of the hind toes (at least the external), and by the larger cranial openings perceptible through the skin behind the eyes. Nothing is more characteristic than the narrowing of the muzzle behind the nostrils caused by the groove just alluded to, added to the perforation of the upper jaw by the 1st lower teeth; the plates of the nape occupy the middle portion only, a space before and behind being without them; as age advances the head becomes very rough. The species are difficult to distinguish from each other, and the variations within the limits of species are considerable. Europe has no crocodile, nor crocodilian, in its present fauna; America has 2, Asia 2, and Africa 1; other species are described, of unknown habitat, and of uncertain characters. The following species will sufficiently characterize the genus: I. The common crocodile of the Nile (*crocodilus vulgaris*, Cuv.), one of the sacred animals of the Egyptians, is mentioned by Herodotus, and well described by Aristotle in his "History of Animals;" the latter also mentions the spur-winged plover, which enters the mouth of the crocodile to pick out and eat the insects attached to the mucous membrane. This species has the widest jaws, 6 cervical plates, the dorsal plates quandrangular with 6

longitudinal series of moderate ridges; cranium rather flat; teeth 66, 36 above and 30 below, the longest being the 3d and 9th of the upper jaw, and the 1st, 4th, and 11th of the lower; 16 to 18 transverse rows of bony plates from the shoulders to the tail, and on the latter from 26 to 38 circles of scales surmounted by a thin, flexible, serrated crest, double for about half its length. The color of the upper surface is olive-green, spotted with black on the head and neck, and marbled with the same on the back and tail; 2 or 3 wide, oblique black bands on each flank; beneath greenish yellow; claws brown. It grows to the length of 20 to 25 feet, and possibly longer. A variety of this (*C. palustris*, Less.), found in Asia, has the head rougher, the scales of the sides, flanks, and upper part of the neck convex and ridged, and the color above olive-yellow, marbled with blackish brown. A 3d variety (*C. marginatus*, Geoff.), a native of southern Africa, has the jaws narrower and elongated, the cranium slightly concave, 6 narrow nuchal plates, the upper parts deep bottle-green, with small brown waving lines disposed in a radiating manner. This variety grows to a large size, and is doubtless the one so often seen by Dr. Livingstone and Mr. Cumming in their journeyings in South Africa. Dr. Livingstone mentions the following facts from personal observation: Sixty eggs have been taken from a single nest; they are about the size of a goose egg, of the same diameter at both ends, white, and partially elastic from having but little lime in their composition and a firm internal membrane; the nests are within a few feet of the water, and are used for successive years if undisturbed; the female assists the young out of the nest, and leads them to the edge of the water, where she leaves them to catch fish for themselves; fish is the principal food at all ages; a wounded animal, or even a man, going into a lake infested by them, is almost sure to be seized; they seldom leave the water to catch prey, but often come out to bask in the sun; they fish chiefly by night, and when eating make a loud champing noise; the natives are very fond of the eggs, eating only the yolk. The Egyptians kept crocodiles in their temples, where they were fed by the priests and ornamented with gold and precious stones; these were highly venerated by the people, and after death they were carefully embalmed and buried with great ceremony; it is very common to find mummies of crocodiles in their tombs, and many may be seen in our museums. The ichneumon, a carnivorous mammal allied to the civets, renders important service to man by destroying the eggs of the Nilotic crocodile. The common crocodile is not confined to Africa, but occurs in Asia, especially on the Malayan peninsula; it is often met with 3 or 4 miles at sea, and has been known to attack boats returning from fishing, and occasionally with the loss of human life. II. The most common Asiatic species is the double-crested crocodile (*C. biporcatus*, Cuv.), so named from the 2 rough lines on the upper jaw extending forward from the anterior angle of each eye; the lateral borders are irregularly convex, and deeply grooved for the lower teeth; the upper surface is very rough, especially in large individuals; the teeth are generally 66, 36 above and 30 below, the largest being the 2d, 3d, 8th, and 9th above, and the 1st and 4th below; the hind legs are as long as the trunk, the fore legs are a third shorter; the armature of the neck consists of 6 shields, 4 in a square, and 1 on each side of these, of an oval shape and strongly crested; on the back are 16 or 17 transverse rows of ridged plates, of an ovoid form; the tail has 38 or 40 scaly rings, double crested for half its length. The color is yellowish green, with black oval spots above. It grows to a length of at least 20 feet. In Gironière's "Twenty Years in the Philippines" (pp. 215–222), is an account of the capture of an immense individual of this species, measuring 27 feet in length and 11 feet in circumference under the arm-pits; the skull of this specimen is now in the cabinet of the Boston society of natural history, and measures nearly 4 feet from the nose to the end of the lower jaw; the head and soft parts attached weighed over 400 lbs. It is found in most of the rivers and lakes of eastern Asia and the Indian archipelago. III. The lozenged crocodile (*C. rhombifer*, Cuv.) of the West Indies has the forehead surmounted by 2 ridges diverging backward, the upper jaw much arched transversely, the jaws narrow, the body thick, the toes and swimming membranes short, the scales of the flanks, sides, and upper part of the neck tuberculated, and the limbs without serrated crests; the sides of the upper jaw are very prominent between the 6th and 11th teeth; the teeth are 64, 34 above and 30 below, the largest being the 2d and 7th in the upper jaw, and the 4th and 10th in the lower; on the nape are 4 small shields in one row, and on the neck 6 oval ridged plates, 4 in a row and 2 behind these; dorsal scales square, in 18 transverse rows. The general color is dark brown above, with zigzag lines of deep yellow, and spots of the same on the flanks and limbs; yellow and chestnut below. It attains a considerable size. IV. The long-nosed crocodile (*C. acutus*, Geoff.) is found also in the West Indies, particularly in St. Domingo, and in the northern parts of South America. It is characterized by its lengthened muzzle, convex forehead, and the irregular disposition of the outer dorsal scales; the hind feet are strongly webbed; on the nape are 2 or 4 shields, and on the neck 6, as in the Nilotic species; the teeth 66, 36 above and 30 below, the longest being the 4th and 10th in the upper jaw, and the 4th in the lower. The color is brown and yellow above, and yellow below. It is said to grow to a length of 20 feet. The *C. cataphractus* (Cuv.) and *C. Journei* (Bory de St. Vincent) form the connecting links between the crocodile and the gavial.—Crocodilians existed in great vari-

ety in former geological epochs, and in countries further north than the present habitats of these reptiles. The most remarkable difference between the fossil and existing species is in the form of the vertebræ; the existing crocodilians have these bodies concave in front and convex behind, and the same is true of the species of the tertiary epoch; but the fossils of the older strata have the vertebral bodies flat, or biconcave, as in fishes, or else the anterior face convex and the posterior concave, just the opposite to the existing forms. Those of the tertiary epoch are generally found in fresh-water deposits, and near the mouths of supposed rivers, so that their habits were then probably the same as now; they have been found as far north as England and France, in Asia, and in the greensand of New Jersey. During the secondary period there existed crocodilians with flat or biconcave vertebræ, resembling gavials in their lengthened cranium; from their stronger armature, more numerous ribs, and the strata in which they have been found, they were probably marine. Among the genera are *teleosaurus* (Geoff.), *mystriosaurus* (Kaup.), *macrospondylus* (H. de Meyer.), *gnathosaurus* (H. de Meyer.), &c., found in the liassic, oolitic, and calcareous strata. Those with an anterior convexity and posterior concavity, of which the type is *steneosaurus* (Geoff.), resembled also the gavials, and have been found in the lias and oolite of England.

CROCUS, a genus of plants of the order *iridaceæ*. There are 2 sorts of crocuses, those which blossom in spring, such as *crocus vernus*, with purple or white flowers and finely netted root coats, and *C. Susianus*, or cloth of gold crocus, with small, deep yellow flowers, the sepals of which are curiously veined with dark, chocolate-brown lines; and those which blossom in the autumn, such as the saffron crocus (*C. sativus*), an oriental plant, cultivated for its long, orange-colored, drooping styles, and the Sicilian crocus (*C. odorus*), whose flowers are fragrant. The saffron crocus blossoms in October, but it is not commonly seen in our gardens. It is, however, extensively cultivated for its produce of saffron in some parts of England. Good saffron consists of the stigmas only, which are small, narrow, and extremely light interior parts of the flower. The crocuses are mostly hardy little plants, and once introduced into the flower borders, they will continue and increase without care.

CRŒSUS, king of Lydia, succeeded to the throne before the middle of the 6th century B. C. Writers of high repute have, however, conjectured that he had already been for 15 years associated in the government with his father, and that many of the events recorded by Herodotus as belonging to his reign are to be referred to this period of joint government. This view is rejected by Rawlinson in the notes to his translations of Herodotus. His reign, according to Rawlinson, extended from 568 to 554 B. C. He ascended the throne in a time of peace and prosperity; he was the heir to untold treasures; success crowned all his early efforts; he subdued the Greek cities on the coast of Asia Minor, formed an alliance with the Grecian islands, and extended his conquests toward the east to the river Halys. He was now a mighty monarch, ruling over 13 nations, and in alliance with the powerful rulers of Media, Babylon, and Egypt; the vast wealth which he had inherited had been increased by the tribute of conquered nations, by the confiscation of great estates, and by the golden sands of the Pactolus. We may perhaps form some idea of the extent of this wealth from the rich votive offerings which he deposited in the temples of the gods. "Herodotus himself saw the ingots of solid gold, 6 palms long, 3 broad, and 1 deep, which to the number of 117 were laid up in the treasury at Delphi. . . . . He had also beheld in various parts of Greece the following offerings, all in gold, which had been deposited in the temples by the same opulent monarch: a figure of a lion, probably of the natural size; a wine bowl of about the same weight as the lion; a lustral vase; a statue of a female, said to be Crœsus's baking woman, 4½ feet high; a shield and a spear; a tripod; some figures of cows, and a number of pillars; and a 2d shield in a different place from the 1st, and of greater size." But in the midst of all his wealth and prosperity, Crœsus began to be alarmed at the rapid conquests of Cyrus, and when at length he saw the Median power fall before the Persian arms, he resolved to avenge his brother-in-law Astyages, the dethroned king of Media. He accordingly crossed the Halys, and offered the Persians battle; but after an indecisive engagement returned to Sardis. Cyrus pursued him, took the city, and made him his prisoner. The Lydian king was condemned to be burned alive, but was finally spared, being saved, according to Herodotus, by recalling a saying of Solon, and became the confidential adviser of his conqueror, whom he survived.

CROFT, William, an English composer, born in Warwickshire in 1677, died in 1727. At the age of 31 he obtained the position of composer to the chapel royal and organist to Westminster abbey, which he held until his death. As a composer of cathedral music he held a high rank. In 1724 he published, under the title of *Musica Sacra*, an edition of his select anthems, 2 vols. folio. Some of these are still performed in the English church service.

CROGHAN, George, an American officer, son of Major William Croghan, and nephew of George Rogers Clark, of the revolutionary army, born near Louisville, Ky., Nov. 15, 1791, died in New Orleans, Jan. 8, 1849. He was graduated at William and Mary college, Va., served in 1811 as a volunteer aide-de-camp to Col. Boyd at the battle of Tippecanoe, was made captain in the following year, and major March 30, 1813. On May 5, 1813, he distinguished himself as aide-de-camp of Gen. Harrison in the defence of Fort Meigs; and on Aug. 1 and 2

he successfully defended Fort Stephenson, at Lower Sandusky (now Fremont), Ohio, with a garrison of 160 men, against the determined attack of Gen. Proctor, with a force of over 1,000, half regulars and half Indians; and this, notwithstanding the fort was so weakly constructed and poorly provided, that he had actually been ordered to abandon it. For this exploit he was rewarded with the brevet of lieutenant-colonel, and 22 years afterward (Feb. 13, 1835) with a gold medal from congress. He was made inspector-general, with the rank of colonel, Dec. 21, 1825, and in that capacity served with Gen. Taylor in Mexico.

CROKER, John Wilson, a British statesman and author, born in Galway, Ireland, Dec. 20, 1780, died at Hampton, near London, Aug. 10, 1857. His father, of English descent, was for many years surveyor-general of Ireland. He was educated at Trinity college, Dublin, where he greatly distinguished himself, especially in the proceedings of the since suppressed "historical debating society." In 1800 he received the degree of bachelor of arts, and was immediately entered as a student at Lincoln's Inn, but remained in Dublin, and was called to the Irish bar in 1802. He devoted his leisure to literature, and published anonymously in 1804 his "Familiar Epistles on the Irish Stage," and in 1805 his "Intercepted Letter from Canton." Both attracted much attention, from the talent and especially the proneness to sarcasm which they indicated. In 1807 he gave another proof of his vigorous ability in an elaborate pamphlet on the "Past and Present State of Ireland," in which he advocated Catholic emancipation. In that year also he entered parliament as member for the borough of Downpatrick, and the tory party soon conceived high expectations from his public life. When, in 1809, charges of maladministration were brought against the duke of York, and a parliamentary inquiry was instituted, Mr. Croker was one of the most effective defenders of his royal highness, and in the long debate which ensued he delivered, on March 14, the best speech that was made on the side of the ministry. He was associated with Gifford, Scott, George Ellis, Frere, and Southey in establishing the "Quarterly Review," the first number of which appeared in 1809, and he continued till his death to be one of the most frequent, powerful, and sarcastic contributors to that periodical. In 1809 the Perceval government appointed him secretary to the admiralty, and he retained that office, fulfilling its duties with unremitting application, till 1830. He sat in the house of commons through 8 successive parliaments till 1832, having been returned for Yarmouth, Athlone, Bodmin, and in 1827 for the university of Dublin. In 1828 he was sworn a privy councillor. He favored the project of Catholic emancipation, was among the first to advocate a state encouragement of the fine arts, and urged the purchase of the Elgin marbles in a speech much in advance of the general treatment of the subject by parliament. An accomplished debater and master of satire, he was a prominent and most resolute opponent of the reform bill, which he believed would ultimately revolutionize the country. The passing of that bill destroyed him politically, for, unlike his comrades, he declared that he never would sit in a reformed parliament, and he never did. He preferred rather the occupation of "tomahawking liberal authors" in the "Quarterly," his contributions to which were so caustic that for many years it was customary to attribute all the most malevolent and ablest articles of that periodical to his pen. He gained the reputation of "a man who would go a hundred miles through sleet and snow, on the top of a coach, in a December night, to search a parish register, for the sake of showing that a man is illegitimate, or a woman older than she says she is." In 1826 he reviewed, in the London "Courier," Scott's "Letters of Malachi Malagrowther," in a way that called forth a delicate rebuke from Scott, who had long been one of his most cordial associates, and who now declined to endanger an old friendship by meeting him in "the rapier and poniard game of wit." Beside his review articles and many pamphlets and printed speeches on political questions, he published poems entitled "Talavera," "Songs of Trafalgar," and several pleasing lyrics, of which the fine lines on the death of Canning are among the most successful; "Military Events of the French Revolution of 1830;" "Letters on the Naval War with America;" "Stories from the History of England for Children," of which over 30,000 copies have been sold, and which Scott in a preface acknowledges to have been the model of his "Tales of a Grandfather." He also translated Bassompierre's "Embassy to England," edited the "Suffolk Papers," the "Letters of Lady Hervey," Lord Hervey's "Memoirs of the Reign of George II.," and Walpole's "Letters to Lord Hertford," and furnished an edition of Boswell's "Life of Johnson" with copious annotations. The last work was received with general approbation, and is esteemed a valuable contribution to literature, though it was severely reviewed by Mr. Macaulay in the pages of the "Edinburgh Review." In return, the harshest and most effective criticism upon the first volumes of Macaulay's "History of England" was from the pen of Mr. Croker. The latter was also long at feud with Mr. Disraeli, who lampooned him in the character of Rigby in "Coningsby," and whose political pretensions, and especially his famous budget of 1852, were consequently assailed with masterly rancor and ridicule in the "Quarterly." He had a controversy with Lord John Russell upon the publication by the latter of the "Memoirs and Correspondence" of Moore, on which he wrote a scathing article, followed by several skilfully written letters in the "Times." Mr. Croker possessed brilliant conversational pow-

ers, a talent for repartee, and a minute acquaintance with the principal questions of politics and belles-lettres. As a political gossip and satirist, he excelled especially in humorously noting the incidents and analyzing the motives of persons and parties at critical seasons of ministerial change. A selection from his numerous contributions to the "Quarterly Review" has been published.

CROKER, Thomas Crofton, an Irish author, born in Cork, Jan. 15, 1798, died in London, Aug. 8, 1854. When 15 years of age he was apprenticed to a merchant, and began to make occasional rambles on foot through the south of Ireland. During these excursions, continued for many years, he made the researches among the peasantry and the collections of legends and songs which furnished the materials for his "Researches in the South of Ireland" (1824), and for his "Fairy Legends and Traditions of the South of Ireland" (1825). The latter work contained several contributions from Maginn, Pigott, Keightley, and Humphreys, which were omitted in subsequent editions, and it was at once highly praised by Sir Walter Scott. In 1819 Mr. Croker had obtained a clerkship in the admiralty, and he was connected with that department till 1850, when he retired with a pension. In 1829 he published the "Legends of the Lakes," and rhymes of a pantomime founded on the story of "Daniel O'Rourke," which were followed in 1832 by the tales of "Barney Mahoney" and "My Village." The two latter are his principal attempts at strictly original composition, his other works being collections of legendary and poetical lore. "My Village" contains minute descriptions, but is written without passion or imaginative power, and was the least favorably received of his publications. The Irish adventures of Barney Mahoney are pleasantly and plainly told. In 1838 he published the "Memoirs of Joseph Holt, General of the Irish Rebels in 1798," and in 1839 he edited the "Popular Songs of Ireland," with historical and personal annotations. He also contributed frequently to magazines, among others to "Fraser's" and the "New Monthly," and was an active member of numerous literary and antiquarian societies. His works give not only the fanciful traditions of Ireland, but also sketches of its romantic features and ruins, and interesting notices of the humors and characteristics of the Irish.

CROLY, George, LL. D., a British clergyman and author, born in Dublin in 1780. He was educated at Trinity college in his native city, and has been for many years rector of St. Stephen's, Walbrook, a metropolitan parish in London. To this position, in which he has obtained an extended fame as an eloquent and impressive preacher, he was presented by Lord Brougham when lord chancellor of England. His literary career began with a poem entitled "Paris in 1815," in which he describes the works of art collected by Napoleon in the Louvre, prior to their restoration to the various galleries of Europe after the surrender of Paris. This was followed in 1820 by the "Angel of the World, an Arabian Tale," and by several satires and lyrics, which were first collected in 1830. His tragedy of "Catiline" appeared in 1822, and though not produced upon the stage was most favorably reviewed by Prof. Wilson, and has maintained its reputation as an admirable specimen of the unacted drama. In 1824 his comedy of "Pride shall have a Fall" was performed at the Covent Garden theatre with great success, which was partly owing to its literary merit, partly to the circumstance that its illustration of the airs and graces of a fashionable cavalry regiment had a direct application at the time, and partly to the extraordinary personation of one of the characters by Frederic Yates. He published in 1827 "Salathiel, a Story of the Past, the Present, and the Future," founded on the legend of the wandering Jew, which is one of his most finished and popular productions. It was followed by two other works of fiction, "Tales of the Great St. Bernard," and "Marston" (1846). The "Modern Orlando (1846), though fragmentary, is one of his best poems. He has made valuable contributions to historical and biographical literature by his "Personal History of King George IV." (1830), his "Character of Curran's Eloquence and Politics," and his "Political Life of Burke" (1840). He has also edited the works of Pope (1835), and the select works of Jeremy Taylor (1838), for which he furnished memoirs and annotations. His publications on professional subjects have been a new interpretation of the "Apocalypse of St. John" (1827), a work entitled "Divine Providence, or the Three Cycles of Revelation" (1834), and numerous sermons on questions of public interest, several of them being upon the Anglo-Catholic controversy. He was one of the early contributors to "Blackwood's Magazine," has furnished critical articles of a high character to various periodicals, and collected in 1842 a volume of "Historical Sketches, Speeches, and Characters." He is reputed an excellent scholar, and his writings are distinguished by a vigorous and imaginative style.

CROMLECH, or Cromlech, a primitive kind of sepulchral monument among the ancient Scandinavian and Celtic nations. It consisted of a large flat stone laid on other stones set upright to sustain it. These monuments are supposed by some antiquaries to have been also used as altars on which sacrifices were offered to the heroes who repose beneath. Though the cromlech and kist-vaen are frequently confounded, they are different in certain respects. The cromlech is open at the side and ends, and larger, whereas the kist-vaen is closed up on every side. The word cromlech is probably derived from the Armoric *crum*, crooked or bending, and *lech*, or *leh*, a stone. By the inhabitants of Wales and Cornwall cromlechs are called *coetne Arthor*, or Arthur's quoits.

CROMPTON, Thomas Bonsor, an English

manufacturer, born at Farnworth, May 20, 1792, died at Sandy, Bedfordshire, Sept. 8, 1858. He was the proprietor of Farnworth mills, and of extensive paper mills at Worthington, near Wigan, supplied the principal newspapers and merchants of London with paper, invented the continuous drying apparatus now in general use, was also an extensive manufacturer of cotton, and for some time the proprietor of the "Morning Post" and other newspapers. Indefatigable in business, he was at the same time an ardent sportsman, public-spirited, a conservative in politics, and noted for his hospitality.

CROMWELL, Oliver, lord protector of the English commonwealth, born at Huntingdon, April 25, 1599, died at the palace of Whitehall, Sept. 3, 1658. His family belonged to the class of English gentry, and his social position was well described by himself, when he said: "I was by birth a gentleman, neither living in any considerable height, nor yet in obscurity." Mr. Forster has printed, from the register of burials of the parish church of Felstead, the entry of the interment of Cromwell's eldest son, Robert, in 1639, in which the Puritan squire is spoken of as a man to be honored; and as this entry was made by the vicar before Cromwell had risen to eminence, the fact is important, as showing the estimation in which he was held by those who knew him best. No such tribute is paid to any other person in the register. The Cromwells were connected with the St. Johns, the Hampdens, and other eminent English historical families. The great grandfather of Oliver was Sir Richard Williams, a nephew of Thomas Cromwell, earl of Essex, whose name he took. His grandfather was Sir Henry Cromwell, who had been knighted by Queen Elizabeth, and who was famous for his charities. Robert Cromwell, a younger son of Sir Henry, married a widow lady named Lynne, daughter of William Steward, of Ely, who was descended from the youngest son of Alexander, lord steward of Scotland, founder of the house of Stuart. Mrs. Cromwell and Charles I. were 8th cousins, and Oliver was three generations nearer to Alexander than was the king whom he supplanted. The income of Oliver's parents was £360 a year, a large sum for those days. Robert Cromwell was a justice of the peace, and sat in one of Elizabeth's parliaments. Mr. Sanford has satisfactorily disposed of the story that he was a brewer by trade. Many curious anecdotes are related of the youth of the future protector, most of which were probably coined after he had risen to distinction. A monkey snatched him from his cradle, and took him to the housetop. A curate saved him from drowning, and lived to tell him that he repented the deed when he was warring against the church. He had a fight when 5 years old with Prince Charles, afterward Charles I., and flogged him, when the royal family was on a visit to his uncle, at Hinchinbrook. A gigantic female figure drew his bed curtains, and told him that he should become the greatest man in England, but did not mention the word king. He was a froward boy, and much given to the ancient youthful pursuit of robbing orchards, and to practical jokes. He took to learning by fits and starts, and, much to the surprise of his master, who had flogged him severely and often, made but little progress. In 1616 he was sent to Sidney Sussex college, Cambridge, where he is represented as having lived a wild life; but as in after days he showed a fair knowledge of Latin, it is to be supposed his studies were not neglected. In 1617, after his father's death, he left Cambridge, and was, according to some of his biographers, entered of Lincoln's Inn. The accounts of his London life are flatly contradictory. One represents him associating with the best company, while the other paints him as a coarse debauchee. His youth was probably spent like that of most men of his class, and was that neither of a saint nor a devil. He was fond of rough sports, such as have generally been pursued by Englishmen. In 1620 he married Elizabeth, the daughter of Sir James Bourchier, and soon afterward his mind took that serious turn which had so great an effect on his life. He is said to have given the best proof of his sincerity by making restitution to persons of whom he had won money. He was an active religious man, prayed, preached, and exhorted with unction, and assisted those of his brother Puritans who needed aid in his neighborhood. He was a member of the parliament which met in 1628, sitting for Huntingdon. During the 11 years that followed the dissolution of that parliament, and while Charles I. was endeavoring to establish a despotism over England, Cromwell lived either at Huntingdon, at St. Ives, or at Ely, his devotional feeling increasing in depth and strength, while his attachment to the country party was deepened and confirmed. There used to be current a story that, in 1638, despairing of his country's welfare, Cromwell embarked for New England, in company with Pym, Hazelrig, and Hampden, but was prevented from sailing by a royal order in council. This is now abandoned, as the ships were allowed to proceed, in consequence of the petition of the passengers and others. The opposition which he made, not to the draining of the fens, but to the interference of government in the work, was successful, and won him great fame, and from the people the title of "lord of the fens," while it showed to the country that he was a man of immovable resolution. In 1640 he was chosen to the short parliament; and when the second parliament of that year was called, Cromwell contested Cambridge with the poet Cleaveland, a zealous royalist, and is said to have defeated him by one vote. Cleaveland is reported to have said that that single vote had ruined both church and kingdom; but this was probably an invention of later times, as in 1640 Cromwell was not so high in general estimation as to be reckoned among the great leaders of his

party, nor was it supposed that that party aimed at any thing which implied hostility to the established order of things in church and state. From the time that he entered the long parliament, Cromwell went with the root-and-branch men, but he was not so conspicuous as to be noted until after the commencement of the civil war. Yet he served on many committees, and took part in debate. Sir Philip Warwick, who heard him speak with heat and earnestness in the first days of the session, felt his respect for the commons lessened because they hearkened much unto him. So little was he known to some noted men, that, on the day he made the speech here mentioned, Lord Digby asked Hampden who the sloven was; and received for answer that, if ever there should come a breach with the king, that sloven would be the greatest man in England. Cromwell was not much given to talk, but he was an active party man, and labored with zeal in the common cause. "It has been ascertained," says Mr. Sanford, "that within the first 10 months of the long parliament, and before the recess, which began on Sept. 9, 1641, Cromwell was specially appointed to 18 committees, exclusive of various appointments among the knights and burgesses generally of the eastern counties. The most important matters fell within the province of several of these committees." He supported the grand remonstrance, and all the other measures of the parliament that were meant to bridle the faithless king. When the war commenced, he became the most active of all men in the field, which he was the first to enter. Before the royal standard was set up he went down into Cambridgeshire, where he had previously sent arms, and formed the nucleus of his "Ironsides," at the same time seeking to give to the forcible resistance that was to be made to the king a systematic character among the leading men of the district, to the end of rendering their military means solidly available. He contributed liberally of his money to the cause. He seized the plate of Cambridge university, which was to have been sent to Charles I., and took the magazine that was in the town. His uncle, Sir Oliver, was a royalist, and the nephew, though he treated him personally with the most distinguished consideration, took from him every thing with which he could assist the king. He was present at the battle of Edgehill. He was made Colonel Cromwell, and acted under the earl of Essex, the parliamentary lord general. He showed himself to be a cavalry officer of remarkable capacity and resource. He would have done much in any contest, for his military genius was of a high order; but the peculiar circumstances of the civil war enabled him to accomplish something that borders on the marvellous. From the first he saw that the parliament could not contend against the king's forces unless it should have in its service men capable of meeting the loyalists on some ground of principle; and against the chivalrous honor that actuated the better portion of the latter, he purposed to direct the religious spirit of the Puritans. Hampden, to whom he unfolded his scheme, thought it "a good notion, but impracticable;" but Cromwell found it no such difficult matter. He raised a cavalry regiment, 1,000 strong, which he drilled and exhorted until it became the finest body of troops in the world, and was the seed of that army which won the parliament's cause, and then overthrew the parliament itself. This regiment was composed mostly of freeholders, or the sons of freeholders, and was recruited from among Cromwell's neighbors, persons who had heard him preach before the war was thought of. Both friends and enemies bear the fullest evidence to the discipline, valor, skill in arms, freedom from military vices, and religious zeal of these Cromwellian soldiers. Their commander told them that they were to fight the king, and said he would himself as soon shoot that personage as any other whom he should encounter in the hostile ranks. This was contrary to the idea and practice of the parliament, which fought the king in his own name, a fiction quite in keeping with English political practice, but which had no hold on the Ironsides, who cheered their colonel's words, and ever acted in their spirit. The early military services of Cromwell were useful, and were soon followed by others of a brilliant character. He surprised a party of loyalists in Suffolk, kept the same party quiet in the eastern counties, and near Grantham totally routed a body of cavalry that was seeking to obtain control of Lincolnshire. His next action was the relief of Gainsborough. The royalists, under Col. Cavendish, were advancing in force upon the town, when Cromwell threw himself in their front. Though the enemy was triple his own numbers, and was drawn up on the summit of a hill, the base of which could be reached only through a gateway in a fence that was commanded by that enemy's fire, he led on his men, charged up hill, and carried the position. Some of the enemy fled, but Cromwell, then exhibiting for the first time that mode of action which gave him so many victories, did not pursue them, but re-formed his troops, and fell upon those who stood, routing them, and driving them into a bog, where they were all butchered, including their general. This victory raised Cromwell's reputation, and the more so that most of the parliamentary generals showed little conduct, and were often beaten. He continued his services in Lincolnshire and the neighboring counties; and parliament ordered that 2,000 men should be added to his command, to be disciplined after his fashion. He was united with the earl of Manchester in command of 6 associated counties, and their forces were joined at Boston, Oct. 1643. Sir T. Fairfax had previously joined Cromwell. Oct. 11, Sir John Henderson, at the head of a superior body of royalist cavalry, came up with Cromwell and Fairfax on Winceby field. A terrible

action followed, in which Henderson was beaten, though his force was three times as numerous as that of the parliament. Cromwell had a horse killed under him, and while rising was himself struck down; but soon recovering, he joined in the battle, and much distinguished himself. After this success, and until the weather forbade further operations, Cromwell continued to act in the field. Parliament made him lieutenant-governor of the isle of Ely, and he was engaged during the winter in raising funds from Peterborough and Ely cathedrals, and from the university of Cambridge, and in reforming the university, 65 fellows being ejected. On Feb. 16, 1644, he was appointed one of the committee of both kingdoms, which was then constituted the executive authority for the conduct of the war, and affairs generally. The campaign of 1644 placed Cromwell clearly before the country. The earl of Manchester and Cromwell joined the army of Fairfax and Leven, and the battle of Marston Moor was fought, July 3, and resulted in the total defeat of the royalists. The victory was principally due to the valor, energy, and coolness of Cromwell and his Ironsides. Cromwell then accompanied Manchester in the march that was made to the south, where things had gone against the parliament. He commanded the horse. The second battle of Newbury was fought, Oct. 27, 1644, the king being with his army. The royalists retreated in the night, though it can hardly be said they were defeated. Cromwell, who had highly distinguished himself in the action, and in the proceedings preliminary to it, vainly entreated of Manchester to pursue. So little energy had that general, that he allowed the king to return, assume the offensive, and carry off the artillery and stores that were in Donnington castle. Manchester was not only listless, but he was a leader of the moderate party, the Presbyterians, who were not for pushing matters to extremity with the king. He did not wish to have the royal army destroyed, as it would have been had Cromwell moved forward with his cavalry as soon as the retreat was discovered. The Independents, of whom Cromwell was the ablest, and who had been little heard of at the beginning of the dispute, were now fast rising to importance in the state and in the army, their growth being not a little stimulated by the conduct of the Presbyterians, who were seeking to establish a tyranny as severe as that of Laud and Strafford, and which would have been unrelieved by any of those embellishments that belonged to the system of the latter. Cromwell determined that the army should pass under the influence of the Independents. He was supported by all the best men of the parliamentary party—Fairfax, Marten, Ireton, Vane, and others. The time had come for energetic action, and Cromwell, from his place in parliament, accused Manchester of backwardness, and of not desiring victory. He narrated all that had happened at Newbury, and bore hard upon the various commanders who belonged to the moderates. Manchester retorted, in the upper house, and, in a narrative that he had written, accused Cromwell of being the cause of the failure of the campaign. He also said that Cromwell was hostile to the peerage, and to the Presbyterian ascendency, which was no doubt the truth. The famous self-denying ordinance was brought before the house of commons, Dec. 9, 1644. It forbade any member of parliament from holding either civil or military office during the war. Cromwell supported it with great plainness of speech, portraying the state of affairs with rough candor, and showing that the want of success was due to the selfish ambition of certain members of both houses, who held places and commands, and who had no wish, therefore, to bring about by vigorous action the settlement of a quarrel the continuance of which they found so profitable. He also pointed out the vices and corruptions that had found their way into the army, to the destruction of its efficiency; and he declared, that "till the whole army were new modelled, and governed under a stricter discipline, they must not expect any notable success in any thing they went about." The first ordinance failed, but a milder one was successful. It provided that members of parliament who then held offices should be discharged. The 3 armies then existing were formed into one, 22,000 strong. Sir T. Fairfax was made lord general, and Skippon major-general. The office of lieutenant-general was not filled up, undoubtedly because it was meant Cromwell should have it, in spite of the self-denying ordinance. The army was entirely new modelled, and many officers were dismissed. Cromwell had been employed, with Sir William Waller, in the mean time, against the royal forces in the west; and when the time came for him to retire, Fairfax sent a petition to the commons, asking that Cromwell might command the horse in his army; and many of his officers signed the petition. The house cheerfully complied, and Fairfax was allowed to employ him for such time as the house should dispense with his attendance. The model had been successful in raising the character of the army, under Cromwell's direction. Before the house had received Fairfax's petition, Cromwell had been several times engaged with the enemy, and had been victorious in every encounter. Matters looked ill for the cause everywhere save in those places where Cromwell was present, and there can be no reason for supposing that Fairfax was not sincerely desirous for his lieutenant's presence, on plain and obvious military grounds. He wrote to him as soon as he received the commons' permission, and on June 13, 1645, Cromwell joined the army at Northampton, the royal forces being 6 miles distant. His arrival caused the army to become active, and he was the real commander of it at once. Causing Ireton to ascertain the whereabout of the royalists, which he did with skill, he declared for

action the next day. Fairfax acquiesced, and on June 14 was fought the battle of Naseby, which was fatal to the house of Stuart. Believing his enemies were retreating, the king was led to abandon an excellent position at Harborough, and to draw up his army on ground favorable to those enemies. The action of Marston Moor was repeated on a larger scale. Portions of each army were successful, but Cromwell held his Ironsides mostly well in hand, and assailed a body of royalist infantry, after he had routed half their cavalry, and so decided the event of the day. The royalists were utterly beaten, 2,000 of them being slain, and 8,000 captured. All their artillery, many thousand stand of arms, a hundred pair of colors, and all the spoil of the king and camp, fell into the hands of the victors. The most important capture was that of the king's cabinet, which afforded abundant proofs of its owner's total insincerity. Cromwell led the pursuit to Harborough, whence he wrote an account to the speaker of the commons of the victory. This letter reached the commons before that of Fairfax, and that was Cromwell's object in writing it so soon. The reading of it was the announcement to the Presbyterians that power had departed from them. Its tone has been called regal, and it was written in the terms of a master. The very day the news reached parliament, the commons resolved that his services should be continued in Fairfax's army during the pleasure of the houses, the lords substituting three months. He followed up the victory with wonderful celerity and success. Leicester was retaken, Taunton relieved, Goring beaten, and Bridgewater stormed. Soon afterward he put down the "club men," a third party, which might have reached to formidable dimensions if they had not been thus firmly dealt with at the outset. After taking Sherburne castle, Fairfax and Cromwell besieged Bristol, which was held by Prince Rupert at the head of 5,000 men. Cromwell, who was ever for bold measures in war, advised that the place should be stormed. This counsel was followed, but the attack failed. It was, however, made with so much spirit that Rupert surrendered, and the soundness of Cromwell's policy was vindicated. He then proceeded against Devizes, which he stormed. Berkeley castle shared the same fate. Winchester surrendered. Basing House, which had previously defied all attacks of the parliamentarians, fell before him. Longford House capitulated at once. He defeated Lord Wentworth at Bovey Tracy, inflicting a heavy loss on him, and taking, among other spoils, the king's standard. He and Fairfax stormed Dartmouth, defeated Lord Hopton at Torrington, and drove the last remains of the western royalists into Cornwall. Finally, Sir Jacob Astley, at the head of 3,000 horse, was routed at Stow-on-the-Wold, March 21, 1646, which was the last action of the English civil war. Sir Jacob was captured, and when taken to the head-quarters of the victors, he said: "My masters, you have done your work, and may go play; unless you choose to fall out among yourselves." Cromwell had indeed done his work, to use an expression of that time, not negligently. He had applied Strafford's idea of "Thorough" in politics to military operations; and nothing like what he had accomplished in less than 10 months from the time he had joined Fairfax at Naseby had been seen in England since the time when Edward IV. crushed the Lancastrians at Barnet and Tewkesbury. The whole of England, as it were, had been subdued, though on the 13th of the preceding June the chances were decidedly in favor of the king, whose cause had been greatly advanced in Scotland by the victories of Montrose. Had Cromwell died in 1646, he would have been entitled to a high place in the list of great commanders. In original genius for war hardly any man ever surpassed him. Yet it was to success in politics that he owed his success as a soldier; for if he had not carried the self-denying ordinance through parliament, the royal cause must have triumphed in 1645. The "new model," emphatically his work, as well as his conception,—he had explained it to Hampden in 1643,—was the cause of the military superiority of the parliament. The time was now come when he was to be as eminent in the cabinet as he had been in the field. Parliament heaped great rewards on him. Lands of the yearly value of £2,500 were conferred on him, taken from the estates of the marquis of Winchester, and from those of the Somersets and Herberts. It was resolved that the king should be recommended to create him a baron. The king had thrown himself into the hands of the Scotch forces then in England, and had been delivered up to the English parliament. The conduct of Cromwell for some time after this event is the subject of much dispute. He is supposed to have stirred up that agitation in the army which was directed against the king, and against any settlement with him, and which Cromwell is charged with only affecting to condemn, though at a later period he visited some of the agitators with military punishment. The army, perhaps the most intelligent body of soldiers that ever existed, appear to have formed a just estimate of the character of the king. They saw he was not to be trusted, and they determined not to trust him; and ultimately they determined to punish him for his attacks on the liberties of England, and for shedding innocent blood. It is not probable that they saw their way more clearly at first than other parties saw theirs, or that they arrived at an immediate conclusion. As in all other cases, events were evolved from events. That Cromwell had something to do with urging on the army to oppose the parliament, is very probable; and the army, in order that it might not be sacrificed by the Presbyterians, who controlled the parliament, seized the king's person, which it held until

late in 1647. If the parliament had dealt honestly and fairly with the army, the troubles might have been brought to an end in 1647, supposing the king to have been capable of dealing candidly with the parliament. It was the dispute between the army and the parliament that encouraged the king so to act as rendered a settlement impossible. Though every one of his schemes had failed, though all his armies had been annihilated, though the Scotch had delivered him up to the English, and though the army of the latter had seized and were holding him, he fell into the sad mistake of supposing that he was necessary to them all, and that he could choose as he pleased with which party to treat. Dominated by an enormous egotism, he set himself to work to outwit Cromwell. That the latter entered into a treaty with the king, and that he was supported by Fairfax and other distinguished soldiers of his party, are indisputable facts. The sincerity of Cromwell in this business is doubted by many; that of the king is believed in by no one competent to form an intelligent judgment. It cost Charles neither difficulty nor pain to deceive, and he seems to have preferred crooked ways, even when it was for his interest to walk in those which were straight. Cromwell's sincerity there is no good reason for doubting. He contemplated the settlement of England on some such basis as the great political dispute was settled 40 years later. His object was a free polity, government by parliament, toleration, the dismissal of the ultra royalists, and the reinstatement of strict legality. That he looked for some individual benefits is true. He was to be lord lieutenant of Ireland, a knight of the garter, and earl of Essex, a title to which one of his family might properly aspire, now that the last of its Devereux wearers was in his grave. Those who accuse Cromwell of hypocrisy in this instance, and assert that he was looking already to supreme power in the state, misjudge his position entirely. He could look no higher than the king professed to be willing to elevate him; and he could propose to himself no higher object than that of settling the kingdom in peace. That he then thought of the throne for himself, under any title, is very improbable. Such an ambition would, at that time, have been quite inconsistent with that good sense which was the prevailing element of his character. He had achieved much, but not sufficient to warrant an aspiration at once so irregular and so lofty, and so contrary to all modes of English thought. Had the king exhibited evidence of honesty, Cromwell would have closed with him, and would have become the founder of a line of nobles; but the most complete proof was obtained by him that Charles was practising the grossest deception, and that instead of a garter for his knee, he intended to decorate his neck with a rope. Then it was that Cromwell resolved upon the king's destruction. The army leaned strongly to republicanism, and contained not a few persons who entertained extreme opinions in religion and politics. Always disliking the king, and convinced of his insincerity, the soldiers saw Cromwell's course with unfriendly eyes. The king sought to cheat every party, and was so weak as to say to Ireton, Cromwell's son-in-law, and who acted with him in all this business: "I shall play my game as well as I can;" to which that stern and honest republican replied: "If your majesty have a game to play, you must give us also the liberty to play ours." The king's "game" became hopeless from the moment he had Cromwell for an antagonist. The king soon saw that he had made one of his mistakes. He believed his life was in danger from the more violent portion of the soldiery, known as Levellers; and Cromwell is supposed to have feared that the monarch would be seized by them, and to have operated on the royal mind, which was also startled by intimations from the Scotch commissioners. Charles, therefore, left Hampton court, in disguise, on the night of Nov. 11, 1647. He took refuge at Carisbrooke castle, in the isle of Wight, instigated by Cromwell. Hammond, governor of the island, was a connection of Cromwell's by marriage. The resolution of the house of commons, not to hold any more treaties with the king, led to much excitement in England, and to some fighting. Cromwell proceeded to Wales, where he put down the royalists with the strong hand. Then came his campaign against the Scotch, popularly called the commencement of the second civil war. The majority of the Scotch were for setting up the king again, and they invaded England with a large army, which was joined by some English cavaliers. Hastening to the north with such rapidity that the Scotch knew not of his arrival, Cromwell effected a junction with Lambert. Their united forces numbered only 8,600 men; the enemy were 21,000. On August 17, 1648, the battle of Preston was fought, and it was Naseby over again. The enemy lost several thousand men in the battle, and the duke of Hamilton, their commander, was among the prisoners. Following up the Scotch with great vigor, Cromwell completed their ruin, so that they were mostly killed, captured, or dispersed. Not in the days of the Edwards and Henrys had the English been more successful over their ancient enemies. Perhaps none of Cromwell's military actions were of a higher order than those of this campaign. They displayed alike daring valor and consummate generalship. The victor pushed on to Edinburgh, where he was welcomed by the extreme anti-Stuart party, headed by the marquis of Argyle. The king's fate was determined by these successes. He had been engaged in his usual "game," and gave further evidence of his bad faith. The army caused him to be removed from the isle of Wight to Hurst castle, where he was civilly treated, but whence escape was impossible. The parliament voted to close with the king,

but the majority were turned out of the house of commons by Col. Pride, or by other soldiers. The king was then brought to Windsor castle, by a detachment commanded by Col. Harrison. The ordinance for erecting the high court of justice was passed, and the king was tried and executed. That Cromwell was at the bottom of these doings there can be no doubt in minds that consider all the circumstances. He was the most powerful man in the state. So far as any one man could be said to rule, he was then the ruler of England. That he acted with free will may be doubted. It may be that he was obliged to comply with the demands of the army, that body being determined that the king should suffer. He may have been urged on by the knowledge he had that the king could not be trusted. His name stands third on the death-warrant of the king, which he signed as a member of the high court. He refused to use his influence to save the king's life. The story that he visited the body, and remarked on the likelihood that the king would in the course of nature have reached to extreme old age, is a melodramatic invention, and to be classed with the scene in Scott's "Woodstock," in which he is represented as going into a fit of delirium on looking at Vandyke's picture of the king. There appears no ground for believing that his conscience ever troubled him for the part he had in that "memorable scene." When the council of state was constituted, for performing the executive duties of government, Cromwell was appointed one of its members. He was made lord lieutenant of Ireland, and proceeded to that country, in much state, at the head of 12,000 men. He reached Dublin, Aug. 15, 1649, and instantly commenced a campaign as brilliant as it was merciless in its character. Drogheda was stormed, and the entire garrison either butchered or sent as slaves to the plantations. Most of the victims were English royalists, and their commander was an Englishman. Cromwell's object was to strike terror into the enemy, and so prevent further resistance. He did not wish to be long absent from England. He was mostly successful, but at Wexford the horrors of Drogheda were repeated; and at Clonmel he met with so stern a resistance that he granted an honorable capitulation. This was owing, not to his humanity, but to his impatience to cross the channel. Appointing Ireton, his son-in-law, lord deputy, he hastened to London, which he reached May 31, 1650, and was received with great enthusiasm. His presence was much needed. The Scotch had set up Charles II., and made a covenanted king of him. They intended to invade England, for the purpose of forcing him on that country. The government of the commonwealth determined to anticipate them, and to send an army into Scotland. Fairfax, being under Presbyterian influence and petticoat government, refused to serve. Cromwell was made general-in-chief, and lord general. He entered Scotland, July 23, at the head of 11,000 men. Lesley, an experienced soldier, commanded double that number of Scotch, and, had he been left free to follow his own will, would have baffled the invaders. He held a strong position between Edinburgh and Leith, and while he refused battle, harassed Cromwell, and destroyed all sources of supply. The country was wasted on all sides, the Scotch following their old modes of resistance to English invasion. There was some fighting, in which the Scotch showed spirit, but generally were beaten. Cromwell was forced to retreat to Dunbar. On Aug. 17 he again advanced, his aim being to cut off the communication between Edinburgh and the western counties; but for this movement Lesley, with the prescience of a true soldier, had been prepared, and he instantly took a new position, not less strong than that which had previously baffled the English. The latter vainly assaulted several posts garrisoned by the Scotch, and occasionally were defeated in affairs of cavalry. The foot had some skirmishing, and there were brisk cannonades. In the end, Lesley won, Cromwell retreating, and the Scotch horse harassing him as his demoralized army, which had suffered much from sickness, fell back once more upon Dunbar, his grand depot and base of operations. In a worse position no army ever found itself than that in which Cromwell had now placed his. Dunbar is in a valley, surrounded on three sides by hills, through which there are but two narrow passes. The Scotch had possession of the hills and passes, and by the labor of a few hours might have shut up the English in a trap. Such was Lesley's plan; but he had in his own camp far worse enemies than he had in that of Cromwell. The preachers were bent upon Cromwell's destruction, and thought it could be accomplished with the sword. Their influence was overwhelming, and, after they had succeeded in driving from the army all the cavaliers in it, they compelled Lesley to lead it into the plain, thus giving up an impregnable position. Meantime, the English in Dunbar, after discussing some desperate expedients, the adoption of either of which would have been an admission of defeat, resolved to send out a strong column to the right on the morning of Sept. 3. This column marched, and fell in with the Scotch, who had just descended from the hills, whereupon the battle commenced. The result was doubtful, as between the infantry, until a body of English cavalry came to their countrymen's assistance, and so the Scotch were routed, their very excess of number causing their defeat to be the more complete. On the other wing, and in the centre, the English were also successful. The vanquished lost 12,000 men, mostly prisoners, all their artillery, 200 colors, and 15,000 stand of arms. Like Inkermann, Dunbar was the soldiers' battle, being won by hard fighting, and without any generalship on the part of the victor, who frankly disclaimed

all merit, and who had put his men in a position where nothing could save them from destruction save the folly of the enemy. Advancing for a third time into Scotland, Cromwell took Edinburgh, the castle of which held out until Dec. 24. The winter was passed in political intrigues and in some military operations in the southern districts. In the spring, when about to take the field in force, he was seized with ague, and was not able to act until July 1, 1651. Lesley had done his best to reorganize his army, and though much harmed by the continued interference of the preachers, he baffled Cromwell for some weeks. The latter, by a bold manœuvre, sent a corps into Fifeshire, which defeated the Scotch there, and the consequence was that the English were enabled to besiege and take Perth. While thus engaged, Cromwell learned that the enemy had marched into England, which course had been taken by Charles II. in the belief that he should be joined by the English cavaliers, and the people generally, almost all of whom were opposed to the new government. The Scotch reached Worcester, where they halted; but if they had pushed on to London, it would have fallen into their hands, and with it the whole country. The prompt and skilful measures taken by Cromwell on hearing of Charles's march had brought 30,000 English troops to the vicinity of Worcester, including regulars, train bands, and militia. The king had but 13,000. On Sept. 3, the anniversary of Dunbar, the battle of Worcester was fought, and ended in the annihilation of the invaders, 2,000 of whom were killed, and 8,000 captured. Cromwell believed it to be "a crowning mercy," as it was, for it was fatal to the royal cause; and had the victor not died prematurely, or had his successor been a man of talent, a new dynasty, if not a new polity, would have been set up in Britain. It is related, as an evidence of his elation after the battle, that he offered to knight some of his officers. The government showed itself most grateful, not to say servile, to the victor. An estate of £4,000 a year was conferred on him, and Hampton court was prepared for his abode. He was made chancellor of the university of Oxford. Sept. 3 was ordered to be observed annually "for all time to come,"—which the event showed to be 8 years. But nothing short of supreme power would content him. He was determined to be master of all. His demeanor changed, and he bore himself as Cæsar is said to have done after he had struck down the last of his open enemies. He was determined to settle the state, but in his own way, and with himself as its chief. In 1647 he would have been content with the highest honors of a subject, could he have relied upon the king; but in 1651 he had put the king to death, had conquered Wales and Ireland, had won three of the greatest battles of that age, and had driven the whole Stuart family from all its dominions. With the increase of his influence and power his political horizon had extended. Unquestionably he aimed at the throne, not from any love of the mere trappings of monarchy, to which his robust nature was indifferent, but because he knew that the kingly office and title were grand elements of strength. He wished to be a liberal, constitutional monarch, and had he been met in his own spirit such a monarch he would have become. But he encountered opposition from many who had thus far acted with him, and the soldiery themselves, attached though they were to his person, and ready to do most of his work, were sincerely devoted to republicanism. With their consent he might be any thing he chose but king. The best of the republican statesmen, headed by Vane, were for maintaining the existing order of things; and they were right, the government that existed since Charles I.'s execution having proved itself worthy of trust, and having managed the internal affairs of the state, and its foreign policy, with a vigor and a prudence that had not been known since the death of Elizabeth. Could Cromwell have been content with a just share of power in the new government, it would have been maintained; and as the new system would then not have depended on the life of one man, the royal family would have been kept out for ever. But he was bent upon being sole ruler. The 19 months that followed the final overthrow of the royalists were spent in discussions and intrigues, and they constitute the least reputable part of Cromwell's career. On April 20, 1653, he drove the remnant of the long parliament out of the house of commons by force. The council of state was broken up the same day. For some weeks England was as near to an anarchy as any civilized nation has ever been; but on June 6, Cromwell issued summons to 156 persons to meet at Westminster, as a parliament. All but two obeyed, and the new parliament met July 4. This was the famous Barebone's parliament, which has been a by-word for two centuries. One of the members was named Barbone, and this was scurrilously changed into Barebone. All but 17 of the members were summoned for England, Ireland and Wales having 6 each, and Scotland 5. Cromwell made to this body a long speech, and resigned his power into its hands. The parliament was a well-meaning body, but it contained few men of influence, and its conduct, though honest, only added to the public confusion. On Dec. 12, a portion of its members resigned their power into the hands of Cromwell, and the rest either retired silently or were driven out by soldiers from their hall. On Dec. 16 came forth the new institute of government, by which Cromwell was made lord protector, and the supreme legislative authority was vested in him and a parliament. The parliament was to be imperial in its character, and not to exceed 400 members for England, 30 for Scotland, and 30 for Ireland. The protector was to be assisted by a council of state. There

were many judicious provisions in the institute, among which was an improvement of the representation, similar in principle to that which was adopted by England in 1832. Parliament was to meet in Sept. 1654, and until that time the protector and his council were to have unlimited power. Cromwell was to hold office for life, and the council of state was to choose his successor, but at a later period Cromwell was authorized to name him. So far as he could, the protector revived monarchical forms. A variety of ordinances were passed of an arbitrary character, and many of the government's deeds would have disgraced the worst times of the Stuarts. Cromwell's defence is the necessity of the case, which must pass for what it is worth. There was no lack of vigor in the government, and though the protector did all that he could to conciliate the royalists, which was not much, he found them inveterately hostile, and their baser spirits bent on assassinating him. A plot was detected in 1654, and two of the conspirators were executed. Following the course of the government he had overthrown, the protector's foreign policy was bold and manly, save that in making peace with the Dutch he abandoned the high position which the statesmen of the commonwealth had assumed, though the war had been successful. A favorable treaty of commerce was made with Sweden. Parliament met Sept. 3, 1654. Care had been taken to exclude from it men whose hostility to the protectorate was supposed to be unchangeable, and no man who had been on the royal side in the civil war was even allowed to vote for members. Still some inveterate republicans were chosen, and Bradshaw, their leader, moved for a committee of the whole to deliberate whether the house would approve of the new system of government, which was carried. Warm discussions followed, upon which the protector locked the members out of their hall, and would allow none to return to it who would not sign an engagement that the government was legal. Nearly two-thirds signed, but the rest refused; but the servile majority soon fell to questioning the "institute," and government was in a minority, whereupon Cromwell dissolved the parliament. A despotism was established, followed by both royalist and republican plots, which failed, and many of those engaged in them were punished. Numerous arrests were made of persons not even suspected of crime, the object being to strike terror into the public mind. The royalists were very harshly dealt with. England and Wales were divided into 12 districts, the military command in each being vested in a major-general. Beside having control over most of the ordinary affairs of life, the commissions of these officers contained a special order from the protector that they should observe and follow such directions as they should from time to time receive from him. Never before or since has England known so iron a rule, and to the wrongs that were common under it must be attributed not a little of that folly which, 5 years later, brought about the restoration without any thing having been done to secure the rights of the people. To atone for this denial of freedom to his subjects, the protector gave them glory. France and Spain contended for the English alliance, and France succeeded. The Spanish possessions in America were assailed, and Jamaica was taken. Admiral Blake was successful in the Mediterranean, against the Barbary powers and Tuscany. The influence of England put an end to the massacre of the Vaudois. Rich spoils were taken from the Spanish fleets. Appeals were made to Cromwell for assistance from various states. These proceedings were expensive, and funds ran so low that it became necessary to call a parliament, to meet Dec. 17, 1656. The elections caused much excitement. To prevent their return, eminent republicans were imprisoned. But the majority was adverse to Cromwell, who thereupon excluded more than 100 of them from the house. Wishing to gain popularity, he allowed parliament to put an end to the power of the major-generals. It was moved that the protector should take the title of king, and, after much debating and intriguing, this was carried, as were some other provisions calculated to restore the old English polity. Cromwell longed for the crown, but he dared not accept it against the determined opposition of some of the highest military officers, and the general sense of the army. He accordingly refused the offer. The other provisions were adopted, and the lord protector was newly inaugurated, with great pomp and solemnity. Parliament adjourned, to give him time to create a house of lords. When it reassembled, the excluded members having been restored, the commons refused to recognize the other house, and Cromwell dismissed this, his last parliament, his last words to it being: "Let God judge between me and you!" to which some of the republicans answered: "Amen!" The brief remainder of his life was passed amid plots, having his murder for their end. He had such good intelligence that every thing became known to him, and the plots uniformly failed. Yet the precautions he had to adopt were of a humiliating character, and resembled those of the Greek tyrants. He was much in need of money for the public service, but he dared not impose taxes by his own authority. Meantime his foreign policy went on successfully, the bonds of alliance between England and France being of the strongest nature. English forces fought side by side with the French against the Spaniards, the latter having some of the banished English cavaliers under their banners. Cromwell told the men of the army he sent to Louis XIV.'s aid that they were to show the same zeal for the monarch that they showed for himself; and Louis and his minister (Mazarin) evinced their attachment to Cromwell in various ways. Had the protector lived, he would probably

have found the means of carrying on his government. Another parliament was thought of, from which the republicans were to be excluded, and Cromwell's last public act was to dissolve the committee that had the subject under deliberation. In the summer of 1658 his 2d daughter, Elizabeth Claypole, died; and as she was his favorite, and his disposition was affectionate, the effect on his shattered body and disturbed mind was serious. After some previous illness, he was forced to confine himself to his room, Aug. 24, 1658, from a tertian fever. On Sept. 3, the anniversary of Dunbar and Worcester, and known as his "fortunate day," he died, at 4 o'clock in the afternoon, and in the midst of the most terrible storm of those times, which both friends and enemies connected with his death, but with different associations. The remains of the protector were soon consigned to Henry VII.'s chapel, as it was impossible to keep them, corruption having followed death immediately, with singular rapidity and violence; but the public funeral, a gorgeous ceremony, took place Nov. 23. After the restoration, his body was disinterred, and gibbeted at Tyburn, and then buried under the gallows, the head being placed on Westminster hall. There was long current, however, a story that the protector's body, by his own directions, was buried in Naseby field, at midnight, in a grave 9 feet deep; and in itself this story is not improbable, but it was coupled with the assertion that the body gibbeted at Tyburn was that of Charles I., which was discovered at Windsor in 1813, so that the tale can no longer be regarded as true, though it is with reluctance that its want of foundation is admitted.—Cromwell had 5 sons: Robert, born 1621, died 1639; Oliver, born 1623, died in battle, 1648; James died in infancy; Richard and Henry survived him. He had 4 daughters: Bridget, married, first to Ireton, and then to Fleetwood, a woman of decided character, died at the age of 57, in 1681; Elizabeth, born 1629, married to John Claypole, died 1658; Mary, born 1637, married to Viscount (afterward earl of) Fauconberg, died 1712; Frances, born 1638, married, first to Robert Rich, 1657, and, Rich dying in a few months, then to Sir John Russell, died 1721. The wife of the protector survived him 14 years, dying Oct. 8, 1672, after having lived in retirement since the downfall of her family.—There are many lives of Cromwell, the best of which for general readers is that to be found in Mr. Forster's "Statesmen of the Commonwealth of England." Mr. Carlyle's "Oliver Cromwell's Letters and Speeches" is a work of great excellence, but the author's purpose of seeing no wrong in his hero's conduct lessens its value. Mr. Gleig's "Lives of the most eminent British Military Commanders" contains a good military biography of the protector. Most of the other biographies are worthless, either from the ignorance or the prejudices of their authors. Clarendon's great work has always been popular, and it bears hard upon Cromwell. Even the able volumes of M. Guizot, who has gone over the whole 35 years from the accession of Charles I. to the restoration, are tinged with his peculiar views, and are not always just either to the statesmen of the long parliament or to Cromwell individually; but they contain much matter not to be found elsewhere. Mr John Langton Sanford's "Studies and Illustrations of the Great Rebellion" contains much valuable matter concerning Cromwell, admirably told, but it terminates with the battle of Marston Moor. It corrects many errors in Cromwell's history that have long been received as truths.—Richard, 3d and eldest surviving son of the foregoing, and second lord protector, born at Huntingdon, Oct. 4, 1626, died at Cheshunt, near London, July 12, 1712. He became a student of Lincoln's Inn, 1647, where he remained 2 years. He did not study much, but devoted himself to the pleasures of the field and the table, to the former of which he had become attached while leading a rural life in the early years of the civil war. In politics he is said to have been a royalist, and to have interceded with his father for the king's life. In 1649 he married Dorothy, daughter of Richard Mayor, of Hursley, where they resided during most of Oliver's protectorate, Richard indulging in hunting and hospitality. Oliver did not think highly of his son's capacity, and was pleased to see him remain in the country. When the protectorate was established, Richard was elected to parliament, for various places, on different occasions, and Oliver endeavored to train him to the art of government. He succeeded his father as chancellor of Oxford university, was made a colonel, and a lord of trade and navigation. When the protector sought to create a house of peers, his eldest son was placed at its head, with the title of the Right Hon. Lord Richard, &c. On Oliver's death, Richard succeeded to the place of lord protector as regularly and as easily as Charles I. had succeeded James I. A parliament was called, which met Jan. 27, 1659, to which he made a sensible speech, and for a short time things went on well. In parliament, however, he was not strong, and the army was not attached to one who was at heart a royalist. A meeting of the officers was held, at which it was resolved that the army should be commanded by some one person. The protector applied to parliament for advice, at the suggestion of the council; and that body condemned the action of the army, and declared that the officers should hold no more meetings without the protector's permission. This brought matters to a crisis. The officers compelled Richard to dissolve parliament, which event was soon followed by his own resignation. He was not equal to the place in which circumstances had placed him. To the remonstrances his determination excited he replied that his resolution was fixed, that violent councils did not suit him, and the like. His retirement drew upon him

reproaches from all sides, which have been repeated for two centuries. Even Macaulay speaks of him as "that foolish Ishbosheth," who could not preserve "an authority which any man of ordinary firmness and prudence would have retained." Just before the restoration, the Cromwellians wished to replace Richard at the head of the nation, but it was too late for such an act to be attempted, even if he had himself been willing to return to Whitehall. He retired to Hursley, his wife's estate, that lady feeling far more the fallen condition of the family than her husband. In July, 1660, he left England for the continent, but less on account of political than for personal reasons. His debts amounted to £30,000. He resided at Paris, under the name of Wallis, for 20 years, making two visits to Geneva. He was little known, and sometimes had his feelings wounded by expressions of contempt for his poltroonery from strangers. He returned to England in 1680, his debts having been paid, took the name of Clarke, and resided at Cheshunt. His life was retired. One of his few friends was Dr. Watts, who never heard him mention his former greatness more than once, and then indirectly. A lawsuit with his daughters, in his extreme old age, brought him before the public, in the reign of Queen Anne. The judge treated him with much consideration, and his conduct was approved by the queen. Richard won his cause. He lived to be nearly 86, dying at Cheshunt, in the house of Sergeant Pengelley, who was supposed to be his natural son, and who rose to eminence in the law. He was buried in the chancel of Hursley church, where one of his daughters erected a monument to his memory. He left no legitimate son. His son Oliver, who appears to have been a man of some capacity, was active in the revolution of 1688–'9, and offered to raise a regiment to serve in Ireland, provided he were allowed to nominate his captains; but the name was yet too formidable to warrant government in accepting the offer. He died May 11, 1705.

—Henry, 2d surviving son of the first lord protector, born at Huntingdon, Jan. 20, 1628, died March 23, 1673. He was educated at Felstead, but as he entered the parliamentary army at the age of 16, he could not have known much of schools. Before he was 20 he had a troop in the lord general Fairfax's life guards. He was made a colonel in 1649, and went with his father to Ireland, where he served throughout those fierce wars that subjugated the country, distinguishing himself on several occasions. In the first parliament that his father called, the "Barebone's parliament," he sat as one of the 6 Irish members. He was married, in 1653, to Elizabeth, daughter of Sir Francis Russell, a lady of whom much that is good is reported. The university of Cambridge elected him to parliament in 1654. In 1655 he was sent to Ireland as a major-general, and eventually he was made lord deputy. He was well received in that country, and he justified the reception by the admirable manner in which he governed it. Men of all parties united in praising his wise and benevolent action; and Ireland rose rapidly to prosperity under his rule. He is said to have inclined in politics to royalist principles, which was not uncommon with members of Cromwell's family. When Oliver died, Henry exerted himself to have his brother's authority acknowledged in Ireland, and with entire success. The troubles that befell Richard in England, however, soon had a prejudicial effect on Irish affairs. Henry was annoyed in various ways by his brother's enemies, and he sought to throw up the government of Ireland, in order that he might reply to attacks that had been made on him in England, and to assist the protector. His request was refused, probably because the republicans feared him, well knowing that he was a very different man from Richard. When the protector retired, Henry resolved to place the Irish government in the hands of Charles II.; but the long parliament recalled him, and placed the government in the hands of commissioners. He obeyed the summons, and parliament expressed approbation of his conduct. So poor was he that he had not money enough of his own to pay his expenses from Dublin to London. The readiness with which he surrendered his government does not confirm the common impression that if he had been appointed his father's successor, he would have maintained the place. He lacked ambition. Henry resided for some years with his father-in-law, Sir. F. Russell, at Chippenham. Thence he went to a retired estate of his own, called Spinney Abbey, near Soham, Cambridgeshire, where he passed the remainder of his days in farming. Charles II. is said to have visited his house when going from Newmarket to London; and when he heard that Henry was suffering from the stone, he expressed sympathy with him, and, according to one account, even prescribed for him, the king being a dabbler in medicine. It was of this complaint that Henry died. He was buried in Wicken church, and a stone was placed over his remains, with a Latin inscription, stating merely the place of his residence, his age, and the dates of his birth and death. He had 7 children. His last male descendant, and great-grandson, died in 1821, at Cheshunt, aged 79. He had been a solicitor, and was the last representative of the great protector.

CROMWELL, Thomas, earl of Essex, born toward the close of the 15th century, died July 28, 1540. The exact date of his birth is unknown, though one account says he was born in 1498. His father, one of the Lincolnshire Cromwells, moved to the capital, and had an iron foundery at Putney. The name of his mother is nowhere given, but she is called a gentlewoman by some writers. Cromwell's father died when the future statesman was very young, and the accounts that are given of the orphan's early days are unworthy of confidence. He is said to have been a clerk at Antwerp, and to have been one of a party which went

on a private mission to Rome. The first clear sight of him represents him a ragged youth in the streets of Florence, in 1515, where he attracted the attention of Frescobaldi, then a great banker, and having extensive business connections with England. To his inquiries, Cromwell stated who he was, and that he had been page to a French foot soldier. Frescobaldi took him to his house, relieved his wants, and furnished him with the means of returning home. He found his mother, who had married a second time, again a widow, and he carried on his stepfather's business, that of a clothier. This brought him into connection with the court, as he furnished the royal liveries. He had some employment in the household of the marchioness of Dorset, and finally passed into the service of Wolsey, who saw his talent, and as early as 1525 employed him to visit and break up certain small monasteries, the property of which had been granted by the pope for the foundation of colleges. There is a story that Cromwell was with the army of the constable Bourbon, which took Rome in 1527; but if it has any foundation, he must have been in Italy as an agent of the English government, and not as a military adventurer; for he was with Wolsey not 4 months before Rome was stormed, and again less than a year after that event. Another story is, that he saved the life of Sir John Russell, at Bologna, for which there appears to be some foundation. He remained with Wolsey until the cardinal's ruin, and contended so ably in the house of commons against the bill of impeachment that had been preferred for the completion of the minister's fall, that he caused it to be thrown out. This fidelity to his patron won him great applause, including that of Henry VIII., who could appreciate generosity in others if he could not practise it himself. His talents, too, must have recommended him to the king, who made him his secretary in 1533, and government organ in the house of commons. This necessarily made him the leader of the English reformation, a part for which his early life is supposed to have prepared him. Froude assigns to him the honor of being the only man in England who saw his way distinctly through the chaos of that time, the privilege of genius, that of seeing what other men could not see, being his. He had no party; he was despised and feared by the nobility, who saw in him the friend and pupil of Wolsey, Wolsey's genuine successor in the race for power; while the Protestants could not understand either the character or conduct of the man who was doing their work better than they could do it themselves. But his power rapidly became great, and for several years he was, after the king, the most powerful man in England. In 1531 he was concerned in obtaining from the clergy the enormous sum of £118,000, a fine for their having supported Wolsey's legantine authority. Promotion rapidly followed his entrance into the king's service. He was knighted, sworn of the privy council, and appointed to several offices. The high posts of secretary of state and master of the rolls soon followed, and he was elected chancellor of the university of Cambridge. In 1535 he was created vicar general, or visitor general, with power to visit all the monasteries in England, and issued a commission for a general visitation of the religious houses, the universities, and other spiritual corporations. He did not become vicegerent in ecclesiastical matters until July, 1536, having just previously been created Baron Cromwell, and lord privy seal. The visitatorial power was executed with great vigor, the other side said with great cruelty and gross injustice. The proceeding was one of the first importance, and struck a deadly blow at the ascendency of Rome in England. The king was satisfied with Cromwell's proceedings, and the work of the reformation was much advanced. Sweeping changes were made in the religious system of England. The articles that were adopted by the convocation of 1536 were not acceptable to either Protestants or Catholics, but government, of which Cromwell was chief minister, was strong enough to enforce them. The complete edition of the English Bible, known as the "Great" or "Crumwell," was published 3 years after, with the arms of Cromwell on the title page. The minister, though he was regarded by the nobility with the deepest aversion, as an upstart, was now at the height of his power, which he maintained for some years, continuing to receive rewards and promotion from the king. He was appointed justice of the forests north of the Trent, made a knight of the garter, and elevated to the dignity of lord high chamberlain, receiving at the same time the title of earl of Essex. He was created constable of Carisbrooke castle, and received the castle and lordship of Okeham, together with valuable estates made up from the possessions of the dissolved monasteries. The reforms he effected were extensive, and in many instances they were useful, and of lasting value; but the readiness with which he accepted so large portions of the spoil that had been created by the success of his policy must ever be a stain on his memory. His appointments and titles, too, gave much offence in influential quarters. One great family was mortally offended by his taking the title of lord high chamberlain, and another by his elevation to the earldom of Essex. The people hated him because of the taxation with which he burdened them. He had enemies on all sides, and friends nowhere. The fluctuations of Henry's mind were such that no reliance could be placed on the royal support, the king sacrificing his instruments with even more than the proverbial readiness of despots. The party hostile to him—headed by the duke of Norfolk and Gardiner, and Catholic in doctrine, but compelled to submit to the new order of things by the iron energy of the king—was continually on the watch to entrap him; and toward the close of his career they had much

encouragement from the king, who is said to have treated his chief minister to harsh words and hard blows. Cromwell daily became more identified with the Protestants, partly from conviction and partly from circumstances; and this must have rendered the king hostile to him, for Henry was to the last a Catholic in all great essentials, and merely wished to be his own pope. It is not probable, therefore, that Cromwell could have much longer maintained his position, even in a contest confined to domestic politics; but an incident bearing upon foreign policy occasioned him to fall rapidly. With the view of connecting England with the Lutherans, he had promoted the marriage of Henry with Anne of Cleves. The lady was very pious, very virtuous, and very unprepossessing. Henry was disgusted with her, and refused to regard her as his wife. An attempt to form an Anglo-German league failed, and Henry was left alone at the very time when Charles V. and Francis I. were drawing together, and the Lutherans were deluded by the emperor. Cromwell continued to protect the Protestants, and only a few days before his fall he sent a Catholic bishop to the tower. On June 10, 1540, he was arrested, on the charge of high treason, while sitting at the council board, and sent to prison. Parliament was in session, and a bill of attainder was soon passed. The only friend Cromwell found was Cranmer, who desired he should be spared. The prisoner made a pathetic appeal to the king, who was moved by it, but would not pardon him. He was beheaded July 28, suffering cruelly at the hands of an unskilful executioner. Government had the baseness to place in his mouth a dying speech that he never made, but which has passed into history, so that he was represented to have died in the faith of that church which he had done so much to overthrow in England. There are few great men of whom so little is accurately known as Thomas Cromwell. He played for 8 years the highest part in England, and in one of the most fruitful of revolutions. He stamped his mind on the English constitution in church and state. That he was guilty of many acts of injustice and cruelty is indisputable, but his memory is entitled to the plea that he was placed in a position where no man could have preserved his virtue. The best account of Cromwell is to be found in Mr. Froude's "History of England from the Fall of Wolsey to the Death of Elizabeth." Cromwell was married to a lady of the name of Williams, by whom he had one son, Gregory, who was made Baron Cromwell of Okeham, at the same time that his father was created earl of Essex. This son was married to Elizabeth Seymour, a sister of Henry VIII.'s third queen. The posterity of this couple long enjoyed the title of Lord Cromwell.

CRONSTADT, or Kronstadt, the most important seaport and naval fortress of Russia, the seat of the admiralty, and the station of the Baltic fleet, is situated in the S. E. part of a small, arid, and rocky island, called Kotlinoi Ostrov (Kettle island), at the E. extremity of the gulf of Finland, opposite the mouth of the Neva, in the government, and 20 m. W. of St. Petersburg; pop. in winter, when the harbor is deserted and ice-bound, about 10,000; in summer, including the garrison, sailors, workmen, and students, sometimes 60,000. The town was built by Peter the Great in 1710, the island having been conquered from the Swedes in 1703 by Mentchikoff, while Charles XII. was engaged in his Polish campaign; it received its name in 1721, was fortified during the same reign, and subsequently under Elizabeth, Catharine II., Paul, Alexander I., and Nicholas, being destined from its foundation to become the great bulwark of the new Russian capital, and a chief naval stronghold of the Baltic. The southern channel, which separates the island from the mainland, is narrow and commanded by a small fortified islet, and allows single vessels only to pass; the opposite channel, the broader, but from its sand banks still less practicable entrance to the shallow eastern bay, called the bay of Cronstadt, is commanded by the batteries of the rock of Riesbank, and the citadel of Kronslott, situated on 2 small islands. Numerous forts and batteries defend all other parts of the island, which forms an irregular triangle, having its base toward St. Petersburg. Near its N. W. point is a lighthouse. The town is regularly built, has fine and well paved streets and squares, 3 gates, 3 Greek churches, 1 Anglican, 1 Lutheran, 1 Roman Catholic, and 2 Greek chapels. Other remarkable buildings are the exchange, custom house, arsenal, admiralty house, cannon foundery, barracks, and magazines; the marine hospital, with 3,000 beds; a house of Peter the Great, now the country residence of the military governor, whose garden still contains a few oaks planted by the hands of that czar; and a palace in the Italian style, erected by Mentchikoff, and now used as a naval school, containing 300 pupils for the navy, and 20 for merchant vessels. The last of these buildings is situated between the 2 canals of St. Peter and Catharine, which intersect the town. The former canal is constructed of granite, and is 2,160 feet long by 30 yards wide; it is in the form of a cross, and communicates by one of its arms with a vast dock, where 10 ships of the line can be repaired at once. The Catharine canal, 2¼ miles long, communicates with the merchant harbor, thus enabling the merchantmen to take their stores and provisions directly from the warehouses of the town. The quays, constructed by the emperor Nicholas, are all of granite, and on a grand scale. Except the government buildings, about 200 in number, all the older houses of the town are low, and mostly of wood. The harbor of Cronstadt, to the S. of the town, consists of 3 sections: the military, outer harbor, capable of containing 35 ships of the line, beside smaller vessels; the middle harbor, for the fitting out and repairing of vessels,

the hulls of new ones being brought over for equipment from St. Petersburg; and the innermost harbor, running parallel with the preceding, used only by merchantmen, and sufficient for 1,000 sail at a time. All these are well secured, but in consequence of the freshness of the water from the proximity of the mouth of the Neva, vessels cannot be preserved in them longer than 20 years. From November to the end of April they are blocked by ice. Notwithstanding the shortness of the shipping season, and the shallowness of the bay, which at the bar is only 9 feet deep, ⅔ of the foreign trade of Russia passes through this port. Entrances in 1856, 3,432 vessels, tonnage 547,951; clearances, 3,028 vessels, tonnage 469,812. In summer the surrounding sea is enlivened by steamers regularly running between Cronstadt and St. Petersburg, Helsingfors, Stockholm, Stettin, Lübeck, Havre, &c. Cronstadt was inundated in 1824, and blockaded in 1854 by the British fleet under Napier.

CRONSTADT, or KRONSTADT (Hung. *Brassó*), capital of a district of the same name, in the Austrian crownland of Transylvania. The district lies N. of the Carpathian mountains, an arm of which traverses it, and is watered by the Aluta and its tributary, the Burze, which gives it also the name of Burzenland. The soil is well cultivated, and produces all sorts of grain and pulse. It has gold, silver, and lead, and various mineral springs. The country abounds in game, fish, and bees, in horned cattle and pine timber. The population, about 100,000, is mainly composed of descendants of German settlers, of Wallachians, Hungarians, Greeks, and Armenians.—The town, pop. about 36,000, is beautifully situated in a narrow valley, enclosed by mountains. Charming villas on the slopes, with here and there an old castle on the heights, give a varied and picturesque aspect to the surrounding scenery. It consists of an inner town, which is surrounded by a wall and entered by 5 gates, and 3 suburbs, of which one, called the upper town or Bolgár, extends into the mountain passes, winds up the slopes, covering them with beautiful country mansions and well kept gardens and orchards, and is the favorite residence of the wealthy Wallachians. The 6 principal streets of the inner town are well paved and clean; the houses generally well built. It has a large market place, with 2 fountains, and at the main gate an esplanade covered with avenues of shady trees. The Protestant gymnasium, with a good library, the Roman Catholic high school, and the military hospital, deserve attention. There is a considerable trade in cattle, wine, corn, salt, and manufactured goods. The foundation of Cronstadt is traced back to the 13th century. In the 16th it was the starting point of the reformation in Transylvania, which was promoted by Honterus, a disciple of Melanchthon, who is said to have been in intimate correspondence with Luther, and to have also established the earliest printing press here (1533), its first productions being the Augsburg Confession and Luther's writings. Here, too, the first paper mill was erected. Cronstadt was formerly surrounded by strong fortifications, which are now in ruins. North-east of the town is a small citadel, situated on the summit of an isolated hill, which was not without importance in the Hungarian war of 1848–'49.

CROOKS, GEORGE R., D.D., an American clergyman and lexicographer, born in Philadelphia, Feb. 3, 1822. He was graduated at Dickinson college in 1840, and entered the ministry of the Methodist Episcopal church in 1841. His field of labor embraced portions of Fulton, Knox, and Peoria counties, in Illinois, his regular work being to preach 30 sermons every 4 weeks, beside having the pastoral oversight of a large territory. In 1842 he was elected classical and mathematical tutor in Dickinson college, and in 1843 he succeeded the Rev. L. Scott (now bishop) as principal of the grammar school of the college, and became associated with Professor McClintock in preparing "A First Book in Latin," and "A First Book in Greek," both of which have met with popular favor as text books. In 1846 he was elected adjunct professor of ancient languages, which position he held until 1848, when he resumed the pastoral office. He has had charge of prominent churches in Philadelphia, Wilmington, and New York, and as a preacher holds a place in the front rank of the profession. He has published an edition of Butler's "Analogy," containing a complete analysis of that work, with a new life of Bishop Butler, together with copious notes and an index. His last and most important work is a new Latin-English lexicon, adapted to schools and colleges, prepared in conjunction with Prof. Schem, of Dickinson college.

CROPSEY, JASPER FRANK, an American artist, born at Westfield, Richmond co., N. Y., Feb. 18, 1823. About the age of 14 he commenced the study of architecture, which, at the end of 5 years, he was obliged to relinquish on account of ill health. Having received a few lessons in water colors, he devoted himself thenceforth to landscape painting, and his third picture, a view of Greenwood lake in New Jersey, procured his election as an associate of the American academy of design, of which in 1850 he became a full member. In 1847 ill health compelled him to visit Europe, where he spent 3 years in close study of his art. Among his most successful productions after his return to America were the "Sibyl's Temple," and "American Harvesting," engraved by the American art union; "Peace" and "War," and "Niagara Falls." In June, 1856, he embarked for England, where he has since resided. Among his latest works are a series of American scenes, which are to be executed in chromo-lithography; several designs for illustrated books of poems; and compositions entitled "The Olden Time—A Tournament, and Return from Hawking." His subjects are chiefly landscapes, to which allegory and history are sometimes made accessory.

CROSLAND, Mrs. Newton, better known by her maiden name of Camilla Toulmin, an English authoress, born in London about 1817. Her father, a solicitor, died when she was a child, leaving the family mainly dependent upon the exertions of his son, who had also been trained to the law. Upon the death of the latter, Miss Toulmin, who had early manifested literary tastes and abilities, was forced to look to her pen for the means of support. She first appeared in print in 1838 as the authoress of a short poem in the "Book of Beauty," soon after which she became an active contributor to "Chambers's Magazine," the "People's Journal," and other periodicals, and edited for several years the "Ladies' Companion and Monthly Magazine." She has also published a volume of poems, "Lays and Legends illustrative of English Life," "Partners for Life, a Christmas Story," "Stratagems, a Tale for Young People," and a number of other works of fiction, designed to promote the moral and social culture of the people. She was one of the earliest to write for this end, and is regarded as a pioneer in the cause. In 1848 she was married to Mr. Newton Crosland, a merchant of London, in the environs of which she resides. She has recently become a convert to the doctrines of "Spiritualism," and has published a work illustrated with drawings by alleged spiritual agency.

CROSS (Lat. *crux*, Fr. *croix*), an ancient instrument of torture and death, commonly formed of two beams crossing each other. There were various forms of the cross: the *crux commissa* consisted of a transverse beam placed on the top of a perpendicular one, like our letter T; the *crux immissa* or *capitata* was a transverse beam crossing a perpendicular one at some distance from the top; and the *crux decussata*, or St. Andrew's cross, was made like the letter X. The Greek cross is a form of the *crux immissa*, the 2 beams crossing each other in the middle so that the 4 arms shall be of equal length. All these are varieties of the compound cross, beside which there was the simple cross consisting of a single stake on which the criminal was fastened or impaled. The shape of the cross on which our Saviour suffered is not known, for the historians who record its discovery give no description of it. It was probably the *crux immissa*, and such indeed is it commonly represented on ancient coins. A piece of wood bearing an inscription was placed on or above it, and there is reason to suppose that the feet of our Saviour were partly supported by a block placed beneath them, and to which they were nailed. Beside this, there was often a small resting place on which the body could slightly sustain itself as on a seat. The church early learned to regard the cross as an emblem no longer of disgrace but of victory. It became the favorite symbol of Christianity; it was fashioned in wood, stone, and metal; it was placed on tombs, altars, and religious structures, and sometimes on the front of private dwellings; and the faithful, not content with beholding its visible image, marked it with the hand on their persons. The sign of the cross was introduced into the ritual, and used in baptism, confirmation, and the Lord's supper. The Catholic church employs it in all sacred rites; it is the customary mode of benediction; it is many times repeated in the mass, and none of her sacraments can be rightfully administered without it. Roman Catholic bishops, abbots, and abbesses wear the cross suspended over the breast; and most of the priestly vestments display it embroidered in various forms. From the catacombs we have many curious examples of symbolical crosses, surrounded by other emblems, one of the commonest of which is a fish, denoting the water of baptism, or the "fishers of men;" or because the Greek word ιχθυς, a fish, comprises the initial letters of the Greek for "Jesus Christ, Son of God, Saviour." The dove, the serpent, A and Ω, were sometimes added to such representations, and often the cross was interwoven with the Greek letters X and P, the first two of the word Χριστος, or with a circle, the emblem of eternity. The latter is the sacred *tau* or *crux ansata*. The famous *labarum* or imperial standard of Constantine bore an image of the flaming cross which appeared to him in the heavens, and displayed the motto: Εν τουτῳ νικα, "By this conquer." From that time the sign of salvation glittered on the shields and banners of the Roman armies. Christian churches were soon built in the shape of a cross; and with the supposed discovery by the empress Helena, mother of Constantine, of the identical wood upon which Christ suffered, the veneration of the faithful took a new form. In 326 Helena, as related by Socrates, Sozomen, Rufinus, and Theodoret, visited the scenes of our Lord's sufferings. Every trace of the great events which had hallowed the environs of Jerusalem had been obliterated by the heathen, and a temple to Venus stood over Mount Calvary; but from a Jew who had treasured up what traditions he could gather, the empress learned the probable place of Christ's burial. The spot being excavated, 3 crosses were found, and the title which that of Jesus bore was discovered lying by itself. It is related that the cross of Christ was distinguished from the other two by miraculous cures wrought by touching it. A church was built over the spot; a part of the sacred relic was deposited in it; a part was sent to Rome and placed in the church of Santa Croce in Gerusalemme, built expressly to receive it; and the rest was inserted by Constantine in the head of a statue of himself at Constantinople. The first was carried away from Jerusalem by Chosroes, king of Persia, in 614, but was afterward recovered by the Roman emperor Heraclius, who restored it to its former place in 629. In the old chronicle of Geoffrey de Vinsauf, called the "Itinerary of Richard I.," we are told how the crusaders bore it with them to battle, how it was taken from them by Saladin at the battle of Hattin in 1187, and how the

pilgrims who went to the holy city in 1192 during the 3 years' truce were allowed "to see and kiss the true cross of our Lord." A piece of it is shown at Rome; another was preserved in Poland till the 17th century, when it was presented by John Casimir to the princess palatine, Anna Gonzaga, who bequeathed it to the monks of St. Germain in Paris; and innumerable minute fragments are held by Catholics throughout the world. A festival in honor of the finding or "invention" of the cross is still celebrated May 3, and the feast of the "exaltation of the cross," in commemoration of its restoration by Heraclius, is kept Sept. 14. The latter, however, according to some authorities, was instituted in the Greek church in honor of the appearance of the cross to Constantine. The ceremony of the "adoration (or more properly kissing) of the cross," which takes place in all Catholic churches on Good Friday, consists in presenting the feet of a crucifix to the lips of the people.—Architectural crosses were of several kinds, the principal being boundary, market, preaching, and memorial crosses. The first not only defined civil and ecclesiastical limits, but were sometimes endowed with the privilege of sanctuary. Market crosses were built partly to afford shelter in wet weather, and partly in token of the rights of neighboring monasteries to which belonged the tolls of the market. They are to be seen in many parts of England. At preaching crosses, sermons were delivered and proclamations were read. Memorial crosses marked the scenes of battles, murders, and other events, or in Alpine regions still denote the most dangerous parts of the mountain roads. Fifteen beautiful memorial crosses were built by Edward I. at the places where the body of his queen Eleanor rested during its removal from Grantham to Westminster. The processional cross, carried at the head of solemn processions, is often highly ornamented. There are many examples of the use of the cross as a sacred emblem among pagan nations, the earliest being found in Egypt and India. It is claimed that some have even been noticed in America.

CROSS, Joseph, D.D., a Methodist clergyman, born in Somersetshire, England, in 1813. He came to the United States at the age of 12, and entered upon the ministry in Genesee, N. Y., at the age of 16. He was for some time connected with the Transylvania university at Lexington, Ky., as professor of English literature, and has occupied some of the most important stations in the Methodist Episcopal church south. In 1855–'6 he travelled extensively in Europe, and wrote letters which were published extensively in the southern journals. He was a member of the general conference of the M. E. church south, which held its session in Nashville, Tenn., in 1856, and was the official reporter of that body. He has published "Pisgah Views of the Promised Inheritance," "Headlands of Faith," "A Year in Europe," "Life and Sermons of Christmas Evans, from the Welsh," and "Prelections on Charity." He is at present the principal of a female seminary at Spartanburg, S. C.

CROSSBILL, a bird belonging to the order *passeres*, tribe *conirostres*, family *fringillidæ*, and genus *loxia* (Linn.). The bill in this genus is moderate, broad at the base, with the culmen much curved, and the sides compressed to the very acute tip; the mandibles cross each other, having their lateral margins bent inward; the wings are moderate, the tail short and emarginated; the tarsi short, robust, and feathered below the knee; toes short, hind one with its claw very long, claws curved and sharp. These birds are found in the northern parts of both hemispheres, occurring in flocks in the forests of pines and firs, the seeds of which they eat; by means of the powerful bill and its peculiar construction, they pry asunder the scales of the cones; they also do much mischief in orchards by tearing open apples and pears in order to get the pips. The European species is the *L. curvirostra* (Linn.). The American crossbill is the *L. Americana* (Wils.). The length of the latter is 7 inches, and extent of wings 10 inches; the bill is brown, lighter on the edges, darker at the tip; iris hazel; general color a dull light red, inclining to vermilion, darker on the wings; quills and tail brownish black; the abdomen paler red, passing into whitish. The young males have tints of yellow and green, mixed with brown; in the female the upper parts are grayish brown, tinged with green, and the rump grayish yellow, as are also the lower parts. They are found in Maine and Canada even in midwinter, and on the shores of Lake Superior are seen in large flocks in the coldest weather, about the mining locations; they are also met with as far south as Pennsylvania. They fly quickly in an undulating manner, making considerable noise; they are easily domesticated, and in their wild state seem not to fear man. The eggs are 4 or 5, of a greenish white color, thickly covered, especially at the large end, with dark brown spots. The white-winged species (*L. leucoptera*, Gmel.) also inhabits the northern pine and spruce forests, the whole breadth of the continent, probably up to 68° N., where the woods terminate; it only resorts to temperate climates when forced by severe weather. The principal difference consists in the more slender bill, and in 2 white bands on the wings, formed by the secondary and first row of small coverts; the habits of the 2 species are the same. The singular form of the bill in this genus is a striking example of the adaptation of means to ends, which everywhere meets the student of natural history.

CROSSBOW. See Arbalast and Archery.

CROSSE, Andrew, an English electrician, born in Bromfield, Somersetshire, June 17, 1784, died July 6, 1855. He was matriculated at Brazenose college, Oxford, in 1802, but in 1805 returned to settle on his estate of Fyne Court, which he had some years previously inherited

from his father, and where he passed the greater part of his life. Having a strong predilection for the study of electricity, he provided himself with the necessary apparatus, and pursued his experiments without regard to theories. One of his first discoveries was the production of crystals by the effect of electricity. By the action of the voltaic battery, excited by water alone, upon a tumbler of water taken from a cavern in the neighborhood lined with aragonite crystallizations, he procured in a few days crystals of carbonate of lime. For 30 years he prosecuted these experiments, and succeeded in obtaining 41 mineral crystals, or minerals uncrystallized, in the form in which they are produced by nature, including one, subsulphate of copper, entirely new. He was of the opinion that it was possible to form diamonds in this way. As he worked alone and never published the results of his discoveries, they were unknown to the scientific world until the meeting of the British association for the advancement of science in Bristol in 1836, when he was induced to explain them publicly. The announcement excited unusual interest, and Mr. Crosse was publicly complimented by the president, the marquis of Northampton, and by Dr. Buckland, Dr. Dalton, Prof. Sedgwick, and other eminent scientific men. For many years previous he had been in the habit of employing the electrical fluid for ascertaining the state of the atmosphere and for other purposes, and had constructed a mile or more of insulated wire above the tree tops in the neighborhood of his house to aid his experiments. In 1816 he predicted, at a meeting of country gentlemen, "that by means of electrical agency we shall be able to communicate our thoughts instantaneously with the uttermost ends of the earth," although it does not appear that he ever attempted to fulfil his prediction. The discovery, however, with which his name is chiefly connected, is that of the apparent production of insects by the action of the voltaic battery upon certain chemical fluids. In 1836, while pursuing his experiments in crystallization with a highly caustic solution, out of contact with atmospheric air, he noticed the appearance of an insect of the acarus tribe, of which upward of 100 more were formed within a few weeks. The discovery caused a considerable sensation, and although Mr. Faraday and Mr. Weeks of Sandwich amply confirmed the statements of Mr. Crosse by their own experience, the latter was accused of the impiety of assuming to become a creator. Crosse, who was a man of sincere religious convictions, was much affected by these imputations, although he could give no explanation of the manner in which the insects were produced. In answer to a person who had attacked him with unusual virulence, he said that he was sorry if the faith of his neighbors depended upon the claw of a mite. Recent experiments on the same subject by Prof. Schulze of Germany failed to obtain the appearance of insects or animal germs, thus confirming the probability which Mr. Crosse never disputed that the ova of the insects were derived from the atmosphere, or conveyed into the apparatus by some natural means unknown to the experimenter. Among the practical benefits of his experiments was the discovery of a process for purifying salt water by means of electricity. He also made some curious discoveries with reference to the effects of positive and negative electricity upon vegetation. He was a benevolent man, an active magistrate, and a useful friend to the poor. A memoir, including many original poems written by him, was published after his death by his widow.

CROSWELL, Edwin, an American journalist and politician, nephew of the succeeding, born in the village of Catskill, N. Y., about 1795. Upon the completion of his education, he became an assistant editor of the "Catskill Recorder," a journal established in Catskill in 1790 by his father and uncles. The first article which he wrote for the press was a vindication of the drafted soldiery of the state who had been called out for the defence of New York, in the last war with Great Britain. His political affinities were with the party who advocated the war, and after the retirement of his father, his management of the paper was such as to attract the attention of public men prominent in the political history of the state. In 1823–'4, upon the death of Judge Cantine, printer to the state and editor of the "Albany Argus," he was invited by Mr. Martin Van Buren, Mr. Benjamin F. Butler, and others, to assume the control of that paper. Thenceforward he became a resident of Albany, and was closely identified with the growth and prosperity of the "Argus," and with some of the most important political movements of the time. He converted the "Argus" from a semi-weekly into a daily journal, increased its circulation very largely, and made it one of the chief organs of the democratic party, not merely in the state, but in the country. The organization of the party was at that time as perfect as political sagacity could make it, and to Mr. Croswell, as a member of the so-called "Albany regency," a group of politicians who directed the councils of the party in the state of New York, was assigned the delicate task of composing, through the columns of the "Argus," all intestine difficulties, and preserving order in the ranks. To the tact with which he discharged this duty has been ascribed, in no inconsiderable degree, the ascendency which the democratic party long maintained in the state. The minor party presses habitually copied the leading articles of the "Argus," as the embodiment of the soundest democratic principles; and so potent was the influence of Mr. Croswell's name and of his paper, that for many years to discredit the authority of the "Argus" was equivalent to a renunciation of party ties. In 1840, Mr. Croswell was succeeded as state printer, a position he had held for the previous 17 years, by Mr. Thurlow Weed, editor of the "Albany

Evening Journal." In 1844 Mr. Croswell was reinstated for a period of 3 years. Various changes had meanwhile affected the harmonious action of the party which he had so long promoted, and he found himself opposed to some of his earliest political associates, among others to Mr. Van Buren. The "Argus," however, continued to be one of the principal organs of the democratic party, and Mr. Croswell invariably supported its candidates for national offices. In the more difficult matter of state politics, his influence has necessarily been of less weight than formerly. In 1854 he retired from the "Argus" and from all connection with the newspaper press, after an eventful editorial life of about 40 years. His pen has occasionally been employed on addresses and other literary productions not of a professional character, and he is said to be preparing for publication his personal reminiscences of the men and events of his time.

CROSWELL, Harry, D. D., an American journalist and clergyman, born at West Hartford, Conn., June 16, 1778, died at New Haven, March 13, 1858. He was first publicly known as the editor of the "Balance," a journal founded by him in 1802 at Hudson, N. Y., in which he was associated with Ezra Sampson, by education a Presbyterian clergyman. Mr. Croswell, who was a federalist, wrote in the then prevailing spirit of bitterness, and became involved in many libel suits and prosecutions, celebrated at the time. In one of these, for an article on Jefferson, published in the "Wasp," a journal under his direction, Alexander Hamilton made his last forensic effort in his defence. Mr. Croswell afterward removed to Albany, and established a federal paper; but turning his attention to theology, he retired from journalism and took orders in the Episcopal church in 1814. He became rector of Trinity church, in New Haven, Feb. 22, 1816, and was in the latter part of his life almost as remarkable for the dignity and gravity of his deportment as he had been in his earlier career for its impetuosity. He was the author of several devotional works, and a memoir of his son, the Rev. William Croswell, D. D.—William, D. D., son of the preceding, born at Hudson, N. Y., Nov. 7, 1804, died in Boston, Nov. 9, 1851. He was graduated at Yale college in 1822, and took orders in the Protestant Episcopal church in 1828. In 1829 he became rector of Christ church, Boston, in 1840 of St. Peter's, at Auburn, N. Y., and in 1844 returned to Boston to assume the charge of the church of the Advent, whose services he directed in conformity with the ancient rubrics rather than the practice of other churches or the sentiments of his ecclesiastical superiors. His views in regard to the external arrangements of the church led to a controversy with Bishop Eastburn, by whom he was officially censured; but his church prospered none the less, for the life of the pastor was a beautiful example of self-denying charity and religious devotion. He became suddenly ill while conducting divine service in his church on Sunday afternoon, and lived but a short time after being removed to his residence. His poems are mostly short lyrical pieces, in commemoration of the observances and memorial seasons of the church to which he was devoted.

CROTCH, William, an English composer, born at Norwich in 1775, died at Taunton, Dec. 29, 1847. When scarcely 2 years of age he could play tunes on the harpsichord, and a year later was able to add a bass. This precocity attracted the attention of Dr. Burney and other distinguished musicians, but the expectations excited by it were never fulfilled. Crotch became an accomplished musician, but his compositions, of which he published a great number, have no special merit. He was made a doctor of music by the university of Oxford, in which he also filled the chair of professor of music.

CROTON, a river of the state of New York, flowing through Dutchess, Putnam, and Westchester counties, and entering the Hudson river about 35 m. above New York city. From this stream the city of New York is supplied with water through the Croton aqueduct; for a description of which, see Aqueduct.

CROTON OIL is expressed from the seeds of the *croton tiglium*, a native of Ceylon, Molucca, Hindostan, and of other parts of Asia. These seeds are rather larger than a common pea, of an ovate form, and of a brownish color. The kernels contain about 50 per cent. of oil, which is of a pale yellow color. It has a slight odor, and a bitter, burning taste. It is a speedy and powerful purgative, and acts with good effect upon the patient when taken in small doses. Taken in large quantities, it produces vomiting and great pain, and is sometimes fatal in its effects. It has been long used in India, and was known in Europe as early as 1630, but attracted little notice. It was introduced into England in 1820, but does not yet receive the attention which it deserves. In cases of constipation, where all other medicines fail, it has proved highly beneficial. It is also employed in dropsy, apoplexy, and in almost all diseases in which the patient has a tendency to torpor. Externally applied, it is found advantageous in cases of gout, rheumatism, neuralgia, glandular swellings, and in pulmonary complaints. Thus applied, it produces inflammation of the skin, with pustular eruptions. The oil is sometimes incorporated with the lead plaster, melting at a gentle heat 3 parts of the latter with 1 of oil. Much of the croton oil imported to this country is not genuine, being procured from plants different from the *C. tiglium*.

CROTONA, or Croton, an ancient Greek colony in southern Italy. The city stood near the mouth of the river Æsarus, on the E. coast of the Bruttian peninsula. It was founded by a body of Achæans and Spartans, probably about 710 B. C., and soon became distin-

guished for size, wealth, and power. According to Livy, its walls enclosed a space 12 m. in circumference. In the war with Sybaris, 510 B. C., Crotona is said to have sent into the field 100,000 men, and to have conquered the Sybarites with a force of 300,000. Some time afterward the Crotonites were themselves defeated by the Locrians near the river Sagras, and never again recovered their national importance. In the 2d Punic war they were no longer able to defend their own walls, and a few years later a Roman colony was sent out to recruit the exhausted population of the city. Crotona was celebrated in ancient times for the school of Pythagoras.

CROUP (*cynanche trachealis*, *angina membranacea*, and *diphtheritis trachealis*, of authors), an acute inflammation of the mucous membrane of the larynx, trachea, and bronchial tubes, characterized by the production of false membranes on their internal surface. There is a spasmodic affection of the larynx (*laryngismus stridulus*), sometimes erroneously called croup, but which is entirely different in its nature, symptoms, gravity, and treatment. Croup is sometimes preceded by the symptoms of a common cold, with hoarseness and a harsh cough, pain in the head, fever, and especially by swelling and redness in the back of the throat; but it may come on suddenly during the night, and in the midst of apparent health. The first symptom observed may be the peculiar ringing, brazen cough, occurring most likely in the night; then the voice becomes sharp, the respiration noisy and difficult, and accompanied by a crowing sound during inspiration; the face is red and swollen, the eyes suffused, the skin hot, the pulse hard and quick; the head is thrown back, and every thing indicates the distress of the sufferer; the occasional cough brings up nothing but some thick mucus, tinged perhaps with blood. A treacherous calm may succeed this agitation, and the patient may fall asleep; but a new paroxysm will soon reawaken him, more severe than the first unless the disease be cut short by appropriate remedies. In the intervals the child may seem well, except from a hoarseness of the voice and a slightly noisy respiration. As the disease advances, the breathing becomes more difficult, the cough more suffocating, the voice stifled, and the countenance livid; the extremities become cold, and coma or convulsions close the scene. Notwithstanding the difficulty of breathing, swallowing is generally easy; false membranes of greater or less exent are occasionally coughed up with a partial, or, in rare cases, complete relief. The disease may run to a fatal termination in a few hours, or it may continue many days, ending in death or recovery. According to Bretonneau, croup is only an extension of a diphtheritic inflammation from the pharynx to the air passages; indeed, perhaps in the majority of cases the false membrane may be seen upon the tonsils and posterior fauces before the larynx is affected; and it is often the good fortune of the physician to arrest this fearful disease, when this early indication of danger is understood and attended to. The brazen respiratory sound is heard chiefly during inspiration; and when false membranes have formed in the larynx there is generally a prolongation of the expiration. The dyspnœa occurs usually at night, and during sleep; its suffocative symptoms, change in the features, dilatation of the nostrils, and agitation of all the respiratory movements, are found in no other disease. Auscultation detects nothing characteristic in the lungs, except diminution or absence of the respiratory murmur in proportion to the obstruction in the larynx; all râles, except those caused by the flapping of membranes which have extended into the bronchi, must be the result of complications not belonging to pure croup. The disease may be said to be peculiar to childhood, between the 1st and 10th years, though older children, and even adults, are occasionally affected; it is most common in cold, damp seasons, and those characterized by sudden changes, and in low, marshy localities; it prevails sometimes epidemically and endemically, but is never contagious; it often occurs soon after the eruptive fevers, whooping cough, and catarrhal diseases, especially during epidemics; there seems to be a predisposition to it in certain families, and those who have been once attacked are liable to other seizures. The pathological characters are redness and swelling of the mucous membrane of the air passages, and the presence of a membranous concretion of various extent and consistence, though death may occur from the violence of the inflammation and its extension to the lungs before the formation of the latter. Croup is a very dangerous disease; leaving out of the case the many affections which have been erroneously called croup, it may be stated that the mortality is certainly 66 per cent. in well defined cases, and probably considerably greater than that under the old forms of treatment. At the present time bleeding is very rarely resorted to, unless locally by leeches; emetics can hardly be recommended as general practice, except for the dislodgment of false membranes evidently loose; mercurials, both internally and by the skin, have always been regarded with favor in this country, but are of questionable utility in most cases, and positively injurious in many; the prostration following the fractional exhibition of antimonials has not been found to arrest the disease; purgatives, expectorants, blisters, tonics, and antispasmodics have been freely used to little purpose. There is probably no better general treatment than the following, recommended by Prof. John Ware: 1, to avoid all reducing, depleting, and disturbing measures, as bleeding, emetics, purgatives, and blisters; 2, to keep the patient under the full influence of opium, combined perhaps with calomel; 3, constant external application of warmth and

moisture, and of a slightly stimulating mercurial liniment; 4, sponging with warm water, and poultices of flax seed or mullein leaves to the throat; 5, the inhalation of watery vapor. A great improvement on the use of acid gargles, alum and calomel insufflations, and acid caustics, is the now prevalent application of nitrate of silver. The fibrinous exudation is a secretion from the muciparous glands of the mucous membrane, irritated by some unknown specific cause; as this exudation almost always begins in the upper portion of the air passages, and progresses downward, it may often be checked by the application of a strong solution of nitrate of silver to the tonsils and opening of the glottis; in an hour or less the operation may be repeated, and the caustic applied within the glottis; this will generally be followed by vomiting and the discharge of any existing membrane; the caustic and the emesis will, if any thing can, arrest the exudative inflammation. After this first and most important step, the treatment of Dr. Ware can hardly be improved; in the later stages, when complicated with bronchitis, prussic acid is the best remedy for the distressing spasmodic cough. In desperate cases, tracheotomy has been performed with immediate relief and ultimate recovery; of course it would be useless when the false membranes had reached the bronchi. All remedies, however, to be effectual, must be applied very early in the disease.—*Laryngismus stridulus*, or spasmodic croup, as it is sometimes called, occurs during the first 2 or 3 years of life, from the irritation of dentition, deranged digestion, or insufficient nutrition; the spasm sometimes extends to the muscles of the extremities. The inspiration is crowing, not followed by cough. It seems to be essentially a spasm of the glottis, not immediately dangerous, and is to be treated by tonics, alteratives, attention to the general health, and the removal of any obvious causes of irritation in the dental or digestive systems. Recovery is general; and many of the far-spread remarkable cures of croup are nothing more than cases of this spasmodic or croup-like disease, which may even cease without treatment.

CROUSAZ, Jean Pierre de, a Swiss philosopher and mathematician, born at Lausanne, April 13, 1663, died March 22, 1748, studied at Geneva, Leyden, and Paris, and was ordained pastor of a church at Lausanne. In 1699 he was appointed professor of Greek and philosophy in his native city; in 1724, professor of mathematics and philosophy in Groningen; and in 1737, professor of the same in Lausanne. Beside his sermons, he published many works upon logic, education, and philosophy, and also upon higher geometry.

CROW (*corvus*), a genus of birds belonging to the order *passeres*, tribe *conirostres*, and family *corvidæ*. More than 20 species are described, found in most parts of the globe; some remain stationary within a certain district, while others migrate from place to place with the changes of the seasons; they generally assemble in flocks in cultivated places, in search of worms, grubs, caterpillars, small animals, the eggs and young of birds, carrion, and various grains and cultivated vegetables; a few species frequent the sea shore, to feed upon the dead fish cast up by the waves, or in quest of shell-fish, which they break by letting them fall from a considerable height upon the rocks. The genus *corvus* includes the raven, the rook, the jackdaw, and other species not usually denominated crows, which will be noticed under their proper heads. Four species only will be described here, viz.: the American, the European, the hooded, and the fish crow. I. The American crow (*C. Americanus*, Audubon) was first separated from the European species by Audubon, and there can be but little doubt that they are distinct. The bill of the adult is $2\frac{1}{6}$ inches along the ridge, of a black color, straight, strong, and compressed; the upper mandible a little convex, the lower mandible straight; the edges of both sharp and inflected. The nostrils are basal, lateral, round, and covered by bristly feathers directed forward. The head is large, and the whole form of the bird compact and graceful; the legs are strong and of moderate length; the tarsi are $2\frac{1}{2}$ inches long, black, and covered with scales anteriorly; the toes and claws are black, the latter being moderate, arched, compressed, and sharp; the 3d toe is the longest, the other 3 being nearly equal. The plumage is of a general deep black color, with purplish blue reflections, and tinged with purplish brown on the back of the neck; the under parts are less glossy, and the feathers are less compact than those of the back; the plumage of the head and neck is well blended; the wings are long, the 1st primary short, and the 4th the longest, the primaries are tapering, and the secondaries broad; the tail is long, rounded, of 12 feathers with their shafts undulated. The length of this crow is 18 inches, and the extent of wings 3 feet 2 inches. The iris is of a brown color. The female is slightly less glossy than the male, and the young are of a dull brownish black, with less brilliant reflections. There is probably no bird more generally and unjustly persecuted than the crow; every farmer thinks himself privileged to destroy it, and counts the death of every one as a gain to agriculture. Of course the bird, in order to save his race from extermination, must employ all his cunning and ingenuity to avoid his enemies; hence his extreme shyness, and certain flight at the sight of any one armed with a gun, the destructive properties of which he seems well acquainted with; perched on a high tree, he sounds the alarm at the approach of danger, and all the crows within half a mile fly off at the well-known cry of the watchman. Thousands of crows are destroyed every year by guns, traps, and poisoned grain; and multitudes of the young birds are killed in their nests by every urchin who can climb a tree.

Though the crow pulls up a few seeds of the germinating corn, his services to the agriculturist far outweigh his depredations; he daily devours insects, grubs, and worms, which but for him would devastate whole fields of the young corn; he destroys innumerable mice, moles, and other small quadrupeds, every one of which commits 10 times the mischief he does; he will eat snakes, frogs, lizards, and other small reptiles, and also fruits, seeds, and vegetables, and, if hard pressed for food, will even descend to carrion. He will steal and devour the eggs of other birds, and will occasionally prey upon a weak or wounded bird; he delights to worry the owl, the opossum, and the raccoon, and will pursue the thievish hawk, and even the eagle with all the forces that he can raise in the neighborhood; he is said to follow the larger carnivora, probably to partake of the bits which they may leave. On the whole, the crow is a persecuted, comparatively harmless, and indeed a most serviceable bird, and deserves better treatment from the American farmer. Audubon says to the farmers: "I would tell them that if they persist in killing crows, the best season for doing so is when their corn begins to ripen." Wherever the crow is abundant the raven is scarce, and *vice versa*. The crow is common to all parts of the United States, assembling, after the breeding season, in large flocks, many of which remove to the southern states in the winter. It builds its nest in thick swamps, or on the sides of steep rocks, as much concealed as possible; the period of breeding varies from February to June, according to latitude. The nest is made of sticks interwoven with grasses, plastered within with mud, and lined with soft roots, feathers, or wool; the eggs are from 4 to 6, of a pale greenish color, spotted and clouded with brownish green and purplish gray; both sexes sit upon the eggs, and watch over their young with the tenderest care; in the southern states they raise 2 broods in a season. Several nests are often found near each other, and when any stranger approaches the community, the noise of the assembled multitude is almost deafening until the intruder retires. The young, when just about to leave the nest, are considered in some localities tolerable food. The flight of the crow is swift, capable of being sustained a long time, and sometimes at a great height; on the ground its gait is graceful and slow; it often alights on the back of cattle, to pick out the worms from the skin. Their well-known notes, "caw, caw, caw," are very discordant, especially in early morning when they scatter into small flocks in search of food, and toward evening when the returning parties are selecting their roosting places for the night. The crow is very courageous against its bird enemies, and will not hesitate to attack any marauding hawk which comes within its range. It makes a very interesting pet, as it displays considerable intelligence and docility; but its propensities are decidedly thievish. Like many other birds of a black color, the crow is occasionally perfectly white. The sight of the crow is very keen; and it is by this sense, and not by the sense of smell, that this bird is guided in its search of food, and in the avoidance of its human enemies. When on its marauding excursions after eggs, which it carries away on the bill, it is often attacked and driven away, especially by the courageous king-bird. II. The European, or carrion crow (*C. corone*, Linn.), is larger than the preceding species, being from 20 to 22 inches long, with an extent of wing of 40 inches; the bill is stronger, deeper, more convex on the sides, and the edges more inflected; the feet and toes are larger and stronger, and the claws robust in proportion. Were it not for its smaller size and some differences in the form of the feathers, it might be confounded with the raven, as its proportions are about the same, the body being full and ovate, and the neck short and strong. The palate is flat and the tongue oblong, while in the American species the palate is concave and the tongue is narrower. The plumage is moderately full, compact, and very glossy; the feathers of the hind neck are narrow and with their points distinct, but in the American bird they are broad, rounded, and so blended that the form of each is not easily traced; the feathers of the fore neck are lanceolate and compact at the end, as in the raven, but in the American crow they are three times as broad, rounded, and entirely blended; in other respects the plumage is alike in the two birds, the neck of the former being tinged with green and blue, but in the latter with a distinct purplish brown. From this description it can hardly be doubted that the American and European crow are distinct species. The female is similar to the male in color, but somewhat smaller; the tints of the young have less of the metallic lustre. The carrion crow preys upon small quadrupeds, young hares and rabbits, young birds, eggs, crustacea, mollusks, worms, grubs, and grains; but, as its name imports, its favorite food is carrion of all kinds; it often destroys young lambs and sickly sheep; it is very fond of attacking parturient ewes, frequently killing both the mother and the young, tearing out the eyes, tongue, and entrails, in the manner of the vultures; whatever its food may be, it is exceedingly voracious. Unlike the American species, the carrion crow does not associate in large flocks, but is generally solitary or in pairs, except in breeding time, when a whole family will remain together for some weeks. Its flight is sedate and direct (hence the expression, "as the crow flies," for a straight line), and performed by regular flaps of the fully extended wings; it does not soar to any great height, and prefers the open moors, fields, and shores to mountainous districts. Its gait is similar to that of the raven, and its cry is a croak quite different from the bark-like cawing of the American crow. It builds its nest, of large size, amid

high rocks, or on tall trees, and lays from 4 to 6 eggs of a pale bluish green color, spotted and blotched with dark brown and purplish gray; these colors, however, vary considerably; the eggs are about 1¾ inches long, and 1⅛ inches in their greatest width. They not unfrequently build in the neighborhood of farm houses, in order to be near any rejected offal, and watch their opportunity to pounce upon chickens or ducklings, and to steal eggs from any of the domestic fowls. The carrion crow is very easily tamed, and is capable of strong attachment; its docility is great, and its memory astonishing; its propensities are thievish; like the raven and the jackdaw, the carrion crow may be taught to imitate the human voice. According to Temminck, this species occurs over all western Europe, but is rare in the eastern parts. III. The hooded crow (*C. cornix*, Linn.) has the head, fore neck, wings, and tail of a black color, with purplish blue and green reflections; the rest of the plumage is ash-gray tinged with purplish, the shafts being darker; the female is similar to the male, somewhat smaller, the black on the fore neck less in extent, and the gray of the back less pure; the plumage of the young is black, with the exception of a broad band of dusky gray round the fore part of the body. This species, with the exception of the color, much resembles the carrion crow; it is somewhat smaller, the length being about 20 inches, and the extent of wings 39 inches. It is abundant in the northern parts of Scotland, and it occurs in all parts of Europe; it prefers the coast, and the neighborhood of large maritime towns. It is not gregarious, not more than 5 individuals being often seen together; it is quite as omnivorous as the preceding species, though it prefers fish and mollusks to the carcasses of larger animals; it has sagacity enough, when it cannot open crabs and shell-fish, to raise them into the air and drop them on the ground for the purpose of breaking them. It is very fond of perching upon a stone or tree in dull weather, and croaking for a long time, being answered by others who have stationed themselves at a distance; this habit has been considered by the common people as indicative of rain. Its ordinary flight is slow and regular, and its gait upon the ground remarkably sedate and dignified. It is a peaceable bird, rarely attacked by, and rarely attacking others. It does not soar, nor skim the hillsides in search of food, but skulks along the low grounds in the vicinity of water; it destroys many of the eggs and young of the plover and the red grouse and other birds frequenting the moors. They remain paired the greater part of the year, and almost always construct their nest on a rock near the sea; the eggs, usually 5 in number, are of a pale bluish green tint, marked, especially at the large end, with roundish spots of greenish brown and pale purplish gray. The hooded crow is generally found in different localities from the carrion crow; and, when existing in the same district, the species keep separate, the latter being much more shy and wild. It is said, and probably with truth, that the species breed together, producing hybrids intermediate between the two; it must be difficult to distinguish such hybrids from the present species, as the space occupied by the ash-gray varies greatly in different individuals. IV. The fish crow (*C. ossifragus*, Wils.) is smaller than the common crow, having a length of only 16 inches and an extent of wings of 33 inches; the bill is nearly 2 inches, and the tarsus 1¾ inches long. These two birds resemble each other in general appearance; the bill in the fish crow is concave on the sides at the base, and flat in the middle; the plumage in its general color is deep black, with blue and purple reflections above, and blue and greenish beneath; the bill, tarsi, toes, and claws are black; the iris dark brown. This species is abundant in the southern states, in maritime districts, at all seasons; it is occasionally seen as far north as New York in spring and summer, returning to the south in winter. The fish crow is not persecuted like the common species, and is therefore quite familiar in its habits, approaching houses and gardens without fear, and feeding unmolested on the best fruits. Its favorite food, as its popular name implies, is fish; at early dawn the flock takes wing for the sea-shore, in a very noisy manner; they skim along the shallows, flats, and marshes in search of small fish, which they catch alive in their claws, retiring to a tree or stone to devour them. Like others of the genus, this species will feed on all kinds of garbage, on crabs and mollusks, on eggs and young birds, on the berries of various kinds of *ilex* and *stillingia*, on mulberries, figs, whortleberries, pears, and other ripe fruits; they are in the habit of attacking on the wing the smaller gulls and terns, and of forcing them to give up their recently caught fish. They breed in February and March in Florida and South Carolina, and a month later in New Jersey; the nests are usually made in the loblolly pine, on the ends of the branches about 30 feet from the ground; the nest and eggs resemble those of the common crow, but are smaller. The note is different from that of the other species, resembling, according to Audubon, the syllables *ha*, *ha*, *hae*, frequently repeated; at night they are still, in the morning very noisy, and in the breeding season not disagreeable nor monotonous. Their flight is strong and protracted; they generally fly near the water, but occasionally they rise to a great height. On the ground their movements are graceful; and they are fond of opening and shutting their wings, a habit common to the other crows. They can disgorge their food like the vultures, when wounded and attempting to escape; they are easily approached and shot, and in winter, when their food is chiefly fruit, they are very fat, and considered good eating. The female is smaller, and the gloss on the plumage is less bright, with brown reflections on the upper parts; the length is 15

inches, and the extent of wings 31 inches.—The habits of the crows seem to be the same in all countries. The carrion crow of Ceylon detects the wounded deer, and discloses its retreat to the hunter by congregating on the neighboring trees. Whenever this bird sees an animal lying on the ground, it soon collects all its comrades in the vicinity; one of the boldest hops upon the animal's body; as this is not uncommon in their search for ticks, the creature lies still, grateful for the expected riddance of the vermin. Finally the crow looks into the eyes; then the animal, if able to defend itself, removes the dangerous friend by a shake of the head; but if the eyes be dim from disease or wounds, full well the crow knows it, and plunges its powerful bill into the eyeball of the struggling sufferer, and feasts upon its favorite morsel; the rest soon join, and attack the parts giving easiest access to the entrails. The hooded crow of Ceylon, like the other mentioned in Layard's "Ornithology of Ceylon," lives amid the densest populations, stealing every thing eatable that comes in his way; if the spread table be left for a moment, the marks of feet upon the cloth, of bills in the butter, and the disappearance of small bits, show that the robbers could not have been far off; indeed the sable watchmen sit perched on rafter and roof, with inclined heads, ready for every opportunity to attack the box of rice or the store of dried fish. They are useful scavengers, and are rarely molested by the natives, of whom they stand in no fear; but at the appearance of the white man with his gun, the whole corvine community is in an uproar, and flies hurriedly to a safe distance till the danger is over.

CROWE, Catharine (Stevens), a living English authoress, born at Borough Green, in the county of Kent, married in 1822 Lieut. Col. Crowe of the royal army, and began her literary career in 1838 by the publication of a tragedy entitled "Aristodemus." Adopting a more popular style of composition, she soon after published a novel called "Manorial Rights," which was succeeded by the "Adventures of Susan Hopley." The latter was marked especially by a rapid succession of various incidents, and was reproduced in a dramatic form. Her 3d novel, "Lilly Dawson," appeared in 1847, and was designed to show the influence of the affections upon the development of the intellect. In 1848 she translated from the German of Kerner the "Seeress of Prevorst;" and being thus introduced to the study of the phenomena of animal magnetism, she has since published several tales, some of them of a fantastic character, containing incidents and observations with reference to the supernatural world and to dark points of experience. The "Night Side of Nature" (1848) was a skilful effort to awaken an interest in the whole doctrine of spirits. Among her later publications are "Pippie's Warning," "Light and Darkness, or the Mysteries of Life," the "Adventures of a Beauty," and "Linny Lockwood."

CROWN (Lat. *corona*), a wreath-shaped or circular covering for the head, made either of leaves and flowers or of metals and precious stones, and worn as a decoration or honorable distinction. The legends of the Greeks attributed its invention to Prometheus or Janus, and the earliest Greek crowns were worn chiefly on festive occasions, and were twined of twigs of the tree or plant sacred to the divinity who presided over the festival. They rarely contained more than a single kind of leaves or flowers, as the ivy, myrtle, roses, violets, and lilies. The ivy was in especial esteem on Bacchanalian occasions, since it was believed to be a preventive of drunkenness. Circular garlands were common ornaments also for priests, altars, temples, graves, and sacrificial offerings. At the national games, a crown was the reward granted to the victors. It was made of wild olive for the Olympic heroes; of laurel, for the Pythian; of olive, and afterward parsley, for the Nemean; and of pine, for the Isthmian.—The Romans gave crowns to the conquerors in the circus, and to the best actor at the theatre. They also invented a great variety of crowns, made of different materials, each with a separate name, which were bestowed in honor especially of military achievements. The *corona obsidionalis* was presented by besieged cities or armies to the general who delivered them; it conferred the highest honor, was rarely obtained, and was made of weeds and wild flowers gathered from the spot where the troops or citizens had been beleaguered. The *corona civica* was the reward for a soldier who should save the life of a citizen in battle, by slaying his opponent and maintaining the ground; it was an oak wreath, and was the second of the military crowns in honor. The *corona rostrata* or *navalis* was bestowed upon the Roman who in a naval combat had first boarded the enemy's vessel, or the commander whose skill and courage had gained a signal victory; it was of gold, and decorated with representations of the beaks of ships. The *corona muralis* was given by the general to the soldier who first scaled the wall of a besieged town; it was of gold, and decorated with turrets. The *corona castrensis* was ornamented with palisades, and was given to the soldier who first surmounted the intrenchments and forced an entrance into the enemy's camp. The *corona triumphalis* was a wreath of laurel (afterward of gold), given by the soldiers to the victorious general on the day of his triumph. The *corona ovalis*, of myrtle, and of less estimation than the preceding, was given to generals who enjoyed an ovation instead of a triumph. The *corona oleagina* was a wreath of olive, and was bestowed upon victorious soldiers as well as generals. There was also a crown of olive or gold peculiar to the priests, which was also regarded as an emblem of peace; radiate crowns attributed to gods and deified heroes and emperors; and a crown of verbena, worn by brides, by whom it was gathered and braided. The custom of crowning poets with wreaths of flowers existed both

among the Greeks and Romans.—The crown under different names, as crown, tiara, mitre, and diadem, has been a badge of civil and ecclesiastical supremacy from remote antiquity. The mitre of the Jewish high priest and the radiate crowns upon coins of ancient Persian kings are examples. The Roman and Byzantine emperors wore crowns of various kinds, the diadem, a sort of fillet, becoming common after the time of Constantine. The imperial crown of Charlemagne, imitated from Byzantine usage, was closed above like a cap, and terminated in a circle of gold. During the middle ages the emperors of Germany received 3 crowns: that of Germany, which was of silver, and was assumed at Aix la Chapelle; the crown of iron, which had formerly been peculiar to the Lombard kings, and was assumed at Pavia; and the imperial crown, which was received at Rome, and was surmounted by a mitre similar to that of bishops, but somewhat smaller. The crown of iron, though chiefly of gold, derived its name from an iron band which encircled it in the interior, and which was said to have been made from one of the nails which served in the crucifixion of Christ. It is still preserved in the cathedral of Monza, and is one of the crowns of the Austrian emperors, who are now masters of the Lombardo-Venetian kingdom. Napoleon wore it when he was crowned king of Italy at Milan. The kings of France of the 1st race wore a diadem of pearls in the form of a fillet; those of the 2d wore a double row of pearls; those of the 3d wore a circular band of gold enriched with precious stones. Philip of Valois introduced the 3 fleurs de lis about 1330. Francis I. returned to the crown of Charlemagne, arched over the head, in order not to leave this mark of superiority to Henry VIII. and Charles V.; and from that time this has continued to be the crown of France.—A fillet of pearls appears from coins to have been the most common crown of the Saxon kings of England. Stephen introduced the open crown with fleurs de lis, and Richard III. first placed the arched crown with crosses and fleurs de lis upon the great seal. The crown which, with slight variations, has been continued by succeeding sovereigns, was introduced by Henry VII. At present it is a circle of gold, adorned with pearls and precious stones, having alternately 4 crosses patée and 4 fleurs de lis; above these rise 4 arched diadems, which close under a mound and cross. The whole covers a velvet cap trimmed with ermine.—About the 10th century, when the feudal lords disputed the royal supremacy, all the ranks of the nobility assumed a sort of crown. (See Coronet.)—The popes have for many centuries worn a triple crown, which is designed to signify their ecclesiastical, civil, and judicial supremacy. It consists of a long cap or tiara of golden cloth, encircled by 3 coronets, one rising above the other, surmounted by a mound and cross of gold.

CROWN POINT, a township of Essex co., N. Y., on the W. shore of Lake Champlain, about 75 miles N. of Albany, and noted as the site of a famous fort, now in ruins.

CROYDON, a market town and parish of England, co. of Surrey, on the river Wandle, near Banstead downs, 10 m. S. of London, with which it communicates by the London and Brighton railway. A branch line also connects it with Epsom. Pop. of the town in 1851, 10,260. The houses are mostly well built, and the streets, the principal one of which is a mile long, are paved and lighted with gas. It has an elegant and capacious church of freestone, built in the 15th century, 2 modern churches, several chapels and schools, a hospital, an alms house richly endowed for the maintenance of 34 decayed housekeepers, a literary and scientific institution, a handsome town hall, a barrack, a gaol, breweries, bleacheries, and calico print works. The manor of Croydon (called in the Domesday book Cruie-dune, chalk hill), together with a royal palace, was given at the Norman conquest to Lanfranc, archbishop of Canterbury, whose successors resided here for a long time. The palace has been gradually rebuilt since 1278, at which period it was in its original state, and the oldest portion now left is of the 14th century. In 1780 it was converted into a calico factory, which has since been abandoned. A girls' industrial school is taught in the old chapel. The manufactures of Croydon have been declining for several years.

CROYLAND, or Crowland, a town of Lincolnshire, England, at the confluence of the Welland with 2 smaller streams, 8 m. N. of Peterborough; pop. in 1851, 3,183. It is a place of much interest to antiquaries, partly for its curious triangular foot bridge, dating from the reign of Edward II., but chiefly on account of the ruins of a famous and magnificent abbey, a portion of which is still used as a church. This abbey was founded by Ethelbald, was several times destroyed, and rebuilt each time with greater splendor than before.

CRUCIBLE, a small vessel made of refractory materials for withstanding high temperatures, and used in metallurgic and chemical operations for containing substances to be melted. The name is said by some to have been given to them by the alchemists from the Latin *crux*, *crucis*, in consequence of their custom of marking them with the sign of the cross. Others derive it from the Latin *crucio*, to torment, because the contents, in the language of the same alchemists, were thus treated in the operations to which they were subjected. They are made in various forms and of different materials, according to the purposes required of them. The qualities they should possess are infusibility, capacity of bearing sudden changes of temperature without breaking, resistance to the chemical action of the substances fused in them, and a texture impermeable to liquids and gases. But substances which possess some of these qualities are deficient in others, and consequently they are differently made for dif-

ferent uses; and when made of one material as the best to withstand the heat or the most economical, they are lined with another which better resists the chemical action of the substances to be operated upon. Charcoal being one of the most unalterable substances known, when protected from the action of the air, it was much used for crucibles by the old assayers; a piece of proper shape was merely hollowed out and bound round with wire. An improvement upon this is to line earthenware crucibles with charcoal, well selected, so as to be free from impurities, and after being pulverized passed through a very fine sieve, and made into a paste with water. This being thoroughly kneaded, the crucible, moistened by dipping it in water, is filled with the paste by ramming in small portions at a time with a wooden pestle. Out of this filling a cavity of proper size for the operation is excavated with a spatula, and its sides are well rubbed and smoothed with a glass or metallic rod. For many purposes these, called brasqued crucibles, are the best of all. The lining of charcoal strengthens the sides, so that they will not be liable to lose their shape by softening in the fire; the earthenware is protected by it from contact with the contents; and it is out of reach of the action of the air. Moreover, in reducing the oxides of the metals the charcoal affords the carbon required by the oxygen to disengage it from its metallic combinations, and convert it into the volatile form of carbonic acid gas.—The best earthenware or porous crucibles are made of the purest clays, such as consist only of alumina and silica. The texture depends upon the degree to which the materials are pulverized. The close Wedgwood crucibles are made of the best materials finely ground; but they do not withstand sudden changes of temperature so well as the coarser Hessian and English crucibles. The former, which have been long known as the cheapest and among the best clay crucibles, are made in the vicinity of Almerode, in Germany, of an aluminous clay, which is mixed with quartz sand. They are 3-sided at top and round below. Their composition, according to Berthier, is silica 70.9, alumina 24.8, oxide of iron 3.3, with traces of magnesia. They are remarkable for their refractory properties of withstanding sudden changes and high degrees of temperature. Small ones may even be heated to redness and thrown into cold water without breaking. They will soften, however, at the high heat of the furnaces in which they are used, and the coarseness of their material renders them very porous. Saltpetre and common salt, and other substances used as fluxes, are liable when fused to find their way through them. Porcelain or Wedgwood crucibles are more impervious to vapors and fluxes. The French crucibles of Beaufay are perhaps more refractory than the Hessian. They are made near Namur, of clay without additional mixture of sand; when moulded they are washed over with a thin coating of pure clay, prepared by pulverizing clay that has been baked. They are of more dense material than other clay crucibles, and hence better resist the passage of fluxes. Their composition is, by the analysis of Berthier, silica 64.6, alumina 34.4, oxide of iron 1. The English or London crucibles are made of triangular or circular form, and have covers of the same material. The Cornish crucibles made for the use of the assayers of the copper ores in Cornwall are cylindrical, and resemble in their properties the Hessian. Stourbridge clay, the material of fire brick, is used for the manufacture of crucibles, mixed with half its weight of pulverized coke.—Blue pots, or black lead crucibles, as they are often incorrectly called, are made of the mineral graphite or plumbago, which is composed of carbon with 4 to 10 per cent. of iron. The substance is finely pulverized, mixed with a third or half its weight of clay, moulded into the pots, some of which are large enough to serve for assaying furnaces, and then baked. These are excellent crucibles for resisting changes of temperature, as well as the chemical action of their contents; but their higher cost limits their use to certain purposes only. They are used in melting cast steel in the large works where this is manufactured. They may be protected on the inside from the action of the oxides, which tend to remove the carbonaceous material, by a lining of clay or other substance. These are made of excellent quality in Boston and in Jersey City.—For different chemical operations crucibles are employed made of various metals. Those of platinum are in continual use in the operations connected with chemical analyses. But these, though they bear the highest temperature, are attacked by many substances which do not affect other metals, as silver particularly, and crucibles of this material are therefore required as occasional substitutes. Cast-iron crucibles are cheaply made, and are very serviceable in many assays of sulphurets especially. The iron itself serves to desulphurize the natural compound of this substance, as the carbon of the brasqued crucibles deoxidizes the oxides. Assays of galena may be rapidly made one after another in cast-iron crucibles, by introducing a portion mixed with twice and a half its weight of carbonate of soda and fusing; the galena is decomposed, and sulphuret of iron is produced at the expense of the crucible; the lead set free may be poured out, and a new portion instantly introduced, and thus the operation may be continued as long as the crucible lasts.

CRUCIFIX (Lat. *crucifigo*, to fix to a cross), a sculptured or carved representation of the Saviour attached to the cross. The simple cross was the earliest symbol of Christianity. The 6th œcumenical council (680) ordered that Christ should be represented according to his human features, rather than in the symbolical figure of the paschal lamb, and in the succeeding century the crucifix became common throughout the church. There are still preserved in a museum in Rome crucifixes which date from the 8th century. This image is used by few Protestants,

but is placed by Roman Catholics in churches and oratories, especially on altars, and is sometimes worn on the person.

CRUCIFIXION, a mode of punishment which existed among several ancient nations. Thucydides speaks of Inacus, an African king, who was crucified by the Egyptians. Polycrates suffered the same fate from the Persians, according to Herodotus. It was common among the Carthaginians. Alexander the Great made a most ferocious use of the cross after the capture of Tyre on the defenders of that city. King Tarquin the Proud is said to have been the first to cause executions in this way at Rome. The survivor of the 3 Horatii had been previously condemned to this punishment for the murder of his sister, but had been pardoned. It was an infamous punishment, applied especially to slaves, and hence termed by Tacitus *servile supplicium*. The cross was usually raised in some frequented place outside of the city. In Judæa this kind of execution was practised under the Romans. The crucifixion of the Saviour is a favorite subject with the great painters of the middle ages.

CRUCIGER, Kaspar, a German Protestant theologian, born at Leipsic in 1504, died at Wittenberg in 1548. He studied at Wittenberg, where he became connected with Luther, by whose favor he was appointed to the rectorate of Magdeburg in 1524. In 1528 he became professor of theology and court preacher at Wittenberg, in which offices he remained till his death. His services to the reformation consist chiefly in his having aided Luther in translating the Bible, and having taken part in the most important religious conferences of the time.—His grandson, Georg (1575–1637), was the instructor of Maurice of Hesse, and persuaded that prince to embrace the reformed doctrines. He was afterward professor of philosophy at Marburg, and in 1618 attended the council of Dort.

CRUDEN, Alexander, author of the "Concordance" to the Bible, born in Aberdeen, Scotland, May 31, 1700, died in London, Nov. 1, 1770. He was educated at Mareschal college, and intended for the church, but was employed for 10 years as teacher. In 1732 he went to London, where he was engaged as corrector of the press by a publishing house, with which occupation he combined that of a bookseller, opening a small shop under the royal exchange. He had already commenced his "Concordance to the Holy Scriptures," which was completed and published in 1737, and dedicated to Queen Caroline, from whom he hoped for some substantial proof of royal munificence, a hope never realized; the queen died in 16 days after the presentation of the work. Cruden was afflicted with a peculiar mental malady, and 3 times in his life he was confined in a lunatic asylum—once soon after his departure from college, again immediately after the publication of his "Concordance," and a third time 15 years later in 1753.

CRUGER, John Harris, commander of a corps of royalists in the war of the American revolution, born in New York in 1738, died in London in 1807. In 1764 he was mayor of the city of New York and speaker of the colonial assembly. He was a member of the colonial convention called in the next year to resist the stamp act, and composed the declaration of rights. After the outbreak of the war he adhered to the crown, held the commission of a lieutenant-colonel, and conducted in 1781 the gallant and successful defence of Fort Ninety-six, S. C., when it was besieged by Gen. Greene. His corps formed the British centre in the battle at Eutaw Springs.—His brother, Henry Cruger, born in New York in 1739, died in the same city, April 24, 1827, established himself in trade in Bristol, England, and in 1774 was elected to the British parliament, having Edmund Burke for his colleague. He advocated on all occasions a conciliatory course toward the Americans.

CRUIKSHANK, George, an English humorist, born in London in 1794. His father Isaac Cruikshank, and his elder brother Robert, were caricaturists and engravers, and he picked up a knowledge of the art from seeing them work. He was admitted a student of the royal academy under the superintendence of Fuseli; but finding the rooms uncomfortably crowded, he gladly accepted an offer from a publisher to illustrate juvenile books and make cheap caricatures. Cruikshank was an enthusiastic liberal, and the first objects of his satire were political. For several years, to use his own words, he "lived upon the great usurper Bonaparte." He soon became known as a clever political caricaturist, and was employed by a number of publishers; but the works which first gave him an extensive popularity were the illustrations to a series of squibs on the public and private life of the prince regent, published by Hone between 1819 and 1821, and entitled the "Political House that Jack built;" the "Matrimonial Ladder," and *Non mi ricordo*, in allusion to the marriage and trial of Queen Caroline; the "Man in the Moon," &c. The artist was most successful in the humor of his illustrations, and such was the excited feeling of the time and the cleverness of the satire, that some of the pamphlets reached a sale of 200,000 or 300,000 copies. After this Cruikshank abandoned political caricaturing, having first projected a work to illustrate the results of what was called "seeing life." The story, written by Pierce Egan, had an extraordinary sale in England and America, under the title of "Life in London;" but as the moral aim of the artist was entirely overlooked by the author, Cruikshank retired from the work before its completion. From 1824 until the present time Cruikshank has been almost incessantly engaged in illustrating books; a complete collection of which would exhibit a fertility of invention and humor, a dramatic power, and a technical excellence which have seldom been combined in one artist. So prolific, however, has been his pencil, that it is hardly possible to give a complete list of his

works; he himself has not prints of the whole of them. Among those which obtained the greatest popularity are "Points of Humor," "Mornings at Bow Street," Fielding's "Tom Thumb," "John Gilpin," the "Epping Hunt," "Three Courses and a Dessert," "Sunday in London," which has a satirical humor not unworthy of Hogarth, Fielding's, Smollett's, Defoe's, and Scott's novels, "My Sketch Book," "Illustrations of Phrenology," "Illustrations of the Time," &c., &c. In 1835 he commenced the "Comic Almanac," which was for many years the vehicle of some of his happiest designs. He also illustrated Dickens's first work, "Sketches by Boz," and subsequently "Oliver Twist," which originally appeared in "Bentley's Miscellany," while under the control of Dickens. For the same magazine, after it came under the editorship of Ainsworth, he furnished the designs for "Jack Sheppard" and "Guy Fawkes," and upon the establishment of "Ainsworth's Magazine" illustrated several novels by Ainsworth which appeared there serially. He subsequently started a periodical of his own, called the "Omnibus," which was edited by the late Laman Blanchard. His illustrations of Maxwell's "History of the Irish Rebellion," published about this time, afford some happy specimens of his efforts in a serious style. In 1847 appeared "The Bottle" in a series of 8 prints, by many deemed the most important work of his life, and of which the germ can be traced in the "Gin Shop," the "Upas Tree," the "Gin Juggernaut," and others of his earlier works. The striking manner in which the evils of intemperance were depicted made the work immensely popular, and many thousand copies were sold at a shilling each. The artist subsequently published a sequel in which the career of the son and daughter of the drunkard was followed up. Since the publication of these prints Cruikshank has been a determined advocate of total abstinence from intoxicating drinks, and has done good service in that behalf with pen and pencil in his pamphlet, "The Glass." Of late years he has illustrated few noticeable books, but his etchings for the "Life of Sir John Falstaff," by Robert B. Brough, published in 1858, are executed with a delicacy and spirit worthy of his best years. At nearly 60 years of age Cruikshank again applied for admission as a student at the royal academy, and has latterly given much attention to oil painting. He contributes to the annual exhibitions in London, and in several of his pictures has shown great aptitude for this new branch of his art. Few artists of the present day have given more attention to etching, and his plates frequently present a vigor of touch and a breadth of chiaroscuro recalling the efforts of the old engravers. He has been much addicted to athletic sports, and from his dramatic abilities was selected as one of the actors in the amateur performances undertaken by Dickens and others in organizing the guild of literature and art.

CRUIKSHANK, William, a Scotch anatomist, one of the medical attendants of Dr. Johnson in his last illness, born at Edinburgh in 1746, died in London, June 27, 1800. After having studied from 1764 to 1771 at Glasgow, he went to London with a letter of introduction to the celebrated William Hunter, who appointed him librarian, and afterward his assistant. After Dr. Hunter's death, he continued in concert with Dr. Baillie to preside over his school. His "Anatomy of the Absorbent Vessels," which appeared in 1786, attracted much attention among medical men in England and on the continent. In opposition to the views of Haller, he asserted that when portions of nerves are cut out of living animals they may be reproduced. His paper on this subject was published in the "Transactions" of the royal society for 1794. His memoir on the yellow fever, which toward the end of the 18th century prevailed in the United States, and especially in Philadelphia, was published in the latter city in 1798. He is the author of other medical writings, of which the most important are those on insensible perspiration.

CRUSADE (Port. *cruzado*), a Portuguese coin, either of gold or silver, named from the cross, and palm leaves arranged in the form of a cross, which figure upon it. The first crusades were struck off in 1457, on the publication of a bull by Pope Calixtus III. for a crusade against the Turks. The crusades are called old or new, according as they were struck before or since 1722, the former being valued at 400 rees (about 60 cents), and the latter at 480 rees.

CRUSADES (Fr. *croisade*), the name given to the expeditions by which the Christian nations of Europe, in the 11th, 12th, and 13th centuries, sought to recover Palestine from the Mussulmans. The Holy Land was among the early conquests of the Saracens, the caliph Omar having taken Jerusalem A. D. 637. Thus all the places most sacred in the eyes of Christians passed under the control of the votaries of a new religion; and though some of the Saracenic rulers were men of liberal ideas, and of liberal practices as well, and treated pilgrims humanely, others were of different character, and behaved tyrannically. The Abbassides were a superior race, and the most famous caliph of that line, Haroun al Rashid, sent the keys of Jerusalem to his great occidental contemporary, Charlemagne, which assured the safety of Christian visitors to that city. The holy sepulchre and the church of the resurrection were in the hands of the Christians; and the tribute exacted from the Christian inhabitants and pilgrims was small. The Fatimite caliphs, who became masters of Jerusalem in the 10th century, pursued the liberal policy of the Abbassides until the time of Hakem, who was a fanatic, and persecuted the Christians, interfered with the pilgrims, and defaced the holy places. His conduct excited much indignation in the West, which abated when his successors returned to the wiser course of his predecessors. The church and the sepulchre assumed their former state, and pilgrimage became more common than ever, embracing

men of every condition, from great churchmen and nobles to peasants, and women of all ranks. The Fatimite or Egyptian caliphs, though they never again sought deliberately to put a stop to pilgrimage, did not always protect the pilgrims, who had much ill usage to complain of, and who made it known to all Christendom. When the Seljook Turks conquered Palestine, they inflicted all manner of atrocities on the Christian residents, and treated pilgrims with great indignity and cruelty. While the rage that this caused throughout Europe was at its height, the Byzantine emperor, Michael VII., fearing that the Turks would take his capital, sent an embassy to Gregory VII. entreating assistance. The pope addressed the rulers of the European states, urging war on the Turks, and foreshadowing the crusades. Again Alexis Comnenus sent a similar embassy to Urban II., when events were precipitated by the action of an obscure man. Peter the Hermit, who had become imbued with deep religious enthusiasm, was a monk, and by birth a Picard. Visiting Jerusalem, after having led the life of an anchoret, he was an eye-witness of the insults and cruelties of the Turks, and experienced some of them. He was soon possessed of the idea that he was to become the deliverer of the holy sepulchre, and told the patriarch of Jerusalem that he would cause the western nations to drive out the infidels. The patriarch gave him letters entreating aid, and Peter visited Urban II., who saw that he was an enthusiast, and not the less likely to move Christendom because of his austerity, vehemence, and humble condition. The pope encouraged him, and Peter departed to preach a crusade in Italy and France, which he did with such effect that all other business was neglected, and the minds of men of all degrees were most powerfully affected. Peter had an eloquence suited to his purpose, but he could have effected little if he had not found material on which to act. Christendom then had but little light, but it had much sincerity, and it felt the disgrace involved in allowing the Holy Land to remain in the hands of the Turks. Pilgrimages had become so common that they were made by companies of thousands; and their violent interruption was everywhere felt and resented. Human policy turned religious zeal to a useful purpose. Those statesmen who were capable of taking a broad view of affairs may have thought that there was great danger that the Mussulmans would come to the West if the Christians should not go to the East. The pope wished to bring the Byzantine empire into the Latin fold. He held a council at Piacenza, A. D. 1095, which was numerously attended, and at which the Byzantine envoys pleaded their country's cause. It was determined to hold a more general council, which met at Clermont, Nov. 1095, and where French, Germans, Italians, and others were present. The pope's eloquence was so effectual that the multitude exclaimed: "God wills it! God wills it!" when he declared the holy war was commanded from on high. The pope suggested that those who entered on the enterprise should assume the cross on the shoulder or breast. This was agreed to, and the first clergyman who took it, from the hands of Urban II., was the bishop of Puy. The count of Toulouse was the first temporal prince who assumed the cross. The cross was originally red, but different colors were subsequently adopted by different nations. Every person who assumed the cross was known as a *croisé*, or crusader, whence the name of the enterprise. The crusading spirit spread over Britain and the northern nations, much inflamed by the decree passed at Clermont that whoso should go on the expedition should be regarded as having performed all penances. It was to be a pilgrimage on the largest scale, with the pilgrims armed. The spirit was shared by all classes, and by people of every description, including the worst criminals. The number that assumed the cross was almost incalculable. In the spring of 1096 a large body of the lower orders, under the lead of Peter the Hermit, began the march across Germany. They were compelled to divide, and the smaller party, led by a Burgundian knight, Walter the Penniless, going in advance, was annihilated in Bulgaria. The larger party suffered severely, and was guilty of great atrocities, but Peter brought the bulk of it to Constantinople, where he was joined by Walter. They were landed in Asia, where they were nearly all destroyed by the Turks, Peter having left them. A 3d division, consisting of Germans, was led by a monk named Godeschal, and was massacred in Hungary. A 4th, estimated at 200,000, and composed of various peoples, was led by some nobles, from Germany, but it was destroyed by the Hungarians, after having perpetrated terrible outrages. The real crusade was a very different undertaking from these rabble gatherings. No king joined it, but it was headed by a number of eminent feudal princes—Godfrey of Bouillon, duke of Brabant, Robert, duke of Normandy, Hugh, count of Vermandois, Raymond, count of Toulouse, the counts of Flanders and Chartres, Bohemond, prince of Tarento, Tancred, and others. Godfrey, who was one of the first characters of the age, is often mentioned as the leader of the crusading hosts, but he held no such position, though much was conceded to him. After many adventures, including contests with the Greeks, to whose emperor most of the chiefs took the oath of fealty, the crusaders were united in Asia Minor, where they besieged Nice, which surrendered to the Greeks. Their first great encounter with the Turks took place at Dorylæum, July 4, 1097, and, after a long doubtful contest, ended in their victory. Pursuing their march, thousands died of privation, and many more lost their horses. Had the Turks then vigorously assailed them, they would have been destroyed. Antioch was besieged, and taken after many months, but less through crusading valor than by the treachery of a citizen, June, 1098. Here the victors were besieged in their

turn by a great Mussulman army, gathered from different parts of the East, and which had failed to take Edessa, where Baldwin, brother of Godfrey, had established a principality. The crusaders were apparently on the eve of destruction, when they were saved by a revival of the enthusiastic spirit in which their undertaking had originated. It was declared that the steel head of the lance that pierced the Saviour was found under the altar of the church of St. Peter, and its possession was regarded as an assurance of that victory which the invaders won soon after, the Mussulman forces being destroyed or driven off. This victory was the consequence of dissensions among the Mussulmans. Months elapsed before the original purpose was resumed, and then but 21,500 soldiers marched upon Jerusalem, 1,500 only being mounted. Meeting with no resistance, they arrived before the holy city, which, though valiantly defended, fell into their hands after a siege that closed with an assault, and a massacre of almost unequalled atrocity. Godfrey of Bouillon was chosen first head of the Latin kingdom of Jerusalem, 1099. This event marks the completion of the first crusade, though the war between Christians and Mussulmans was continued, involving the destruction of new immense hosts of Germans, Italians, and French, under the duke of Bavaria and others. When Edessa fell into the hands of the Turks, 1145, Christendom was again aroused, and listened readily to the entreaties for assistance that came from the East. St. Bernard preached a second crusade in France, Germany, and elsewhere. Louis VII. of France and Conrad III. of Germany assumed the cross. The emperor led an immense force by the old route of Hungary and Bulgaria to Constantinople, meeting with the usual Greek treachery. He passed into Asia, but soon lost more than four-fifths of his army, which was betrayed by Greeks into the hands of the Turks. Conrad made his way to Nice, at the head of a small force, where he found Louis with his army. After a variety of adventures, in which the French were nearly destroyed, the emperor and king reached Palestine, and with the fragments of their armies, aided by the templars, hospitallers, and forces of the Latin kingdom, besieged Damascus, where they failed completely. The monarchs returned to Europe. For some years the Christians in Palestine defended themselves with success against the Mussulmans, but the rise of the celebrated Saladin to power in Egypt and Syria was fatal to their cause. Defeated in the battle of Hattin or Tiberias, 1187, they surrendered even Jerusalem to Saladin soon after that event. Tyre was the only place of any consequence which they retained. The news of the fall of Jerusalem caused much excitement in the West. A 3d crusade was resolved upon. The emperor of Germany, Frederic Barbarossa, and the kings of France and England, Philip Augustus and Henry II., took the cross. Numerous bands of Christians soon reached Palestine, and Acre was besieged by an immense host. Saladin aided the besieged from without, and this contest was waged for almost two years. The German emperor had organized a great army, better provided, disciplined, and led than any previous crusading force. This army marched by the usual overland route. In Asia Minor they defeated the Turks, but not without experiencing heavy losses. Frederic lost his life while attempting to cross the Calycadnus in Syria, after which little was done by his army, the relics of which finally reached Acre. Meantime, Richard I. of England (Henry having died in 1189) and Philip Augustus had arrived with their forces at Acre, which surrendered (1191), the crusaders, in violation of their word, butchering 5,000 Mussulmans who had been left in their hands as hostages. Philip Augustus soon withdrew from the crusades, alienated and disgusted by Richard's arrogance; but he left a portion of his army to aid that leader, who marched toward Jaffa, defeating Saladin on his way in a pitched battle. Jaffa was abandoned to him, but this was nearly the term of his crusading career. He wished to proceed immediately to Jerusalem, but was thwarted, and 2 months were lost. The crusaders then marched to Ramla, near Jerusalem, but were forced to fall back. The next year Richard resumed operations, and the city might have been taken if the enterprise had been vigorously pushed. Why it was not, is unknown. Richard retreated to the sea-coast. His last act was to relieve Jaffa, which Saladin had assailed. A truce was agreed to, on terms quite as favorable as the Christians could have expected, access to the holy places at Jerusalem being allowed by Saladin. Thus terminated the 3d crusade. The 4th was of an exceptional character. Intended though it was to injure the Mussulmans, probably it did more to enable the Turks to establish themselves permanently in Europe than any other event. An attempt made to preach a new crusade, after the expiration of the truce between Richard and Saladin, had little success out of Germany. From that country bands of nobles and others proceeded to Palestine, where they served to keep up the remains of the Latin kingdom, frequently defeating the Turks, but accomplishing nothing of consequence. In 1200, Innocent III., an able and aspiring pope, resolved to get up a new crusade. The eloquence of Foulques of Neuilly was employed to excite enthusiasm, and with considerable success. The 4th crusade was now commenced. It was mainly French in its character and composition. The counts of Champagne, Blois, and Flanders, and Simon de Montfort, were the principal leaders. The marquis of Montferrat, in Italy, acted with them, and was followed by many Italians. The crusading spirit extended to Germany and Hungary, in the latter country the king assuming the cross. The French crusaders despatched a deputation to Venice to make arrangements for the transportation of their forces to Palestine by sea. For a reasonable compensation the

Venetians engaged to transport a large army; but when, in 1202, the crusaders assembled at Venice, they could not pay the sum named, whereupon it was agreed that they should, in lieu of money, aid the Venetians to subdue Zara in Dalmatia, which had revolted. This, though not under the command of their chief, the marquis of Montferrat, and in defiance of papal prohibition, they accomplished. The Venetians were commanded by the doge, Enrico Dandolo, then nearly blind, and 93 years old. Montferrat then joined them again. Here the combined forces entered into an agreement with Alexis, son of the deposed Byzantine emperor, Isaac Angelus, to restore the fallen monarch to his throne. The opposition of the pope to this singular undertaking had little effect. The expedition proceeded to Constantinople, which was taken, and Isaac Angelus and his son were raised to the throne. Soon, however, dissensions broke out between the parties to the alliance. The restored princes were compelled to fight their restorers, but against their will, and with no good to themselves; for the Greeks hated them, overthrew them, and placed another member of their family on the throne. Isaac died of terror, and Alexis was slain. The crusaders, affecting to be the champions of the dead princes, waged successful war with the new emperor, besieged and took Constantinople, which they pillaged, and established a Latin empire, the territory conquered being divided between the Venetians and their western associates. The ultimate effect of this crusade was to weaken the principal barrier against Mussulman progress westward, so that when the new Turkish power was established in Asia Minor it experienced but moderate resistance from the side of Byzantium. The 5th crusade, 1216, was the work of Innocent III., and was joined by Hungarians, Italians, Germans, English, and French. Andrew II., king of Hungary, led a large army to Palestine, and, in connection with the dukes of Austria and Bavaria, made one campaign, when he returned home. The Germans remained, and having been joined by others, they transferred the war to Egypt (1218). Damietta was besieged and taken, and the crusaders received large reënforcements from England, France, and Italy. The Mussulmans now offered Jerusalem, and even all Palestine, to the victors, on condition that they should leave Egypt, and most of them were for accepting terms so favorable, and which embraced all that the first crusades had been intended to gain. But the papal legate, and the templars and hospitallers, who were joined by the Italian leaders, were able to bring about the rejection of the offer. After a delay of months the crusaders advanced upon Cairo, but the expedition failed entirely, and they were glad to humble themselves before the sultan, who allowed them to leave the country. The pope, Honorius III., attributed the failure to the emperor Frederic II., who had not kept his crusading vow. It was not until 1228 that the emperor went to Palestine with a small force, he being then excommunicate, the effect of which was much to weaken his offensive power. Yet he did much, and made a treaty with the sultan, by which the Christians were to be allowed to visit Jerusalem freely, and Bethlehem, Nazareth, and other places were made over to them. He was permitted to visit the church of the sepulchre, from the altar of which he took the crown, and put it on his head. Thus the 5th crusade was brought to an honorable termination, and the emperor returned to Germany in 1229. The folly of the Christians soon led to the loss of all the good that Frederic had gained for them. They quarrelled, and some of the independent Mussulman rulers were thereby encouraged to refuse to be bound by the treaty, and were successful in their warfare. Again Europe was filled with complaints. A 6th crusade was proclaimed, but with no good result; and the sultan of Egypt, resolved to be beforehand with his enemies, entered Palestine, and drove the Christians from Jerusalem. Hereupon, the nobility in England and France, in 1238, resolved to go to the relief of Palestine. The French, under various leaders, arrived there first, and achieved some brilliant successes. These were followed by reverses and dissensions, and most of the French left the country. The English then arrived, headed by the earl of Cornwall, brother of Henry III., who was well received by all the Christians, whose affairs he completely reëstablished. Jerusalem and most of the Latin kingdom were ceded to them, and numerous captives were released. Cornwall then departed, having effected a great service, and the 6th crusade, like the 5th, was brought to an honorable end in 1240. The 7th crusade grew out of that vast Mongol movement which terrified the world in the 13th century. The Kharizmian horde, flying before the Mongols, sought refuge in Egypt, but were persuaded by the sultan to attack Palestine. They entered that country, and, in 1242, stormed Jerusalem, perpetrating horrors equal to those which had marked its Christian conquest in 1099. Christians and Mussulmans were compelled to league against them, but they were crushed by the savages and their Egyptian allies. Acre became the refuge of the remnants of the Christians, and was the only place of importance left to the cross. The Kharizmians were soon destroyed or expelled by the Egyptians themselves, who now held Jerusalem. These events had the usual effect on Europe. At the council of Lyons (1245), a 7th crusade was proclaimed. It was, chiefly to France and England that the efforts for forwarding it were confined; for though the king of Norway took the cross, he never drew his sword in its cause, and Germany and Italy were not in a state to afford any assistance. Louis IX. of France, known as St. Louis, was the leader. A large army was assembled at Cyprus, whence, after a long delay, it proceeded to Egypt. The English joined it there. At

first, the crusaders were victorious. Damietta was taken, and they directed their steps to Cairo. Mansoura fell before them, but the rash behavior of some of the French leaders caused them to pay dearly for the victory. The Egyptians resisted bravely and skilfully. Communication between the invaders and Damietta, the base of their operations, was cut off. They were shut up in their camp, where sickness and famine thinned their number. Attempting to retreat, they were utterly routed, and the king and his brothers, with many nobles and knights, became captives. The rest of the army were slaughtered, 30,000 falling in all. The king and his companions were finally released, but not until they had experienced many dangers. Damietta was given up, and large sums were promised to the victors. Most of the survivors regarded the crusade as at an end, and departed from a land which had received them so roughly. Not so Louis, a man of great conscientiousness. He went to Acre, and determined to remain in Palestine. This resolution he maintained for 4 years, exerting himself strenuously for the Christian cause, fortifying several places, and preserving union among the Christians. Compelled by the condition of France to return there in 1254, his departure was followed by Christian dissensions. The templars and hospitallers made open war on each other. The Egyptians, having extended their power over the Syrian Mussulmans, now fell on the Christians. The war lasted for years, and was characterized by constantly occurring Christian reverses, in spite of the valor of the losing party, never more heroically displayed than in that dismal time. At length the Latin principality of Antioch fell in 1268, myriads of Christians being slain, or sold into slavery. Nothing was left but Acre. For the last time Europe was moved to serious exertion, and the 8th crusade was undertaken. Louis IX., undiscouraged by his Egyptian failure, assembled a large force, which sailed in 1270. He landed in northern Africa, near Tunis, influenced by a false report of the dey's conversion to Christianity, and the hope of securing him as an ally. He met with no firm resistance in the field, but the light troops of the Moors harassed the French exceedingly. Sickness raged in the invading ranks, and after crowds of brave soldiers and illustrious nobles had fallen, the king himself died. The French immediately gave up the crusade; but they had been joined by a band of English auxiliaries, headed by Prince Edward, afterward Edward I., and these immediately resolved to proceed to Palestine. Spending the winter in Sicily, they sailed for Acre in the spring of 1271, the last expedition of the kind that ever reached that place. The force was only 1,000 strong, but the name of Plantagenet was great in the East. Sultan Bondocdar, who had been so successful over the Christians, immediately retreated. Edward managed to asssemble 7,000 men, with which force he defeated a large Mussulman army, and then stormed Nazareth, which became the scene of a sweeping massacre. Here he was struck down by disease, and his followers died in great numbers. His life was attempted by an assassin. On his recovery, seeing that success could not be looked for, he concluded a truce of 10 years with the sultan, and departed for his own country; and so ended the last crusade, 177 years from the time the first had been preached. Gregory X. sought to evoke a 9th, but with no success. In 1289 Tripoli, on the Phœnician coast, the last fief of the kingdom of Jerusalem, was taken by Sultan Kelaoun. In 1291 the remnants of that kingdom fell into his hands without resistance, save Acre, which he besieged at the head of an overwhelming force. The greater part of the inhabitants withdrew, but the soldiers of the 3 military orders, and some others, defended it resolutely to the last. The city was stormed, and the defenders massacred, or sold into slavery; 60,000 are said to have been killed or taken, probably an exaggeration.—The most important works treating specially of the crusades are the *Gesta Dei per Francos, sive Orientalium Expeditionum et Regni Francorum Hierosolymitani Historia, a variis Scriptoribus Litteris commendata, edente Jacobo Bongarsio* (2 vols. fol., Hanover, 1611; this is a collection of the ancient histories of the crusades, the principal of which are also found, translated into French, in Guizot's *Collection des mémoires relatifs à l'histoire de France*); Mailly, *Esprit des croisades* (Paris, 1780); Choiseul Daillecourt, *De l'influence des croisades sur l'état des peuples en Europe* (Paris, 1810); Michaud, *Histoire des croisades* (Paris, 1813–'22); Heeren, an essay, *Ueber den Einfluss der Kreuzzüge* (Göttingen, 1803); Wilken, *Geschichte der Kreuzzüge* (Leipsic, 1807–'32); Haken, *Gemälde der Kreuzzüge* (Frankfort, 1808–'20); Sporschill, *Geschichte der Kreuzzüge* (Leipsic, 1843 *et seq.*); Navarrete, *Dissertacion histórica sobre la parte que tuvieron los Españoles en las guerras de ultramaro o de las cruzadas* (Madrid, 1816); and also Mills's "History of the Crusades" (London, 1819), the latter volumes of Gibbon's "Decline and Fall of the Roman Empire," and Procter's "History of the Crusades" (London, 1854).

CRUSENSTOLPE, Magnus Jacob, a popular Swedish author, born at Jönköping, March 11, 1795. He published 3 novels in 1821, which were followed in 1828 by a political work (*Politiska åsigter*), in which he eulogized what he termed the era of liberty, extending from 1719 to 1772. In concert with Hjerta he became in the same year editor of an opposition political paper, but the two collaborators soon separated, each to found a journal of his own. Hjerta established the *Aftonbladet*, which still exists, advocating extreme democratic ideas, while Crusenstolpe became editor, in 1830, of the *Fäderneslandet*, in which he renounced the liberal principles which he had formerly maintained, and which ceased when the patronage of government was withdrawn from it in 1833. In 1834 appeared his *Skildringar ur det inre af*

dagens historia, a piquant melange of truth and poetry on questions of social order, which passed through many editions; and subsequently he purchased the Tessin library, celebrated for its historical manuscripts, from which he took his materials for his *Portefeuille* (5 vols., 1837–'45), and for his *Historisk tafla af Gustav IV. Adolph's första lefnadsar* (1837). For one of his works, *Ställningar och förhållanden*, which reflected upon the government, he was imprisoned for 3 years, a condemnation that resulted in several violent riots. In 1840 appeared the 1st vol. of his most successful work, *Morianen* (6 vols., Stockholm, 1840–'44), a romantic description of the history of Sweden during the Holstein-Gottorp dynasty. This, as well as many of his subsequent novels, has been translated into German.

CRUSIUS, Christian August, a German theologian and philosopher, born at Leuna, near Merseburg, Jan. 10, 1715, died in Leipsic, Oct. 18, 1775. He was educated at Leipsic, where he was professor of theology at the time of his death. He was among the principal opponents of the reigning philosophy of Leibnitz and Wolf, which he challenged at once in the name of reason and faith, asserting its incompatibility with Christian dogmas; and he sought to establish a new philosophical scheme which should be perfectly orthodox. Philosophy is in his view the whole body of rational truths, whose objects are eternal, and is divided into logic, metaphysics, and disciplinary or practical philosophy. He subordinated the scholastic principle of contradiction to that of conceptibility (*Gedenkbarkeit*), founded logic upon psychology, attributed to the soul fundamental faculties and a liberty almost as complete as that of the Deity, and made the certainty of human knowledge consist in an inward constraint and inclination of the understanding, the guarantee of the truthfulness of which exists in the divine veracity. These views are Cartesian; and in regarding time and space not as substances but as modes of the divine existence Crusius approached the theories of Clarke and Newton. His doctrines found many adherents, and were especially combated by Plattner. Though arbitrary hypotheses and mystical views are mingled with them, they are the product of acute thought, and were esteemed by Kant among the happiest attempts that had been made in philosophy. The most important of his publications are: *Entwurf der nothwendigen Vernunftwahrheiten* (Leipsic, 1745); *Logik, oder weg zur Gewissheit und Zuverlässigkeit der menschlichen Erkenntniss* (Leipsic, 1747); and *Anleitung über natürliche Begebenheiten ordentlich und vorsichtig zu denken* (Leipsic, 1774).

CRUSTACEA. The name μαλακοστρακα was given by Aristotle to the soft-shelled aquatic animals, as the lobsters, crabs, shrimps, &c., to distinguish this group from the harder shelled animals, which he called οστρακοδερμα, or testacea—the mollusca of our present system of arrangement. In this system the crustacea constitute one of the classes of the primary division articulata of the animal kingdom, and the term *malacostraca* has been retained for one great section of the class, while another is called the *entomostraca*, or shelled insects. The subdivisions of these sections are variously presented by different authorities. Those of the malacostraca, as given by Milne-Edwards, are generally adopted. They are as follows:

I. *Eyes on peduncles, and movable.*

Orders.

Decapoda. { Brachyoura, short-tailed—as crabs.
Anomoura—as hermit crabs, &c.
Macroura, long-tailed—as lobsters, shrimps, &c.

Stomapoda. { Unipeltata—as squilla.
Bipeltata—as phyllosoma, lucifer, &c.

II. *Eyes sessile and immovable.*

Amphipoda—as gammarus, &c., having feet simple and claw-shaped.
Lœmodipoda—as leptomera, &c.
Isopoda—as oniscus or wood-louse, armadillo, &c.

The entomostraca are divided by the same authority into the

Orders. Branchiopoda.
Phyllopoda—as apus, &c.
Cladocera—as daphnia, &c.

Entomostraca Proper.
Copepoda—as cyclops, &c.
Ostrapoda—as cypris, &c.

Haustellata (suctorial crustaceans).
Aranœiformes—extremities long and slender, adapted for walking.
Siphonostomata—extremities not adapted for walking.
Lernœiformes—extremities rudimentary.

The crustacea are furnished with organs of respiration fitted, unlike those of the other articulata, for use beneath the surface of the water; and they are provided with a shell which is either a horny tegument, as in the case of the shrimp, or a calcareous crust, as in the lobster—not stony like those of the mollusca. It is in fact an external articulated skeleton secreted from their own bodies, and periodically thrown off and renewed by the growth of a new shell. In casting its shield the animal is said to first pine away and become smaller, until at last it readily slips out of its covering. Lobsters have been known, when captured, to effect their escape by thus slipping out and leaving their shell in the hands of the astonished fisherman. Sometimes when caught they voluntarily cast off a limb by which they are held, and which they often can very well spare, having always at least 4 pairs beside a pair of claws. In some genera they are so numerous that the animals approximate to the myriopoda. A lost limb too is replaced, gaining in growth at each moulting, while the body is unconfined. These organs, with those of respiration, and the tail also, are supported by the body; the antennæ or feelers, eyes, and mouth belong to the head. The organs of sight and touch are remarkably well developed; and it is not a little interesting to find in those very ancient representatives of this class, the trilobites, whose period of existence was as remote as that of the formation of the older silurian rocks, the same peculiarities and perfection in the structure of the eye as are seen in the highly complicated organization of that of the fly and the butterfly of the present day. The organs of hearing, it is thought, may be detected in some

of the genera of the decapoda, and the habits of many of the crustacea seem to imply the possession of the sense of smell. The shelly covering corresponds in its protuberances and depressions to the form of the important organs of the body within. The progressive motion of the animals is sometimes by walking, sometimes sidewise, backward, or forward—by climbing, as seen in their progress over the weeds and rocks at the bottom of the water—by swimming, and also by leaping. The lobster, clumsy as he appears, and loaded with his heavy claws, is often seen to dart backward by suddenly flapping his tail toward the thorax, throwing himself a distance of more than 20 feet with the swiftness of a bird or a dolphin. By the perfection of his sight he can dart like a mouse directly into his hole, scarcely large enough to admit his body. The young shrimps on the ebb of the tide are often seen along the shallow margin of the water, as observed by Paley in his "Natural Theology," skipping into the air in such numbers that they resemble a cloud or thick mist hanging over the edge of the water to the height of half a yard. The trilobites were fitted by their organization for swimming just beneath the surface of the water, and with the back downward. Like the crustacean insect, the wood-louse, they possessed the faculty of rolling themselves into a ball as a defence against attack from above. The crustacea are found for the most part in salt water; some species, however, live in lakes and rivers, and a few upon the land. Some of them are of considerable size, the largest being the lobsters; but for the most part they are very small. The salt water is almost filled with varieties of them so minute that they are rarely observed, and it is said that a portion taken up at random will always be found to contain a number of them. Numerous species furnish food for man, and all are preyed upon by the inhabitants of the deep. Some species of the whale subsist upon minute crustacea drawn in swarms into their huge mouths, and caught in the fibrous web that lines them, while the water is ejected. Many of the terrestrial crustacea, as the land crabs, are said to visit the sea periodically to deposit their spawn. They burrow also in the mud and in damp places, and their gills are always moist. The oniscus, or wood-louse, has no such arrangement of the gills, and is consequently confined to damp places. Some species of the anomoura or hermit crabs, known also as soldier crabs, are found living in the sea, and others upon the land. Their singular habits are noticed in the article Crab. The entomostraca are mostly fresh-water insects, many of them microscopic. They subsist upon animalcules and microscopic plants. In their progress from the egg to maturity some of them, as the cyclops, undergo curious transformations. Some live in salt water, and one species, the *branchipus stagnalis*, called also the brine worm, lives in the concentrated solutions of salt, such as those of the brine pans of salt works, which contain 2 lbs. of salt to a gallon of water. This active little shrimp is thought by the workmen to contribute to the purity of the brine. Some, like the fresh-water cyclops, sustain intense cold without injury, being sometimes frozen into the ice, and coming out on its melting as active as ever. Many are parasites, as the lerneas, and are classed by themselves by some naturalists, with the name *epizoa*. The *lerneonemia monilaris* infests the head of the sprat, attaching itself near the eye. It is luminous in the dark, and the fishermen say that a shoal of sprats is often headed by those thus infested, which they call lantern sprats. The cod also, and other large fish of our deep waters, have their parasitical crustacea. The limuli, or king crabs, or "horse-shoes," common upon our coast, are placed by Milne-Edwards in a sub-class, which he calls *xiphosura*. It differs from the other genera by having no organs for conveying food to the mouth. The name is from ξιφος, a sword, with reference to the long, pointed, spear-like appendage usually called the tail. This is used by the natives of the Moluccas to point their weapons. A buckler entirely hides from view the limbs and organs of the animal as he moves along upon the sand, or in the water upon the bottom. They are found as fossils in the strata of the coal and Jura formations of Europe.—The crustacea furnish a great number of species that are much esteemed as food by man, as the lobsters, crabs, shrimp, prawn, &c., and the business of capturing them is extensively pursued along the shores where they abound. Lobsters and crabs are caught in pots, or traps of basket work, made like the wire mouse-trap with conical openings that admit the entrance but not the exit of the animals. These are sunk upon the ledges of rock along the coast, after being baited with refuse fish, each trap having one end of a line attached to it while the other is fastened to a floating buoy. The fishermen visit the traps daily, draw them up, and taking out the animals, sink them again. Immense quantities are caught on the coasts of Norway and Scotland for the English markets, where they are carried alive, being kept in perforated "cars" like small boats, sunk to the level of the surface of the water, the same as are used by our fishermen. The northern markets of this country are supplied with lobsters from Massachusetts bay, about 200,000 being taken annually. They have been caught weighing 28 lbs., but the average size is about 4 lbs. On being thrown into boiling water, the natural black or dark color of the shell is changed into red by the solution of the bluish black pigment diffused through the tegument, and the substitution of a red-colored oil, which is insoluble in water. Lobsters are commonly boiled before they are offered in the market, though it is customary in some places to sell them alive to insure their freshness. They are kept many days by having the gills always moistened. Crabs are taken nearer the shore than lobsters, and many of those which live upon the land are

much esteemed as articles of food. Those caught in the waters of Chesapeake bay are preferred in their soft state, and are regarded as great luxuries. In Europe, where they are also a favorite article of food, they are preferred after the new shell has become hard.

CRUVEILHIER, Jean, a French physician, born at Limoges, Feb. 9, 1791. He studied under Boyer and Dupuytren, was a professor at Montpellier, and became attached to the faculty of Paris in 1825. In 1826 he reorganized the anatomical society, which in 1769 had been founded by Dupuytren. The first part of his great work on pathological anatomy (completed in 1842) appeared in 1829. He has also written on descriptive anatomy, and on the anatomy of the nervous system.

CRUVELLI, Sophie (Baroness Vigier), a German vocalist, born in Bielefeld, Prussia, Aug. 29, 1830. Her family name is Cruwell, which she Italianized into Cruvelli. Her musical education was acquired in Paris, but she made her *début* upon the German stage, to which her reputation was for several years confined. She afterward sang in Milan, Venice, and other Italian cities. In 1852 she made her first appearance in London at the queen's theatre, then under the direction of Lumley, and was successful. Her voice, a soprano of great strength and purity, her dramatic powers, youth, beauty, and commanding person, created an extraordinary enthusiasm in her favor, and both in London and in Paris, which she visited in the same year, she became perhaps the most popular singer of the day. The constant demands upon her voice were beginning to impair its quality, when in the latter part of 1856 she was married to the baron Vigier, since which time she has not appeared upon the stage. Ahmed Pasha, son of Mehemet Ali, lately left her a fortune of 1,000,000 francs, and an almost equal sum in diamonds.

CRUZ, Juana Inez de la, a Mexican poetess, born near the city of Mexico in 1651, died April 17, 1695. She was very quick at acquiring knowledge, and was able to speak and write Latin with fluency. She was only about 17 when she resolved to become a nun, and entered the convent of St. Jerome at Mexico, where she remained until her death. During her life she was called the "tenth muse," and in Spain, where she is known as the "nun of Mexico," her poems have been very popular. Her writings have been collected in 3 vols. 4to.

CRYOLITE (Gr. κρυος, ice, and λιθος, stone), a mineral so named from its fusibility in the flame of a candle. It is a compound of sodium, fluorine, and aluminum, and is used for the preparation of the new metal aluminum. Large quantities are imported into England for this purpose from Greenland, where it was discovered by a missionary and carried many years ago to Copenhagen. It was supposed to be sulphate of barytes, until examined by Abilgard, who found it to contain fluoric acid. Klaproth afterward detected soda. It is a snow-white mineral, partially transparent, of vitreous lustre and brittle texture. Its hardness is 2.5; sp. gr. 3. It cleaves in 3 directions, 2 of which are rectangular. It occurs in veins in gneiss with pyrites and galena, and has been found at Arksut, in West Greenland, and at Miask, in the Urals. At the former place it constitutes a mass 80 feet thick and 300 feet long, included between layers of gneiss, and associated with argentiferous galena and copper and iron pyrites.—See a paper communicated to the geological society by Mr. J. W. Taylor, 1856.

CRYPTO-CALVINISTS, a name given in the latter half of the 16th century to the favorers of Calvinism in Saxony, on account of their secret adhesion to the doctrines of Geneva.

CRYSTAL PALACE, the name of the structure in which the great exhibition of works of industry of all nations was held in London, in 1851. It was erected after a design of Mr. (afterward Sir) Joseph Paxton, on the S. side of Hyde park, opposite Prince's gate, and composed mainly of glass and iron, with its floors of wood. Its length was 1,851 feet; width in its broadest part, 456 feet; area, 21 acres. It contained illustrations of modern industry from about 17,000 exhibitors, was opened May 1, 1851, visited by over 6,000,000 people, closed Oct. 11, 1851, and the building taken down shortly afterward. A new and permanent crystal palace has since been erected (opened June 10, 1854), at a cost of about £1,450,000, 8 m. from London, on Penge hill, near Sydenham, with splendid gardens and waterworks, and arrangements for musical and other public entertainments, and containing, beside industrial exhibitions, an extensive museum of ancient and mediæval art and of minerals, representations of antediluvian animals, specimens in all branches of zoology and botany, and other departments of science.—Crystal palaces, in imitation of that of London, and for the same purpose of universal industrial exhibition, were opened in New York, July 14, 1853, in Munich in 1854, and in Paris, May 1, 1855. The New York crystal palace was situated in Reservoir square, and designed by Messrs. Carstensen and Gildemeister. The main building covered 173,000 square feet, galleries included, with an additional building of 33,000 square feet. It was composed of 45,000 square feet of glass, 1,200 tons of cast and 300 tons of wrought iron, and surmounted by a dome. This beautiful structure was destroyed by fire, Oct. 5, 1858.

CRYSTALLINE LENS, a lenticular transparent body, placed between the aqueous and vitreous humors of the vertebrate eye, at about its anterior third; it is about 4 lines in diameter and 2 in thickness in man, and its axis corresponds to the centre of the pupil. The lens is flat in proportion to the density of the medium in which the eye is habitually placed, being very flat in birds of the highest flight, and very convex in aquatic mammals and diving birds; in fishes it is almost spherical. This most important refracting structure of the eye is imbedded in the anterior portion of the vitreous

humor, and is enclosed in a membranous capsule, to which it is prevented from adhering by the "liquid of Morgagni." Its structure is complicated, but it consists, when fully formed, of fibres arranged side by side, and united into laminæ by serrations of their edges; the fibres originate in cells; the vessels are confined to the capsule, and are derived from the central artery of the retina; when hardened in spirit, it may be split into 3 sections, composed of concentric laminæ; it is made up of 58 parts of water, and 42 per cent. of soluble albumen; the central parts are the densest, and this property increases with age. Beside its refractive power, necessary for distinct vision, it is generally believed that a change in its place, by means of the ciliary muscle and the erectile tissue of the surrounding ciliary processes, is the mechanism by which the eye is adapted to distinct vision at varying distances; beside the anatomical arrangement of the parts, this view is rendered more probable by the development of this muscle in predaceous birds which have a great range of vision, and by the loss of this power of adaptation when the lens of the human eye is removed or displaced in the operation for cataract. For the diseases of the lens and its capsule and their treatment, the reader is referred to the article Cataract.

CRYSTALLOGRAPHY, the science of form and structure in the inorganic kingdom of nature. In the organic kingdoms, the animal and vegetable, each species has a specific form and structure evolved from the germ according to a law of development or growth. In the inorganic kingdom also, which includes all inorganic substances, whether natural or artificial, a specific form and structure belong to each species, and the facts and principles involved therein constitute the science of crystallography. The forms are called crystals; so that animals, plants, and crystals are the 3 kinds of structures characterizing species in nature. As the qualities of crystals depend directly on the forces of the ultimate molecules or particles of matter, crystallography is one of the fundamental departments of molecular physics, and that particular branch which includes cohesive attraction. Cohesive attraction in solidification is nothing but crystallogenic attraction, for all solidification in inorganic nature is crystallization. The solidification of water, making ice, is a turning it into a mass of crystals; and the word crystal is appropriately derived from the Greek κρυσταλλος, ice. The solidification of the vapors of the atmosphere fills the air with snow-flakes, which are congeries of crystals or crystalline grains. Solid lava, granite, marble, iron, spermaceti, and indeed all the solid materials of the inorganic globe, are crystalline in grain; so that there is no exaggeration in the statement that the earth has crystal foundations. The elements and their inorganic compounds are, in their perfection, crystals. Carbon crystallized is the diamond. Boron is little less brilliant or hard; and could we reduce oxygen to the solid state, it would probably (as we may infer from its compounds) have no rival among nature's gems. Alumina is the constituent of the sapphire and ruby, and silica of quartz crystals. Magnesia also has its lustrous forms. The metals all crystallize. Silica and alumina combined, along with one or more of the alkalies or earths, make a large part of the mineral ingredients of the globe, its tourmaline, garnet, feldspar, and many other species, all splendent in their finer crystallizations; and limestone, one of the homeliest of all the earth's materials, as we ordinarily see it, occurs in a multitude of brilliant forms, exceeding in variety every other mineral species. The general principles in the science of crystallography are the following: I. A crystal is bounded by plane surfaces, symmetrically arranged about certain imaginary lines, called axes. II. A crystal has an internal structure which is directly related to the external form, and the axial lines or directions. This internal structure is most obviously exhibited in the property called cleavage. Crystals having this property split or cleave in certain directions, either parallel to one or more of the axial planes, or to diagonals to them; and these directions are fixed in each species. In some cases, cleavage may be effected by the fingers, as with mica and gypsum; in others, by means of a hammer with or without the aid of a knife-blade, as in galena, calcite, fluor spar; in others, it is indistinguishable, as in quartz and ice. In all species, whether there be cleavage or not, crystals often show a regular internal structure through the arrangement of impurities, or by internal lines, striations, or imperfections; and, when there has been a partial solution or erosion of the crystal, there is often a development of new lines and planes, indicating that the general symmetry of the exterior belongs to the whole interior. III. The various forms of crystals belong mathematically to 6 systems of crystallization: the monometric, dimetric, trimetric, monoclinic, triclinic, and hexagonal. The greater part of the crystalline forms may be regarded as based on 4-sided prisms, square, rectangular, rhombic, or rhomboidal in base; and the rest, on the regular 6-sided prism. The 4-sided prisms are either right prisms (erect) or oblique (inclined). Any such 4-sided prism may have 3 fundamental axes crossing at the centre, 1 vertical axis connecting the centres of the opposite bases, and 2 lateral, connecting the centres of either the opposite lateral faces, or the opposite lateral edges. The 6-sided prism is right, and has 4 axes, 1 vertical and 3 lateral. In the right 4-sided prisms, the intersections of the axes are all at right angles; in the oblique, one or all of them are oblique angles. A. Right or orthometric systems. 1. Monometric system: the 3 axes equal, and thus of one kind. The system is named from the Greek μονος, one, and μετρον, measure. The cube, for example, has 3 equal axes with rectangular intersections; the axes connect the centres of the opposite faces. The regular oc-

tahedron, rhombic dodecahedron, and tetrahedron, are other solids of this system. The octahedron is contained under 8 equal equilateral triangles, and is like two 4-sided pyramids placed base to base. The lines connecting the apices of the solid angles are the axes; as in the cube, they are 3 in number, equal in length, and rectangular in their intersections. The rhombic dodecahedron is contained under 12 equal rhombic faces, and is an equilateral solid like the cube and octahedron. All the forms of the monometric system are thus equilateral, and every way symmetrical. No one of the axes is distinguished as the vertical. Examples: garnet, diamond, gold, lead, alum. 2. Dimetric system: the vertical axis unequal to the lateral, and the lateral equal; the axes thus of 2 kinds. The dimetric system is named from the Greek δις, twice, and μετρον, measure. The square prism is an example. As the base is a square, the lateral axes, whether connecting the centres of opposite lateral faces or edges, are equal; while the vertical may be of any length, longer or shorter than the lateral. Under this system, there are square octahedrons, equilateral 8-sided prisms, and 8-sided double pyramids, beside other forms. Examples: idocrase, zircon, tin. 3. Trimetric system: the vertical axis unequal to the lateral, and the lateral also unequal, or, in other words, the 3 unequal. The trimetric system is named from the Greek τρις, 3 times, and μετρον, measure. In the rectangular prism (a right prism with a rectangular base), the 3 axes are lines connecting the centres of opposite faces, and are unequal. In the right rhombic prism the vertical axis connects the centres of the bases, and the lateral, the centres of the opposite lateral edges. They have the same relations as in the rectangular prism; that is, they are rectangular in their intersections and unequal. Of the 2 lateral axes in this system, the longer is called the macrodiagonal, and the shorter the brachydiagonal. Examples: sulphur, heavy spar, epsom salt, topaz. B. Oblique or clinometric systems. 4. Monoclinic system: one only of the intersections oblique. This system is named from the Greek μονος, one, and κλινω, to incline. If we take a model with 3 unequal axes arranged as in the trimetric system, and then make the vertical axis oblique to one of the lateral, we change the system into the monoclinic. While the right rhombic prism belongs to the former, the oblique rhombic prism, and other related forms, belong to the latter. Examples: borax, glauber salt, sugar, pyroxene. 5. Triclinic system: all the 3 intersections oblique. The system is named from τρις, 3 times, and κλινω, to incline. The forms are oblique prisms contained under rhomboidal faces. The axes, whether connecting the centres of opposite faces or of opposite edges, are unequal, and all the intersections are oblique. Examples: blue vitriol, axinite. C. The axes 4 in number. 6. Hexagonal system. In the regular hexagonal prism, the vertical axis connects the centres of the bases, and the 3 lateral, the centres of the opposite lateral faces or edges. Examples: beryl or emerald, apatite. Beside the hexagonal prism, the system includes the rhombohedron and its derivative forms, inasmuch as the symmetry of these forms is hexagonal. The rhombohedron is a solid, bounded like the cube by 6 equal faces equally inclined to one another, but those faces are rhombic, and the inclinations are oblique. The relations of the rhombohedron may be explained by comparison with a cube. If a cube be placed on one solid angle, with the diagonal from that angle to the opposite solid angle vertical, it will have 3 edges and 3 faces meeting at the top angle, and as many edges and faces, alternate in position, meeting at the opposite angle below; while the remaining 6 edges will form a zigzag around the vertical diagonal; these 6 edges might be called the lateral edges, and the others the terminal. The cube, in this position, is in fact a rhombohedron of 90°. If the cube were elastic, so that the angles could be varied, a little pressure would make it a rhombohedron of an angle greater than 90°, that is, an obtuse rhombohedron; or by drawing it out, it would become a rhombohedron of an angle less than 90°, or an acute rhombohedron. The diagonal here taken as the vertical axis, is the true vertical axis of the rhombohedron; and as there are 6 lateral edges situated symmetrically around it, there are 3 lateral axes crossing at angles of 60°, as in the regular hexagonal prism. Examples: calcite, sapphire, quartz. IV. The relative values of the axes in any species are constant. In the monometric system, the axes are equal, and the axial ratio is, therefore, that of unity. Calling the 3 axes a, b, c, it is in all monometric species $a : b : c = 1 : 1 : 1$. In the dimetric system the vertical axis (a) is unequal to the 2 lateral (b, c). Calling the lateral 1, the vertical may be of any length greater or less than 1; and whatever the value, it is constant for the species. Thus in zircon, the value of a is 0.6407, and the axial ratio is $a : b : c = 0.6407 : 1 : 1$. In calomel, the ratio is 1.232 : 1 : 1. In the trimetric system, the 3 axes are unequal, but the ratio is constant for each species, as in the dimetric. Taking the shorter lateral axis (b) as unity, the ratio for sulphur is $a : b : c = 2.344 : 1 : 1.23$; for heavy spar, 1.6107 : 1 : 1.2276. In the monoclinic system, the obliquity of the prism is a constant, as well as the relative values of the axes. In glauber salt, this inclination is 72° 15′, and the ratio of the axes is $a : b : c = 1.1089 : 1 : 0.8962$. In the hexagonal system, as in the dimetric, the vertical (a) is the varying axis; but its value is constant for each species. In quartz, $a : b : c : d = 1.0999 : 1 : 1 : 1$; in calcite, 0.8543 : 1 : 1 : 1. In other words, taking the lateral axes at unity, the vertical (a) in calcite is 0.8543. Crystallography owes its mathematical basis to this law. The constancy of angle for each species, stated in § II., is here involved. V. Each species, while having a constant axial ratio, may still crystallize in a variety of forms. Thus the diamond, which is mono-

metric, occurs in octahedrons, in dodecahedrons, and in solids like octahedrons, but having low pyramids of 3 or 6 faces in place of each octahedral face (called tris-octahedrons and hex-octahedrons), and in various combinations of these forms. So dimetric species, as idocrase, may occur in simple square prisms, or in square prisms with the lateral edges truncated or bevelled, or with different planes on the basal edges or angles, or in 8-sided prisms, or in square octahedrons, &c. In the species calcite, the number of derivative forms amounts to several hundreds. This simple fact shows that while cohesive attraction in calcite, for example, sometimes produces the fundamental rhombohedron, it may undergo changes of condition so as to produce other forms, and as many such changes as are necessary to give rise to all the various occurring forms of the species, with only this limitation, that they are all based on the fundamental axial ratio, 0.8543 : 1. VI. In all cases of derivative or secondary forms, either (1) all similar parts (parts similarly placed with reference to the axes) are modified alike, or (2) only half, alternate in position, are modified alike. This law may be explained by reference to a square prism. In this prism there are 2 sets of edges, the basal and lateral; the 2 sets are unlike, that is, are unequal, and included by different planes. One set may therefore be modified by planes when the other is not; moreover, when one basal edge has a plane on it, all the others will have the same plane, that is, a plane inclined at the same angle to the base; or if one has a dozen different planes, all the others will have the same dozen. Again, if a lateral edge is replaced by one plane, that plane will be equally inclined to the lateral planes, because those planes (or, what is equivalent, the lateral axes) are equal; and in addition, all the lateral edges will have the same plane. In a cube, the 12 edges are all equal and similar; and hence, if one of them has a plane on it, there will be a similar plane on each of the 12. Hence, we may distinguish a cube, modified on the edges, however much it may be distorted, by finding the same planes on all the 12 edges of the solid. The 8 angles of a cube are similar, and hence they will all have similar modifications. This remark applies also to the 8 angles of a square prism. The square prism and cube differ in this, that in the cube, when there is one plane on each angle, that plane will incline equally to each of the 3 faces adjoining, because these faces are equal; while in the square prism, the plane will incline equally to the 2 lateral planes and at a different angle to the base. This general law, "similar parts similarly modified," is in accordance with what complete symmetry would require. The exception mentioned, of half the parts modified without the other half, is exemplified in boracite, in which half of the 8 solid angles of the cube have planes unlike those of the other half—a mode of modification that gives rise to the tetrahedron and related forms; in tourmaline, in which the planes at one end of the crystal differ from those at the other; and in pyrites, in which on each edge there is only one plane out of a pair of bevelling planes. All such forms are said to be hemihedral (Gr. ἡμισυ, half, and ἑδρα, face), while the former are said to be holohedral (from ὁλος, all, and ἑδρα). Many hemihedral crystals, when undergoing a change of temperature, have opposite electric poles developed in the parts dissimilarly modified. VII. The derivative forms, under any species, are related to one another by simple multiples of the axial ratios. In calcite, the fundamental rhombohedron has the axial ratio just mentioned, 0.8543 : 1, that is, $a = 0.8543$. There are a number of derivative rhombohedrons among the crystalline forms of this species; one has the vertical axis $\frac{1}{2}a$; another $\frac{1}{4}a$; others $\frac{5}{4}a$, $\frac{3}{2}a$, $2a$, $3a$, $4a$, and so on, by simple multiples of the vertical axis of the fundamental form. So in zircon, of the dimetric system, while a (vertical axis)$=0.6407$, the lateral being unity, there is one derivative octahedron with the axes $a : 1 : 1$; another, $2a : 1 : 1$; another, $3a : 1 : 1$; and there are 3 other forms (8-sided pyramids) whose axes are severally $3a : 3 : 1$; $4a : 4 : 1$; $5a : 5 : 1$; or writing out the value of a, they are $1.9221 : 3 : 1$; $2.5628 : 4 : 1$; $3.2035 : 5 : 1$. It is obvious that if an octahedron of zircon have the vertical axis $2a$ (or the whole ratio, $2a : 1 : 1$), its interfacial angles may be calculated, the value of a being known $= 0.6407$. The calculation is simpler still, provided the basal angle of the pyramid, $a : 1 : 1$, be known; for the tangents of half the basal angles will vary as the vertical axes, or, in this case, will be as 1 : 2. Moreover, if the angles of the octahedron, $a : 1 : 1$, be known from measurement, the value of the axis a may be thence calculated. The derivative forms thus enable us to ascertain the dimensions of the axes of crystals. Crystals are often much distorted, and cubes are thus changed to square prisms, rectangular prisms, and other forms; and prismatic and octahedral crystals are liable to similar distortions. But the distortions seldom affect the angles. These facts still further illustrate the mathematical basis of crystallography. They also show that the modifications which cohesive attraction (or, what is the same, crystallogenic attraction) undergoes in order to produce the various derivative forms of any substance, take place according to a law of simple ratios. VIII. The physical characters of crystals have a direct relation to the forms and axes. Cleavage, hardness, color, elasticity, expansibility, and conduction of heat, differ in the direction of different axial lines, and are alike in the direction of like axes. The difference of color between light transmitted along the vertical and lateral axes of a prism is often very marked, and the name dichroism (Gr. δις, twice, χροα, color), or the more general term pleochroism, is applied to the property. The hardness often differs sensibly on the terminal and lateral planes of a prism, and also, though less sensibly, in other different directions.

IX. The angles of the crystals of a species, though essentially constant, are subject to small variations. The unequal expansion of inequiaxial crystals along different axial directions, alluded to under the last head, occasions a change of angle with a change of temperature; other small variations arise from impurities, or isomorphous substitutions, or irregularities of crystallization. There are also many instances of curved crystallizations which are exceptions to the general rule. A familiar example of curving forms is afforded by ice or frost as it covers windows and pavements. Diamonds have usually convex instead of plane faces. Rhombohedrons of dolomite and spathic iron often have a curving twist; half the faces are concave and those opposite convex. Other imperfections arise from an oscillating tendency to the formation of 2 planes, ending in making a striated curving surface. Thus 9-sided prisms of tourmaline are reduced to 3-sided prisms with the faces convex. X. While simple crystals are the normal result in crystallization, twins or compound crystals are sometimes formed. The 6-rayed stars of snow and the arrow-head forms of gypsum are examples of compound crystals. In the stars of snow there are 3 crystals crossing at middle; in the arrow-shaped crystal of gypsum, 2 crystals are united so as to form a regular twin. Many of these twin crystals may be imitated by cutting a model of an oblique prism in two vertically through the middle, and then inverting one part on the other and uniting again the cut surfaces. In such a twin, the top of one half of the crystal is really at the bottom, and the bottom of the same half at the top. To explain its formation, it is necessary to suppose that the nucleal or first particle of the crystal was a double molecule made up of 2 molecules, in which one was thus inverted on the other. Such twins, as well as other facts, prove that molecules have a top and bottom, or, in more correct language, polarity, one end being positive and the other negative, this being the only kind of distinction of top and bottom which we can suppose. Axial lines or directions of attraction are in fact necessarily polar, if it be true, as is supposed, that molecular force of whatever kind is polar. In the case of the compound crystal of snow, the nucleal particle must have consisted of 3 or 6 molecules combined. Those prismatic substances are compounded in this way which have the angles of the prism near 60° and 120°, and for the reason that 3 times 120°, or 6 times 60°, equal 360°, or the complete circle. In a case where this angle is nearly $\frac{1}{5}$ of 360° (as in marcasite), the twins consist of 5 united crystals. In compound crystals of another kind, the composition is produced after the crystal has begun to form, instead of in the first or nucleal particle. A prism, as in rutile, after elongating for a while, takes a sudden bend at each extremity at a particular angle, depending on the values of the axes. In another case, as albite, which is triclinic, a flat prism begins as a thin plate; then a reversed layer is added to either surface; then another like the first plate; then another reversed; and so on, until the crystal consists of a large number of lamellæ, the alternate of them reversed in position, yet all as solidly united as if a simple crystal. Such a kind of composition may be indicated on the surface in a series of fine striations or furrows, each due to a new plane of composition; and they are frequently so fine as to be detected only by means of a magnifying glass. This mode of twin is additional proof of the polarity of the crystallogenic molecule. If there were not some inherent difference in the extremities or opposite sides of the molecules or their axes, which is equivalent to polarity, there could not be this series of reversions during the formation of the crystal. External electric or other influence may be the cause of the reversion. XI. While simple and twin crystals form when circumstances are favorable, in other cases the solidifying material becomes an aggregate of crystalline particles. Regular crystals often require for their formation the nicest adjustment of circumstances as to supply of material, temperature, rate of cooling or evaporation, &c.; and hence imperfect crystallizations are far the most common in nature. A weak solution spread over a surface may produce a deposit of minute crystals, which, if the solution continues to be gradually supplied, will slowly lengthen, and produce a fibrous or columnar structure. In other cases, whether crystallization take place from solution or fusion or otherwise, the result is only a confused aggregate of grains, or the granular structure. Under these circumstances, the tendency in force to exert influence radially from any centre where it is developed or begins action, often leads to concentric or radiated aggregations, or concretions. The point which first commences to solidify, or else a foreign body, as a fragment of wood or a shell, becomes such a centre; and aggregation goes on around it until the concretion has reached its limits. Basalt and trap rocks which have been formed from fusion are often divided into columns, and the columns have concave and convex surfaces at the joints or cross fractures, proving that they are concretionary in origin. The centre or axis of each column is the centre of the concretionary structure, and therefore it was the position of the first solidifying points in the cooling mass. The distance therefore between the initial solidifying points determines in any case the size of the columns; and as the columns are larger, the thicker the cooling mass, the distance is greater, the slower the cooling. The cracks separating the columns are supposed to be owing to contraction on cooling. XII. The system of crystallization of a given substance sometimes undergoes a total change, owing to external causes. Carbonate of lime ordinarily crystallizes in rhombohedrons, and is then called calcite; but in certain cases it crystallizes in trimetric prisms, and it is then called aragonite. The aragonite appears to

form when the solution has a higher than the ordinary temperature. This property of presenting two independent forms is called dimorphism. Beside difference of form, there is in all such cases a difference of hardness and specific gravity. Carbon crystallizes in one set of forms, which are monometric, in the diamond, and in another, hexagonal, in graphite. Glass and stone are dimorphous states of the same substance, and the former may be changed into the latter by slow cooling.—*Modes of crystallization.* Crystallization requires freedom of movement among the particles engaged in the process. It may take place: 1. From solution, where a solvent serves to disunite the molecules of a solid, and give them the free movement required. The crystallization of sugar or alum from a concentrated solution is an example of this method. The alum solution is simply set away to cool, and the crystals slowly form and cover any object that may be placed in the solution. With many solutions evaporation cautiously carried on will throw down a crop of crystals. Sea water, on slow evaporation, first deposits gypsum, afterward common salt, and then its magnesian salts. 2. From a state of fusion or of vapor. Heat in this case is the dissevering agent, and the removal of heat permits resolidification. Thus water becomes ice, and aqueous vapor snow; and melted lead, sulphur, and other substances, may come out in perfect crystals. If a mass of melted sulphur, or of bismuth, after it has crusted over, be tapped and the interior run out, the cavity within will be found lined with crystals. Camphor, when sublimed by a gentle heat, condenses again in delicate crystallizations. 3. From long continued heat without fusion. The heat used for tempering steel is far short of fusion, and yet it allows of a change in the size of the grains throughout the mass. Heat has crystallized beds of earthy sediment, and thus changed them into gneiss and mica schist without fusing the rocks; and there is reason to believe that even a low degree of heat long continued is sufficient for these results. By this means statuary marble, one of the earth's crystalline rocks, has been made out of fossiliferous limestones. The white marble of Berkshire, Mass., is of the same formation with the Trenton limestone, a rock full of fossils, in central New York and elsewhere. Such altered rocks are termed in geology metamorphic rocks. Nearly all the gems, and far the larger part of the crystalline rocks of the world, were crystallized by some metamorphic process. Long continued vibration is known to change the crystalline texture of iron, making axles of wheels coarse-grained and brittle. In vibration there is some heat developed, and this may aid in the process. 4. From any circumstances that favor the combination of the elements of a compound. Crystallizations often take place at the moment of the combination.—*Origin of the modifications of crystals.* The particular modifications of form presented by the crystals of any substance sometimes depend on the nature of the solution depositing the crystals, and sometimes on wider terrestrial conditions. Common salt, crystallizing from pure water, almost invariably takes a cubic form; but if boracic acid is present, the crystals are cubes with truncated angles; or if the solution contains urea, the crystals are octahedrons. Carbonate of copper, in course of deposition, has been observed to change the form of the crystals on the addition of a little ammonia, and again to a still different form on adding sulphuric acid. Sal ammoniac ordinarily crystallizes in octahedrons; but if urea be present, it forms cubes. A floating crystal forming in a solution has been seen to assume secondary planes on becoming attached to the sides of the vessel. There are many examples where a substance, as calcite, for a time crystallized under one form, and afterward began a new form around or on top of the first. At Bristol, Conn., 6-sided prisms of calcite have been found surmounted by short, flattened calcite crystals of the variety called nail-head spar. At Wheatley's mine, Phœnixville, Penn., the same species, under the form of the scalenohedron, has been found covered and altered to a 6-sided prism. Such facts prove some change, and probably a change in the nature of the solution supplying the carbonate of lime, the ingredient of calcite. In nature the crystals of a substance over a wide region are often identical in form. The calcite of the Niagara limestone at Lockport, N. Y., in all cases has the form called dog-tooth spar, or the scalenohedron; that of Booneville, N. Y., the form of short hexagonal prisms; that of the Rossie lead mine, a combination of other more complex forms. This is a general fact with regard to the crystallizations in rocks. In massive aggregate crystalline rocks there is a tendency to parallelism in the crystals, and hence, at a granite quarry, it is easier to split the granite in one direction than in others, owing to an approximate parallelism in the cleavage planes of the feldspar. To obtain large crystals artificially from solutions, a large supply of material is of course necessary. The most successful mode is to select certain of the best crystals that have begun to form, and supply them from time to time with new portions of the solution. They will thus continue to enlarge, the crystallizing material tending to aggregate about the ready formed crystals, rather than commence a new crop. Cavities in rocks sometimes contain a vast amount of large crystals. At Zinken in Germany, a single cavity was opened last century which afforded 1,000 cwt. of quartz crystals, one of which weighed 800 lbs. In all such cases the supply of material was gradually introduced; for so little silica is taken up by alkaline waters that the solution of silica filling the cavity at any one time could make but a thin lining over its interior. When water freezes, there is at first a sheet of ice made by the shooting of prisms over its surface. After

this, as the cold continues, the crust increases in thickness by gradual additions to the under surface, thereby causing an elongation of prismatic crystallizations downward. The body of the ice is consequently columnar, although not distinctly so when examined in its firm state. In the melting of the ice of some lakes in spring, as has been observed at Lake Champlain, this columnar structure usually becomes apparent; and it is sometimes so decided, that when the ice is even a foot thick and strong enough to bear a horse and sleigh, the horse's foot will occasionally strike through, driving down a portion of the half-united columnar mass, which may rise again to refill the place as the foot is withdrawn. When in this condition, a gale at night sometimes leads to a disappearance of all the ice before morning. A fact like this illustrates what must be the condition of the earth's crust if it has slowly cooled from fusion. The crystallizing rock material below, as the crust slowly thickened, would not necessarily take columnar forms; but there would be some system of arrangement in the crystals which would be of a world-wide character; and as the cleavable species feldspar is a universal mineral among igneous rocks, the earth's crust would derive some kind of structure—a cleavage structure, it might be called—from these conditions. Crystallization thus pervades the globe, and has had much to do in determining its grander surface features, as well as making gems, solidifying sedimentary strata, and furnishing material for the statuary and architect. It has also afforded man one of his best avenues for searching into nature, opening to view facts on which are based some of the profoundest laws in cohesive attraction, heat, light, and chemistry.

CSÁNYI, László, minister of state during the Hungarian revolution, born in the county of Zala in 1790, executed at Pesth, Oct. 10, 1849, served as an officer in the Napoleonic wars from 1809–'15, was disabled by a wound, and retired to private life. Having become a member of the liberal opposition in his native county, he took part in the Hungarian revolution in 1848, acted as a commissary of the revolutionary government in the attempt to relieve Vienna, and during the retreat of the army of the upper Danube to Pesth, which he was the last to leave, and afterward went to Transylvania in order to organize that province under Hungarian rule. There his severity against the German and Wallachian population brought him into collision with the military commander, Gen. Bem, in consequence of which he was recalled. When the diet had proclaimed Hungary an independent state, he was appointed to a seat in Szemere's cabinet, of which he became the most active member. When Görgey, whom he zealously supported, surrendered to the Russians, Csányi, exhausted and grieved, refused to leave his country. Before the Austrian court martial he frankly confessed his revolutionary principles and acts, and was sentenced to death and hanged.

CSOKONAI, Vitéz Mihály, a Hungarian poet, born at Debreczin, Nov. 17, 1773, died Jan. 28, 1805. He was educated at the college of his native town, and appointed professor of classical literature there in 1795. He was soon, however, expelled from this situation on account of his irregularities. He then commenced the study of the law, which he soon gave up, and during the rest of his life had no regular employment. His works, principally love poems and pieces of a light and lively character, have been published in numerous editions.

CSOMA DE KÖRÖS (Körösi), Sándor, a celebrated traveller and Thibetan scholar, born at Körös, in Transylvania, about 1790, died at Darjeeling in India, April 11, 1842. Of a noble but poor family, he studied gratis at the school of Nagy-Enyed, where at an early age he avowed his intention to make the discovery of the original home of his race, the Magyars, the task of his life. The researches of Klaproth led him to seek the traces of the Ooigoors, a people of central Asia mentioned by Arabian writers. In 1815 he went to Göttingen, where he studied medicine and oriental languages, and on his return finally started (1820) for his great journey of discovery, with scanty means furnished by the liberality of a friend, in the poor dress of a Transylvania countryman, but with the heroic determination of a Columbus. He passed through the Balkan to Constantinople, visited Egypt and Syria, and wrote his first letter to his friends from Teheran, dated Dec. 21, 1820. The resemblance of a number of Thibetan words to Magyar incited him to acquire the language and to visit the country of Thibet. He traversed Little Bucharia, the desert of Gobi, reached the regions of the Himalaya, wandered through its valleys, partly with the English traveller Moorcroft, partly alone, and spent 4 years (1827–'30) in a Buddhist monastery at Kanam, on a high mountain on the confines of Thibet and India. For his maintenance on his travels he relied upon his medical knowledge and the hospitality of the Asiatic people. But his taciturn habits and austere modesty prevented him from communicating, in writing or conversation, the particulars of his travels and extraordinary sojourn among the Buddhists, when he arrived at Calcutta with immense philological collections, gathered in the narrow cells of the snow-bound monastery, and comprising no less than 40,000 Thibetan words. A severe disappointment awaited him here. He had already given up the illusion in regard to the Magyar and Thibetan languages; he now learned with deep grief that his collections, made for the purpose of tracing the Ooigoors, were all superfluous, as his discovered sources were translations of well-known Sanscrit works. But in the eyes of British scholars in India he had discovered incomparably more than was the object of his patriotic researches. He became the oracle of Thibetan literature and Buddhistic science, before him almost *terræ incognitæ*. He was the object of general attention in Calcutta, and Hungary and Transylvania learned from

England the fame of their countryman. But he modestly withdrew from society, and destined the money which he received from home (the diet of Transylvania having voted him an ample pension) for works of science for the institutions of his country. When offered a remuneration by the Asiatic society of Bengal for an elaborate catalogue of the 1,100 Thibetan works of their library, which before had been like sealed books, he declared if he were rich he would willingly pay for the pleasure of the work. With unabated zeal he continued his profound studies of the languages and religions of the East, until he again started in 1842 for the prosecution of his originally intended discovery; but on his journey he was suddenly overtaken by illness. He refused to take medicine, and died without a struggle or a groan. His works are: "Essay toward a Dictionary Thibetan and English" (Calcutta, 1834); "Grammar of the Thibetan Language" (1834); an "Analysis of the Kahgyur," the great sacred book of the Buddhists, published in the 20th vol. of the "Asiatic Researches;" and numerous articles on Thibetan literature in the "Journal of the Asiatic Society of Bengal."

CTENOIDS, one of the 4 orders into which Prof. Agassiz formerly divided fishes, according to the peculiarities of their scales. The ctenoids comprise those which, like the perch family, have hard rough scales, with their posterior edge dentated or serrated; this order has a bony vertebral column, serratures on the gill covers, and generally spines in the dorsal fin. The other orders were cycloids, ganoids, and placoids. The cycloids, of which the salmon and the herring are examples, have soft circular scales and fin rays, and simple head bones, with simple outlines; these, the most numerous of existing fishes, have also a bony vertebral column. There is not any strongly marked division between these orders, which are connected together by many intermediate types, and their general organization is not in harmony with this single basis of difference. The ganoids have angular scales covered with a substance resembling enamel; they include many fossil species, and the sturgeon and gar-pike of the present day, approaching the reptiles in some particulars of bony structure. The placoids, including the sharks and skates, have only enamelled granules in the skin; these are cartilaginous fishes, and have as many gill openings as gills. This system is now abandoned by its author as too exclusive, being founded on a single element of classification; yet he still retains the principle, as indicating certain natural relationships, and hopes, by combining it with the fin system of Cuvier and the anatomical system of J. Müller, and by further researches, to arrive at a truly natural classification of fishes.

CTESIAS, a Greek physician and historian, contemporary of Xenophon, born at Cnidus, in Caria, is supposed to have repaired to the Persian court about the year 416 B. C. He accompanied Artaxerxes II. on his expedition against his brother Cyrus, dressed his wounds after the battle of Cunaxa, and returned to Cnidus in the year 399 B. C. During his residence at the Persian court he formed the design of writing a history of Persia. As physician to the great king, he was allowed access to the state archives, from which he had the opportunity of collecting materials. His work, entitled Περσικα, in 23 books, brought down the history of Persia to the author's own time. It was often quoted by ancient writers. There are many important discrepancies between Ctesias and Herodotus; and recent researches in oriental history show that on most of these points the former is entirely untrustworthy. Only a few fragments of this work are now extant. Of a second work, entitled Ινδικα, we have also a few fragments.

CTESIBIUS, a native of Alexandria, celebrated for his mechanical inventions, probably flourished in the latter half of the 3d century B. C., or the early part of the 2d. He is said to have been the first to apply the elastic force of air as a moving power. He invented numerous machines, among which may be mentioned his clepsydra or water clock, and his hydraulic organ.

CTESIPHON, an Athenian orator of the 4th century B. C., son of Leosthenes. After the disastrous battle of Chæronea he moved that Demosthenes, in consideration of his great services in the cause of the state, and the great sacrifices which had been made in behalf of his country, be honored with a golden crown; whereupon he was prosecuted by Æschines, but was triumphantly defended by Demosthenes himself, who, though not the nominal, was yet the real defendant.

CUBA, the largest of the West India islands, lying at the outlet of the gulf of Mexico, and thence extending E. S. E. into the Caribbean sea. Its W. extremity bends toward the S. W., and approaches within 130 m. of Yucatan. The S. point of Florida is the same distance due N. from its extreme N. portion, which is in lat. 23° 10′ N. Its S. W. portion reaches the lat. of 19° 50′, and is distant from Hayti 48 m., the windward channel flowing between the two islands. Punta de Maysi, the E. point of the island, is in long. 74° 7′ W. from Greenwich, and Cape San Antonio, the W. extremity, is in 84° 57′ 12″. The greatest length of the island, measured through the centre, is given by different authorities from 750 to 793 English miles; the greatest width, 50 m. W. of Santiago, is about 127 m.; from Havana to the S. coast at Batabano, it is only about 28 m. across the island. The area of the island has been variously estimated. In 1825 it was computed by Señor Bauza, at the request of Humboldt, and found to be 3,681 square maritime leagues of 20 to the degree. This included the isle of Pines, on the S. coast, the area of which is 98 leagues. The latest estimates of the area, converted into English statute miles, are from 42,383 to 45,277. The isle of Pines contains beside 810 sq. m., and

other small islands 970, making that of the whole territory belonging to Cuba from 44,163 to 47,057 sq. m. The length of shore line on the S. side is 301 leagues, and on the N. 272 leagues; that of the whole island may be called about 2,000 English miles.—The principal feature in the topography of Cuba is a range of mountains more or less broken, which extends through the central portion of the island from one end to the other. From this backbone the streams flow in short courses to the sea on either side. At the E. extremity the mountains spread over a wider territory than elsewhere, and some of them attain a height of 8,000 feet. From Punta de Maysi to Cape Cruz the range called Sierra del Cobre, or Copper mountains, skirts the S. coast for about 200 miles; and back of it, parallel with the line of this coast, runs the river Cauto toward the W., which empties into the bay of Buena Esperanza on the S. side of the island. This, the longest of the rivers, is navigable for schooners about 60 m. above its mouth. At the W. end the mountains also approach the coast, especially on the N. side. In several other places groups of high hills form the margin of the island; but for the most part low tracts intervene between the central elevations and the shore on either side; and in the wet season these are inundated, and rendered almost impassable by the depth of water and the tenacity of the deep black mud. From Jagua to Point Sabina, on the S. side, the country is a continuous swamp for 46 leagues, and the same may be said of many other less extensive tracts on the N. side. The soil of these districts is a rich alluvial mould, in part derived from the decay of vegetable matter, and in part from the disintegration of the calcareous strata that make up the greater portion of the rock formations which appear along the coast, where this is low, and which compose a large portion of the hills near the sea, or between it and the central axis of the island. These limestone formations are singularly cavernous, and many of the streams, some even of the larger rivers, are swallowed up in their recesses; in the dry season the greater number of them seem thus to disappear wholly or in part. To the facility with which rocks of this character are acted upon by water is owing the extreme irregularity of the coast line, its frequently recurring deep indentations, in fact its numerous harbors, and its capes and islands, which are indeed mostly coral reefs, or limestone ledges of similar nature. The formation of these is seen to be still in progress upon the coast, and the ledges are observed to be filled with remains of shellfish of species now living in the waters. The limestone rocks of the hills are of older date; many are referred by Humboldt to the jurassic period. Others may be seen associated with the mica slates, granitic rocks, and serpentines that make up the central hills of the island, which are of metamorphic character, true marbles; such have been found in the vicinity of Puerto Principe, and probably such are the marbles reported to occur in the isle of Pines. Petroleum springs are sometimes met with flowing out of the limestones; but these are of more frequent occurrence in the serpentines. The metamorphic rocks form a large portion of the island, traversing it from one extremity to the other, and everywhere they are accompanied by ores of copper in small or large quantity. The chief development of these is in the mountains near Santiago de Cuba, where they were known and worked in the 17th century. The mines were however abandoned, and remained neglected for more than 100 years, when they were reopened by Englishmen in 1830. They are situated at Cobre, 9 miles from Santiago de Cuba. The ores, principally pyritous, are in quartz veins in the metamorphic rocks. In 1850 the shipments to Swansea amounted to about 25,000 tons, averaging about 16 per cent. of metal. Up to Jan. 1854, the principal company, called the consolidated copper mines of Cobre association, had divided, since their organization in 1834, £61 12*s.* per share on £40 paid in, and the shares were at a small premium. The royal Santiago mining company, formed in 1837, had paid up to 1848, in dividends, £33 4*s.* per share on £13 paid in; but their mines have since been unprofitable, and in 1853 the shares were assessed. Other copper mines less productive have been worked in other parts of the island, as near Trinidad, between Nuevitas and Puerto Principe, and various other places. Near Villa Clara the copper ores have proved to be argentiferous, $7\frac{1}{2}$ oz. being obtained from the quintal ($107\frac{3}{4}$ lbs.) of ore. Lead, antimony, and chrome have been found near Holguin, but they are not worked. Magnetic oxide of iron is an abundant ore, and is found of excellent qualities, but is nowhere worked. Gold was exported in no very great amount by the early settlers, and has been met with in recent times in the deposits of the rivers Holguin, Escawbray, and others, but not in quantity to encourage further explorations. Coal is not a product of the island; but a highly inflammable substance called *chapapote*, and sometimes bituminous coal (see Bitumen), is met with in masses of extraordinary extent, occupying fissures in the serpentines, and the kindred diorites and euphotides. The varieties from different localities, most of which are near Havana, yield different proportions of volatile matters. Mr. T. G. Clemson found in one sample 63 per cent. and the fixed carbon 35 per cent. Mr. John H. Blake found 50 per cent. volatile, and the ultimate analysis yielded carbon 71.84, oxygen 6.22, hydrogen 8.40, ash 13.5. The abundance of this product, and the facility of obtaining it, have led to its extraction and its employment to some extent, as a fuel for steam and manufacturing purposes. Its composition and cheapness recommend it for the production of gas and lampblack. Several chalybeate and tepid springs near Havana, and those particularly of San Diego, 40 leagues to the S. W., have acquired some celebrity for their supposed me-

dicinal effects. From the analysis given these must be ascribed to sulphuretted hydrogen, and sometimes to iron. Common salt may be classed among the mineral products. It is obtained from the lagoons, along the N. coast principally, which are filled by the high course tides, and retain the salt as the waters evaporate in the dry season. About 100,000 lbs. are thus obtained annually at Point Hicacos and Choco.—The productions of the forests of Cuba are noted alike for their valuable qualities and the beauty they impart to the scenery. Some of the hardwood trees are unsurpassed for durability, and with this property combine excessive hardness and toughness. Few of these varieties are exported or known except in the West India islands; but their importance was long ago appreciated in Cuba, and in the early part of the 18th century led to the establishment of shipbuilding by the Spanish government. From 1724 to 1796 Havana was the great nursery of the Spanish armada, 114 vessels of 4,902 guns being constructed there in that time. The business was abandoned in consequence of its taking employment from the mother country. Among these valuable woods may be named the well-known lignum vitæ; the cocoa wood or cocus, which somewhat resembles the lignum vitæ, and is used for similar purposes, as also for pins and tree nails and for turnery, making excellent flutes; the lance wood, largely exported for carriage shafts, surveyors' instruments, and other uses. Mahogany is so abundant, and the quality of the wood is so superior, that it has been, since its first use in London in 1724, an important item in the exports of the island. Belonging to the same natural order is the *cedrela odorata* of Linnæus, a tree which furnishes the wood known in Europe as the Havana cedar, and there much used, as also in the United States, for the inside of drawers and wardrobes. It is the material of the cigar boxes. Humboldt, citing the several species of palm, of which he enumerates five, remarks that "we might believe that the entire island was originally a forest of palms and wild lime and orange trees. These last, which have a small fruit, are probably anterior to the arrival of the Europeans, who carried there the *agrumi* of the gardens, which rarely exceed 10 or 15 feet in height." Though the forests are extensive and almost impenetrable, they are inhabited by no wild animals larger than the wild dogs. These prowl around the settlements at night, with habits like wolves, which they much resemble in appearance also, and devour calves, pigs, and poultry. The jutia is an animal of the size of a muskrat, which resembles in its habits the porcupine and the raccoon of the northern states, living in the trees and feeding on the leaves and fruits. More than 200 species of birds are known upon the island, and many of them are remarkable for the beauty of their plumage. Fish also are of great variety, and, exposed in the markets, attract the attention of strangers by their singularly bright colors. The waters also abound in crustacea and mollusca, and the huge reptiles, the alligator and sea turtles. Crabs of whitish and disgusting appearance frequent the land near the coast, living in holes. They often enter the houses at night. Every spring they migrate from the N. to the S. side of the island. Insects are numerous and of many troublesome kinds; the most to be feared are the tarantula and scorpion; the most beautiful are the large fireflies or *cocuyos*, which emit a steady mild light, so bright that a few of them confined together under glass and fed with sugar cane serve as a lantern, or enclosed in gauze bags are worn by ladies as sparkling ornaments for their dresses.—Cuba, lying just within the torrid zone, enjoys throughout the year a warm climate; but this is tempered in the summer months by the cool N. E. trade winds, which blow indeed almost every day in the year from early in the forenoon to sunset, and also by the rains which prevail from May to November. The clouds which bring these protect the earth from the fierce rays of the sun, and the atmosphere is cooled by the copious evaporation of the waters. In the elevated districts the heat is rarely oppressive, and in the summer for weeks together the thermometer seldom varies 4° or 5° from 83°. The difference between the mean temperature of the hottest month and that of the coldest is 21.6° in Havana and 14.4° in the interior. Only once in 13 years at Vera Cruz was the thermometer observed so high as 89.6°, and its range for 3 years at Havana was between 61° and 86°. In the winter it has been known to fall in the interior to 50°, and ice has been formed at night after the north winds have prevailed for several weeks; but this must be in consequence of local radiation of heat, as the atmosphere is never cooled to the freezing point. Fires are not required for their warmth, and young children are accustomed to go unclothed throughout the year. Strangers from the north are more sensitive to the changes of the climate than the natives; and during the prevalence of the "northers," or the wind storms from the north, often experience positive discomfort from the cold. In the summer bilious fevers of the yellow fever type are prevalent, but more particularly virulent along the coast than in the interior. From December to May the climate is dry and salubrious, and the roads, which during the hot season were deep with mud, become baked and open in wide cracks by the contraction of their material. There is no record of snow having ever fallen in Cuba except on Dec. 24–25, 1856, when the coldest term ever known on the island was experienced. The thermometer then descended at Havana to 43° F. (lowest previously 50° in Dec. 1826); snow fell near Villa Clara, in the most central part of Cuba, and in the same vicinity ice formed to the thickness of a dollar on the lagoons of a sugar estate. Hail is frequently seen, particularly in the eastern department, between February and July. The only occasion known of its falling at Havana was in

March, 1852. Great thunderstorms occur from June to September, and in the same period silent lightnings are common. Earthquakes seldom occur in the western districts, but are frequent in the eastern, especially in that of Santiago de Cuba. In 1853 that city experienced two violent earthquakes, producing much injury and causing its decline. The salubrity of the climate is variously estimated. Some writers consider it unfavorable to prolonged life. The most remarkable instances of longevity have been found among the negro and aboriginal races.—It is considered by Cuban statisticians that all the reports on the population of the island have been quite incomplete. Some of these estimate that the total population at the present time is about 1,500,000. The portion not reported is believed to consist chiefly of slaves. The following is a synopsis of some of the reported enumerations:

Years.	Whites.	Free Col. and Bl.	Slaves.	Total.
1775	96,440	30,847	44,333	171,620
1827	311,051	106,484	286,942	704,477
1841	418,291	152,838	436,495	1,007,624
1846	425,767	149,226	323,759	898,752
1849	457,133	164,410	323,897	945,440
1853	501,988	176,647	330,425	1,050,000
1857	549,674	174,810	374,549	1,107,491

CENSUS OF 1853.

Classes.	West'n Dep't.	East'n Dep't.	Total.
White persons	397,451	104,537	501,988
Free colored and black	98,442	78,205	176,647
Slaves	268,717	61,708	330,425
Permanent population	764,610	244,450	1,009,060
Floating population, white	....	....	40,940
Total	....	....	1,050,000

The following estimate was made of the classes composing the white population, which, as given above with the floating population, supposed to consist wholly of whites, amounted to 542,988, viz.: 90,000 from Spain, 25,000 from the Canary islands, 3,000 French, 1,000 English, and 3,000 Americans and others, leaving about 421,000 as the number of native whites.

CENSUS OF 1857.

Classes.	West'n Dep't.	East'n Dep't.	Total.
White persons	423,908	125,766	549,674
Free colored and black	94,857	79,953	174,810
Slaves	306,036	66,423	374,549
Aggregate	824,801	272,142	1,096,943
To which is to be added the number of emancipados	.....	....	5,240
Asiatic colonists (or coolies)	....	....	5,308
Total population	....	....	1,107,491

Nearly the whole of the native whites are descendants of the peninsular Spanish races. In the period following the conquest (A. D. 1511), none but Castilians were allowed to come to America; but at present the industrious Catalans or Catalonians, and the hard-working Isleños (islanders of the Canaries), are found to preponderate throughout the island. Until 1801 Spain maintained a commercial monopoly of the island, which system, combined with other features of its government, restricted the settlement of Cuba almost exclusively to Spaniards. The Spanish whites are divided primarily into old Spaniards, or peninsulars, and creoles; and these classes are widely separated by a reciprocal aversion, amounting to hostility, and even hatred. The former hold all the offices, and look down upon the creoles with contempt. They transact most of the commerce, and monopolize the most profitable traffic. The Catalans, industrious, shrewd, hard-headed, and very loyal, faithful to their motto, "Five years of privation and a fortune," are to be found in every town and hamlet, and in every stage of social development. The opulent creole planters and merchants are distinguished for intelligence, enterprise, courteous manners, and genial hospitality.—The African race was introduced in 1524 to serve as slaves. Its natural increase has not corresponded to the analogy of the climate with that of its own country. This result has been owing mainly to the perpetuation of the slave trade, which has kept up a great excess of the male sex, and encouraged the exaction of the greatest possible amount of labor from all the slaves. On the large estates there is some semblance of family life among the negroes, but the children are not often numerous. Even on the best of the sugar estates the slaves (both sexes) work 16 and sometimes 19 hours a day, from November to May, during which season labor is carried on unceasingly, the slaves working by watches in gangs. Upon many of the small tobacco plantations, also, their toil is similarly severe. The slave trade is actively prosecuted in direct violation of the most positive treaty obligations, and the annual importations are estimated at 10,000 to 20,000. The profits of the trade are enormous, and traders can well afford to give large bribes to the officials. When a slaver is captured, her case is adjudicated by the so-called "mixed commission." If a lawful prize, she is retained as such by her captors; and her slaves, styled *emancipados*, are apprenticed, under the charge of the Spanish authorities, for a term of years (8 or 10 to 15), at the end of which they are entitled to freedom. Only a small proportion, however, become free, because the masters to whom they are hired sell them, and at the end of the period report that they are dead. The importation of coolies, or Chinese laborers, was commenced in 1847. Nominally they are "free colonists," but in reality slaves. Professedly they are employed by contract for a term of years, usually 8, "without prohibition of extension for any longer period to fit the life of the subject or the interests of the master." By the close of 1853 about 6,000 had been introduced. From 1853 to April 10, 1855, about 4,000 were landed, and 960 were lost during voyages by disease, suicide, &c. From April 10, 1855, to May 13, 1858, 23,146 were delivered, and 3,844 died on the passage. This makes an aggregate delivery from 1847 to 1858 of about 33,000, with an average mortality on shipboard of over 17 per cent. The introduction of In-

dians from Yucatan, on the "contract plan," was begun about 1853, and met with some opposition from the Mexican and Central American governments. The whole number delivered to May, 1858, was 1,385. The mulattoes form $\frac{3}{5}$ of all the free colored; but of the slaves their proportion is about $\frac{1}{10}$. They generally employ themselves as tailors, carpenters, musicians, coach builders, and painters; and they are usually excellent workmen. There yet exists a poor remnant of the aboriginal race; but the majority of this class are crossed with mulattoes.—Productive industry in Cuba is mainly devoted to agriculture, with direct reference to the exportation of the staples. The manufactures, properly so called, are of little importance; and as a class, the people are disinclined to mechanical pursuits. The mining interests, chiefly in copper, do not contribute so much to the wealth of the island as would at first seem from their extent, since these are worked mainly on foreign account. The fertility of the soil is proverbial, and its actual production has long been highly remunerative; and yet it appears, according to the returns of 1853, that not more that $\frac{1}{19}$ part was then under cultivation. The following table exhibits the distribution of the surface, stated in *caballerias* (the *cabelleria* is equal to about 33 acres):

Description.	West'n dept.	East'n dept.	Total.
Barren lands, mines, &c.....	142,138	179,269	321,407
Mountains, forests, &c.....	174,418	202,584	377,002
Natural pasturage	102,022	47,226	149,248
Artificial "	15,183	5,158	20,341
Under cultivation.....	34,098	14,474	48,572
Total.....	467,859	448,711	916,570

The chief products are the sugar cane, tobacco, coffee, cotton, fruits, and garden vegetables. Rice, sago, maize, and even cacao, are cultivated on a small scale, not enough to supply the consumption of the interior. The lands of Cuba are recognized as superior to those of the other Antilles for the production of the sugar cane; but there is great irregularity in the extent of the cultivation and yield of this staple, depending on soil, weather, condition of plant, &c. Sugar estates, called *ingenios*, are the largest agricultural establishments on the island. Many of them produce 8,000 to 9,000 boxes of sugar (each 400 lbs.), and a few of them are much larger. Their formation requires great outlay, and their management is very expensive; but their production is correspondingly great, and the foreign demand for this crop is steady, so that their owners become immensely wealthy. From 1853 to 1858 the yearly exports of Cuban sugars were from 700,000,000 to 750,000,000 lbs. Most of the tobacco is produced in a very few districts, which are particularly favorable to its culture. The best lands for this plant are comprised in an irregular oblong tract, near the W. extremity of the island, on the S. coast. It is about 73 miles long by 18 wide, extending from the Rio Hondo west to the Cuyaguateje or Mantua river. Outside of this, toward the meridian of Havana, the tobacco is less fragrant, but of fine color, and the latter quality gives it the preference with foreigners. Coffee was for a period (from about 1820 to 1832) the second staple in importance, but afterward its production was greatly decreased, owing to the duties charged on its importation into the United States, and to the competition of Brazil, Java, &c. Cuban coffee, however, is of superior quality. Maize, rice, sago, pulse, yuca, the sweet potato, plantains, and fruit are grown on nearly all estates, and especially on the small farms at some distance from the towns. Maize produces two crops a year, but is quite variable in its yield.—The foreign commerce of Cuba, in proportion to its population, probably exceeds that of any other country on the globe. Since 1850 the valuation of the yearly exports has ranged from $27,000,000 to $32,000,000, and that of the imports has averaged about the same; but it appears that in these valuations the custom or rule is to understate the exports, and overstate the imports. Yet the commerce is much restricted by the policy of the government. The duties discriminate greatly in favor of the Spanish flag in all respects, though chiefly in favor of all imports by Spanish and Cuban vessels, and of imports of products of Spain. The tonnage duties similarly favor national vessels. Under this system, the greater part of the imports since 1829 have been brought under the Spanish flag. Of late years the proportion has averaged two-thirds. The effect of the system may be readily seen in the importation of flour and provisions. Under fair regulations these would mainly be brought from the United States. But the duties on flour are as follows: from Spain in Spanish and Cuban vessels, $2 50 per barrel; from other countries in same vessels, $8 50, and in foreign vessels, $9 50. In 1854 the imports of flour from Spain were valued at $2,677,791; from the United States, $29,830. Under such burdens prices are maintained at high rates, materially diminishing consumption. Duties are collected on exports as well as imports, and the yearly totals of each are about as 1 to 4. Only between $\frac{1}{3}$ and $\frac{1}{4}$ of the exports are carried in Spanish vessels. Over $\frac{1}{3}$ is taken by the United States, and about $\frac{1}{4}$ by England. Despite all restrictions, $\frac{1}{3}$ of the whole commerce is with the United States. According to U. S. treasury reports, the balance of trade against the latter amounted, from 1851 to 1856 inclusive, to about $10,000,000 yearly, and in 1857 was over $30,000,000.—The railroads, amounting in all in 1857 to 397 miles, have done much in maintaining and increasing domestic and foreign trade. The first was opened in 1837 from Havana to Bejucal, 15 m., in the next year to Güines, 45 m., and by subsequent extensions now forms the principal trunk line in the island. The common roads throughout Cuba are very bad, and in the rainy season frequently impassable. Several improved roads, having toll gates, lead

out from Havana. The electric telegraph was introduced in 1852, and its lines now extend between the principal cities and towns. The coast shipping has remarkably increased since 1840. Steamboats ply regularly from the various ports of the island to each other and to foreign ports. The circulating medium is chiefly metallic, and was exclusively so until Jan. 1857, when the first issue of paper currency was made by the Spanish bank, which was formally organized in Feb. 1856, having a capital of $3,000,000.—Education has made great progress since 1842. In Havana there are several institutions of a collegiate rank, with a number of seminaries, and in other cities there are advanced schools. The number of newspapers and periodicals published in Cuba in 1857 was: at Havana 21, Matanzas 3, Cardenas 1, Cienfuegos 2, Villa Clara 2, Remedios 1, Santo Espiritu 2, Trinidad 1, Puerto Principe 1, Santiago de Cuba 5, Bayamo 1; total 40.—In its government, Cuba is subject in all branches of the administration to one authority, the representative of the Spanish crown, who is appointed by and accountable only to the home government. He is president of the royal court of judicature (*real audiencia*), superior civil governor, captain-general, superior commandant of marine, superintendent of the treasury, viceregal patron and viceregal protector of public instruction. Of the 6 principal branches of administration, the political and military are particularly under his charge, and the judicial, financial, naval, and ecclesiastical branches are mainly directed by their respective chiefs of high rank. Each division has its determinate territorial subdivisions. The ecclesiastical administration is divided between 2 dioceses, the archbishopric of Santiago de Cuba and the bishopric of Havana, which are respectively superior one to the other in cases of appeal. The Roman Catholic is the only form of worship tolerated. The revenues are divided into maritime and inland, the first comprising customs and lighthouse dues, ship visits, &c., and the second various. The following is a synopsis of the receipts of the treasury for 2 years:

Sources.	1856.	1857.	Increase.
Customs.....	$9,739,524 12	$10 495,858 37	$757,334 25
Taxes.....	4,022,056 71	5,186,289 72	1,164,233 01
Lottery.....	1,329,107 37	1,681,410 12	352,302 75
Total.....	$15.090,688 20	$17,363,558 21	$2.273,870 01

The principal items composing the receipts from customs in 1857 were: duties on imports, $7,074,207; duties on exports, $1,777,868; tonnage dues, $931,869; registry fees (of cargoes, visits, &c.), $159,131. One-half of the revenue is absorbed in supporting the military department of the government. The regular armed force consists on an average of 20,000 men, and is kept in a high state of discipline, and in complete equipment. Nearly the whole of the troops are composed of soldiers from Spain, whose period of service in Cuba is generally limited to 3 years. The organized Cuban militia numbers between 3,000 and 4,000. The squadron on service usually consists of 26 vessels, with 200 guns, and over 3,000 men.—Cuba was the first land of importance discovered by Columbus in his first voyage. After touching at the islands which he called San Salvador, St. Mary of the Conception, Fernandina, and Isabella, his ships entered the mouth of a large river into a country called by the natives Cuba, and which he named Juana, in honor of Prince John, the son of his royal patrons. After the death of Ferdinand it was called Fernandina, and still later Santiago, in honor of the patron saint of Spain, and again Ave Maria, in honor of the Virgin. The large river which Columbus entered is supposed to be the outlet of the harbor of Nuevitas, on the N. shore; at ebb tide a swift current flows out like that of a river; and the breadth of the island at this point is reconcilable with the statement of some of his people having penetrated 60 miles into the interior, and yet bringing back no account of discovering the sea on the other side. From this point he explored the coast to the E. extremity of the island, seeking for gold, and then passed around to Hayti. The discovery of Cuba was on Oct. 28, 1492, and his arrival at Hayti was on Dec. 6. The first settlement of Europeans in Cuba was made by an expedition of 300 men under Diego Velasquez, fitted out by Diego, the son of Columbus, in 1511. They founded Baracoa near the E. end of the island, and in 1514 Santiago, which was made the capital, and Trinidad on the S. coast. A place on the S. coast in the partido of Güines was settled in 1515, and called San Cristoval de la Havana. The name was transferred to the present capital in 1519. The Spaniards found the aborigines of the island an effeminate and inoffensive people, entirely unable to resist the invaders of their country, or endure the severities imposed upon them. Velasquez encouraged settlers by grants of lands and of Indian slaves, and engaged them in agricultural pursuits, and especially in the cultivation of the sugar crop, for which the soil and climate seemed to be admirably adapted, and which was also introduced into Hayti. As early as 1534 the officials, as cited by Sagra in the appendix to his *Historia fisica, politica, y natural*, applied to the emperor for "7,000 negroes, that they might become inured to labor before the Indians ceased to exist." Gomara, the historian, states that there was not one Indian left after 1553. They were destroyed by cruel treatment and unaccustomed labor, were swept off by small pox, committed suicide in great numbers, and many fled in their boats to Florida. With the extinction of the Indians the agriculture of the island declined, and it became mainly a pastoral country. The extensive plains bordering the coast afforded a fine range for cattle, and their hides furnished the chief product for exportation, even to the 18th century. Bees were introduced from Florida, and wax and tobacco also became

at last of more importance than hides; and these are still important products, though now surpassed by sugar and coffee. The port of Havana soon came to be regarded as the principal stronghold of the island. The settlement there was twice destroyed by the French in the 16th century—once in 1538, and again in 1554, after it had been reëstablished and fortified by Fernando de Soto. New forts were added in the same century, and these form a part of the defences now known as the Moro castle and the Punta. The wall around the city was commenced in 1665. In 1762 Havana fell into the hands of the English, who retained it about a year, when they gave it up in exchange for Florida. Up to this time the population of Cuba had increased but slowly, and the productions were very limited. According to an official document, published at Havana in 1811, and based on the records of the custom house, the total import of slaves prior to 1763 had amounted to but 60,000. In 1765 the island contained about half that number of negro slaves, with as many free colored persons, mostly mulattoes. Its trade, hitherto limited to Cadiz, was, except the import of slaves, now made free to all Spaniards from the 9 principal ports of Spain. But at this time it was so small as scarcely to employ 6 vessels. From 1763 to 1789 the import of slaves was about 1,000 a year, which hardly kept up the number. In 1789 the Spanish slave code was promulgated, and the slave trade, hitherto a monopoly, made free. Under the administration of Las Casas as captain-general, which commenced in 1790, Cuba made rapid progress in commercial prosperity, and in its public improvements. In the 31 years from 1789 to 1820, the import of slaves amounted to 225,000, an average of 7,500, and from 1810 to 1820 it was 11,500 a year. The decline of Hayti opened a market for Cuban sugars, the production of which rapidly increased. In 1809 and 1811 the island was partially opened to foreign vessels. With the reëstablishment of peace in Europe the demands for Cuban products revived, and notwithstanding the treaty of 1820, by which Spain agreed with England to put a stop to the slave trade, the importation of slaves was continued on a larger scale than ever. In the 25 years from 1817 to 1842, it was estimated by the English commissioners to have reached the number of 335,000, or upward of 13,000 a year. This continued violation of treaty obligations led Great Britain to propose in 1841, as the only means of putting a stop to it, the establishment of a mixed tribunal in the island, with power to give liberty to all negroes who had been imported contrary to law. This proposition excited the greatest alarm among the Cuban proprietors, and the Spanish government, in consequence, began to take steps to stop the traffic. In 1845, for the first time, a law was enacted making the introduction of slaves a criminal offence. From these and other causes, during the 10 years from 1842 to 1852, the importation was considerably reduced, amounting in the whole to about 55,000. In the years 1845 to 1847, by the energy of Governor-general Concha, it was brought almost to an end. But the increased consumption of sugar in Great Britain, in consequence of the reduction of duty, and the placing of foreign and British sugars on the same level, gave a new stimulus to the traffic. The efforts of the Spanish officials for its suppression were relaxed, and it still continues to be prosecuted, as already stated, mainly, as the British allege, in vessels purchased and fitted out in the United States, and which retain the American flag till they are ready to leave the African coast. With the renewal of the slave trade the British renewed their remonstrances, and their former proposition for liberating the illegally imported negroes. This subject was much pressed from 1850 to 1853, but seems since then to have been abandoned. Some remarkable changes were made in 1854 by the Spanish administration of the island, in relation to the free blacks, who form so considerable a part of the population. The ecclesiastical rule which forbids the celebration of marriages between blacks and whites was abrogated, and a militia composed of free blacks and mulattoes, to the exclusion of the whites, was directed to be organized throughout the island, and was put on an equal footing in regard to privileges with the regular army. At the same time the white inhabitants were disarmed. Both these measures, which are still maintained, were adopted, in part at least, as a means of strengthening the government against the discontent of the white planters, and the danger of fillibuster expeditions from the United States, of which at this time serious apprehensions existed. From the moment the United States acquired Florida, the government at Washington began to take a deep interest in the future of Cuba. Fears were entertained lest the island might fall into the hands of the English or French, and both Spain and those nations were informed that the United States would never consent to that arrangement. They were willing that Cuba should remain a colony of Spain, but would never allow it to pass into other hands. Spain was repeatedly urged by the American government to make peace with the Spanish American republics, lest they should invade Cuba, and bring about not merely a political revolution, but a change in its social system. The claim of the English to make the slave trade suppression treaty an occasion for interfering in the domestic concerns of the island became a new occasion of jealousy. But a proposition made in 1825 on the part of Spain, that in consideration of certain commercial concessions the United States should guarantee to her the possession of Cuba, was declined by Mr. Clay, then secretary of state, on the ground that entanglements of this sort were contrary to the established policy of the United States. In 1848 President Polk authorized the American minister at Madrid to offer to purchase Cuba, and to pay $100,000,000 for it; but this proposition was rejected by Spain in the most peremptory

manner. It was not till after this that the attention of the American people, as distinct from the government, was first attracted to this question of the annexation of Cuba. The occasion was the resort to the United States in 1849 of Lopez, and other Cubans, who, in consequence of some attempted revolutionary movements, had been obliged to fly the island. They represented the creole population as greatly dissatisfied with the Spanish rule, and ready for revolt, and annexation to the United States. Recruits were collected for a descent upon the island. The first attempt was defeated by the vigilance of the government of the United States; but in Aug. 1851, Lopez sailed from New Orleans in a steamer with 500 men on board, of whom a considerable part were Americans. They effected a landing, but made no impression, and were soon taken prisoners. Lopez was garroted at Havana, Aug. 16; some of his comrades were shot, but the majority were transported and afterward pardoned. The sympathy which these movements, and other subsequent projects of the same sort, had found in the United States, and the refusal of President Fillmore in 1852 to join with France and Great Britain in a treaty guaranteeing to Spain the possession of Cuba, made the Spanish government still more alert in guarding against revolution, and especially against the entrance into the island of revolutionists from the United States. This led to occasional collisions with American citizens; and the firing on the American steamer Black Warrior by a Spanish vessel of war, during the administration of President Pierce, seemed at one moment to threaten hostilities. The disposition on the part of the creole planters to throw off the Spanish rule, or at least any overt exhibition of it, subsided after the failure of Lopez, but the idea of the acquisition of Cuba is still entertained in the United States. In Aug. 1854, Messrs. Buchanan, Mason, and Soulé, U. S. ministers at London, Paris, and Madrid, held a conference on the subject of Cuba, at Ostend and Aix la Chapelle, and drew up a statement of their conclusions, popularly known as the Ostend manifesto. In this document they argued that the island ought to belong to the United States, and that Spain would find its sale to be highly advantageous; and finally, that in certain contingencies, such as the emancipation of the slaves by the Spanish government, the United States ought to possess themselves of the island by force. A proposition was strongly urged in the senate of the United States in the session of 1858–'9 to place $30,000,000 in the hands of the president with a view to the acquisition of the island; but after debate, it was withdrawn by its author, Mr. Slidell of Louisiana.

CUBE (Gr. κυβος, a die), in geometry, a solid body terminated by 6 square equal faces, occupying among bodies a place analogous to that of the square among surfaces. The problem of the duplication of the cube, or of constructing a cube of twice the volume of a given cube, is celebrated in the history of science. It occupied geometers in the time of Plato; and it was a Greek tradition that once during a pestilence the priestess at Delos had responded that in order to appease the gods her altar must be doubled. The altar was cubical, and a new one was therefore built whose sides were of twice the dimensions of the old one. The priestess responded that her command had been wrongly interpreted, and from that time the geometrical duplication of cubic figures was a constant problem, like the quadrature of the circle. The cubature of solids, or the reduction of any body to a cubic form of equal volume, is performed by first reducing the given volume to one of the geometrical figures the law of whose curvature is known, as the parallelopipedon, cylinder, cone, or sphere.—In arithmetic and algebra, a cube is a number formed by raising another number to its third power; thus, 27 is the cube of 3, being equal to $3\times3\times3$. The number which is thus multiplied to make a cube is called the cube root.

CUBEBS, berries of the *cubeba officinalis*, a climbing perennial plant of the natural order *piperaceæ*, which is found wild in Java and other parts of the East Indies. It is supposed they were first brought into Europe by the Arabians; and in former times it appears they served the purpose of black pepper, their aromatic, warming, and pungent properties rendering them an agreeable condiment. In India they have long been used as a medicine in disorders of the digestive organs, on account of their carminative properties, and in diseases of the urinary organs for their stimulating effect. It is imported in the dried berries, which are of the size of small peas, and of a dark brown color. The volatile oil they contain is thus better retained than if the berries were pulverized, as they require to be to prepare the medicine. Beside the volatile oil they also contain the peculiar principle cubebin, a white, inodorous, and tasteless substance, not volatilizable by heat, and almost insoluble in water. The oil, having the medicinal properties, is often used instead of the powdered cubebs. It is obtained sometimes to the amount of 7 per cent. by grinding the cubebs, and distilling with water.

CUBIÈRES, Amédée Louis Despans, a French general, born in Paris, March 4, 1786, died Aug. 6, 1853, took an active part in the wars of Napoleon, was commander of the French army at Ancona from 1832 to 1836, created a peer of France in 1839, appointed minister of war in 1839 and again in 1840. Afterward he was implicated in a charge of having bribed M. Teste, the minister of public works in 1842, for the purpose of obtaining a grant for the working of salt mines. Tried in 1847, he was found guilty, sentenced to civil degradation, and to pay a fine of 10,000 francs. In 1852, however, he was reinstated in his position.

CUBIT, an ancient measure, taken from the human arm as measured from the elbow to the end of the middle finger. Its length was in practice somewhat indefinite, and varied among

different nations. According to Dr. Arbuthnot, the Roman cubit was $17\frac{4}{10}$ inches, and the Scripture cubit less than 22 inches.

CUBITT, Thomas, an English architect and builder, born at Buxton, Norfolk, in 1788, died at Denbies, Surrey, Dec. 26, 1855, was the son of a laborer, went to the West Indies as a ship carpenter, and on his return set up in business for himself. In 1823 he took on building leases some suburban property of the duke of Bedford, and finally laid out and built that part of the west end of London known as Belgravia. He afterward laid out and built Kemp Town, Brighton, and the queen's residence of Osborne, in the isle of Wight. He took a hearty interest in all the plans for social and sanitary improvement, and set an example among his own workmen by promoting benefit societies and associations for mutual improvement.

CUBITT, Sir William, an English civil engineer, born in Norfolk in 1785, was brought up as a joiner, adopted the trade of a millwright, and invented self-regulating sails for windmills. About 1808 he entered a machinist's establishment at Ipswich, and was so successful there that he determined on settling in London, which he did in 1826. At the commencement of the railway movement he became engineer of the London and Dover line. He was knighted in 1851 for his services as one of the superintending committee of the great exhibition.

CUCKING STOOL, or Tumbrel, a machine formerly used in England for the punishment of scolding women and dishonest brewers and bakers. It consisted of a stool or chair attached to a long pole, mounted in such a manner that the chair with the criminal in it might be swung over a pond and submerged.

CUCKOO (*cuculus*, Linn.), a genus of birds of the order *scansores*, and family *cuculidæ*, inhabiting the temperate and warmer regions of the old world; the cuckoos of America belong to another subfamily of the same order. The true cuckoos, as exemplified in the genus *cuculus*, have the bill broad, rather depressed at the base, curved, gradually compressed to the acute tip; the nostrils are round and exposed; the wings are long and pointed, the 3d quill being the longest; the tail is long and graduated, or even, and the outer feather of each side is shorter than the others; the tarsi are very short and partially feathered; the toes, 2 before and 2 behind, are unequal, the outer anterior one being the longest, and united to the inner at the base. More than 40 species of this genus are well determined, of which the best known and most interesting is the common European cuckoo (*C. canorus*, Linn.). In this bird the corners of the mouth and eyelids, and the inside of the mouth, are of an orange color; the plumage of the head, neck, breast, and upper parts, is a deep bluish gray; the under parts and the axillary feathers are white with distinct black bars; the quills are blackish gray, the inner webs with transverse white bars; the tail is darker, approaching to black at the end, and often with a green gloss, tipped with white, and each feather marked along the shaft with triangular white spots, which, meeting similar spots on the outer feathers, give an almost barred appearance to the tail; the feet are gamboge yellow, and the bill black. The length of the bird is 14 inches, and the extent of wings 25 inches. The young birds are of a brown tint, with reddish-brown bars and white markings, the white of the under parts being barred with black. The female very closely resembles the male. The cuckoo is associated with the return of sunny skies and the renewal of vegetation, and is a most welcome "messenger of spring;" it arrives from southern Europe in Great Britain in April, and generally departs in August. It is very generally distributed over Europe, decreasing in numbers toward the north; according to Temminck, it extends its migrations to northern Africa. The most singular habit of the cuckoo is that it deposits its eggs in the nests of other birds, leaving the care of the young entirely to the foster parents thus selected; the latter adopt the young cuckoo as their own, often to the destruction of their proper offspring, which are thrust out of the nest by the usurping stranger. The reason of this departure from the usual habit of birds is not well ascertained; it is common in the genus *cuculus*, and is also practised by our cowpen bird (*molothrus pecoris*, Gmel.). The cuckoo selects the nest of a bird smaller than itself, and of a great variety of species, as the warblers, sparrows, finches, and larks, and in it deposits a single egg, very small compared to the size of the bird; it is believed by Montague and others that the female has the power of retaining the egg in the oviduct until she can find a nest suitable for its reception; she lays several in the course of the season. The young cuckoo is said to eject its companions from the nest by lifting them out on its shoulders; from this habit has arisen the German saying, "as ungrateful as a cuckoo." The well-known notes of this bird, as heard in the breeding season, resemble very much its name; the song is loud and joyful, and confined to the males, and is silent before their departure. Its food consists of the larvæ of insects and caterpillars; before swallowing the latter it is in the habit of cutting off the hinder end and freeing the body from the intestinal canal by repeated jerks with its sharp bill. The males are more numerous than the females, and are bold and fierce, and rarely kept as pets. In autumn they are fat and esteemed as an article of food; the ancients were very partial to them, and their flesh was supposed to have valuable medicinal properties. — The American cuckoos belong to the subfamily *coccyzinæ*, or ground cuckoos, and to the genus *coccyzus*. In this genus the bill is long and rather slender, and curved; the nostrils are oval; the 3d and 4th quills are the longest; the tail is long, broad, and rounded on the sides; the tarsi are shorter than the middle toe, and naked; the toes are

unequal, and the claws long, compressed, curved, and acute. There are 3 species described, belonging to North and Central America, though a few stragglers have occasionally been seen in Europe; they are shy birds, frequenting the dense woods and solitary swamps. I. The yellow-billed cuckoo (*C. Americanus*, Linn.) has a length of 12½ inches, and an extent of wings of 16 inches; the bill is 1 inch long, for the most part of a yellow color; the iris is hazel; the general color of the upper parts, with the wing coverts and two middle tail feathers, is light greenish brown, deeper anteriorly; tail feathers, excepting the two middle ones, black, with a broad white space at the end of the 3 outermost, the 4th white on the outer web; the primaries have their inner webs brownish orange; the under parts are grayish white. The female differs little from the male. Its notes resemble the word "cow, cow," repeated several times with increasing rapidity; hence one of its names, cow bird; it is also called rain crow and coucou. It is found in all parts of the United States, though nowhere in abundance. Its food consists of caterpillars, insects, wood snails, berries (especially the mulberry), and grapes; it sucks the eggs of other birds, and itself falls a victim to many species of hawks. Its flight is rapid, but the gait on the ground is very awkward; its favorite retreat is the thickest foliage. Unlike the European cuckoo, this bird builds its nest and rears its young in the usual manner; the flat nest is very simply composed of a few dry sticks and grass, on a horizontal branch of a low tree; the eggs are 4 or 5, of a bright green color. It migrates southward, generally beyond the limits of the United States, as cold weather approaches, in flocks and high in the air; single birds begin to enter our borders early in March, arriving as far as New York early in May. II. The black-billed cuckoo (*C. erythrophthalmus*, Wils.) is a little smaller than the preceding species, from which it is also distinguished by its dark-colored bill, a bare scarlet space around the eyes, and the browner tint of the under parts. The present species does not frequent the interior of deep woods, but prefers the edges of forests on the border of the sea and lakes. It feeds principally on shellfish and aquatic larvæ and insects; it is very fond of the small frogs so numerous after summer showers. Its flight is more rapid than that of the yellow-billed species; in other respects, as in its migrations, general habits, and manner of constructing its nest, it much resembles the last named bird, and has frequently been mistaken for it. The eggs are of a greenish blue color. III. The mangrove cuckoo (*C. minor*, Gmel.) is 12 inches long and 15 inches in extent of wings; the general color of the upper part is light greenish brown, the head tinged with gray; primaries umber-brown; tail feathers, excepting the two middle ones, brownish black with white tips; the under parts brownish orange; in other characters it much resembles the yellow-billed cuckoo. Its habits are the same as those of the other species of the genus; it feeds on insects, fruits, and the eggs of other birds; it is vigilant and shy, not extending its migrations northward beyond Florida; it prefers the mangrove-covered islands, building its nest amid their dark foliage. The flight is rapid and elevated during the migrations. The female is paler than the male, especially on the lower surface, which is grayish.

CUCUMBER (*cucumis*, Linn.), a vegetable fruit in a genus of cucurbitaceous plants, to which likewise belongs the melon, having annual fibrous roots, brittle climbing stems, rough, unequally divided leaves, and tendrils formed of the abortive stipules. The cucumber is thus a sort of gourd represented in its real type, better perhaps, by the colocynth gourd—a bitter, powerfully purgative species, known as *C.* (*citrullus*) *colocynthis* (Persoon). In position these plants are to be placed between the myrtles and passion flowers—to the latter, indeed, so closely allied that they scarcely differ except in some particulars of structure, the habit of both being the same. It has been conjectured that long continued cultivation has done much toward ameliorating the bitter and dangerous properties of this group of plants; and several allied kinds in their wild state, it is known, have proved deleterious. All the numerous cultivated varieties of the melon and cucumber are delicious or wholesome fruits. The writer has raised cucumbers from seeds received from the East Indies, which looked like the common cucumber, only smaller; they were so intensely bitter as to be worthless; and the stem end of the better sorts of the garden cucumber is frequently bitter and disagreeable. The drastic property is strong in many of the allied genera from Brazil, and in the spirting cucumber it exists in concentrated virulence. The common cucumber (*C. sativus*, Linn.) is too well known for any lengthened description. It is a native of tropical Asia. In cultivation, the cucumber requires a deep and rich soil, an abundance of moisture, and continued heat. If planted sufficiently late to escape the frosts, it will grow with scarcely any care; it is subject, however, to the depredations of numerous insect foes. The best way to prevent these is to cover the young plants with boxes having gauze tops, which should be kept over them until the foliage is large and abundant. The cucumber loves to support itself by its tendrils in an upright position upon pieces of brush wood, and the cleanest and best fruit is thus obtained. This will be found to be a good practice, too, where there is but little room for a horizontal growth upon the ground. As an early vegetable, scarcely any other plant can be so successfully forced in the hot-bed; but the best sorts should be selected for the purpose. Great skill oftentimes is requisite in the management, to keep the plants vigorous and healthy, and to sustain an unchecked growth. Beside affording in its fruits a palatable and cooling salad, the cucumber has been used in medicine, for pectoral complaints

and as a febrifuge. Its expressed juice is employed as a cosmetic; and it is said to give a pleasant suppleness to the skin. It enters into the composition of some of the French pomades; and the pulp boiled for a long time in lard makes a soothing and cooling ointment, of repute among domestic curatives.

CUCUTA, Valleys of, a district of New Granada, in the province of Pamplona, about 90 m. in circumference; pop. about 30,000. The surface consists of a succession of hills and valleys, the former sterile and the latter uncommonly luxuriant. At Cucuta, or Rosario de Cucuta, the capital of this district, was held the first general congress of Colombia.

CUDBEAR, the name given by the Scotch to a dyestuff prepared from different genera of lichens. It is obtained in the form of a powder of a lake or red color, and is the same substance which, prepared by the English in the form of a violet-colored paste or a purple liquid, is called archil; and also the same as the solid cakes manufactured by the Dutch and called litmus. It is used, like archil, for giving to woollens and silks a great variety of colors, but does not answer for cotton, having no affinity for its fibre.

CUDDALORE, a town of Hindostan, on the Coromandel coast, in the S. division of Arcot, 100 m. S. from Madras, on the estuary of the river Punnair. It was acquired by the East India company in 1681; was captured by the French in 1758, and retaken by Sir Eyre Coote in 1760. With the assistance of Hyder Ali the French took it again in 1782, and greatly strengthened its fortifications. The following year it was besieged by the British, but the declaration of peace put an end to the siege, and in 1801 they acquired the place by treaty.

CUDDAPAH, or Kirpa, a town of British India, capital of a district of the same name, in the presidency of Madras, 78 m. W. from Nellore. It is a military station, near one of the lines of the Madras railway, on the river Cuddapah or Bogawunka, and was once the capital of an independent Patan state. It is famous for its diamond mines, on the Punnair river, 7 m. N. E. from the town, which have been worked with various success for several hundred years.

CUDWORTH, Ralph, an English divine and philosopher, born at Aller, in Somersetshire, in 1617, died at Cambridge in 1688. At the age of 13 he was entered at Emmanuel college, Cambridge, in which he afterward became fellow and tutor. In 1639 he took the degree of master of arts, in 1644 that of bachelor of divinity, and in 1645 was appointed regius professor of Hebrew, in which office he continued during 30 years. In 1641 he was presented to the rectory of North Cadbury, and in the next year published a sermon on the true nature of the Lord's supper, which attracted the notice of several learned writers. After a short absence from Cambridge, caused by pecuniary embarrassments, he returned in 1654, when he was elected master of Christ's college. His subsequent preferments were a vicarage of Ashwell in 1662, and a prebend of Gloucester in 1678. In performing the duties of his professorship he devoted much attention to Hebrew literature and antiquities, and he was one of the persons consulted by a committee of parliament concerning a new translation of the Bible. In 1678 he published his great work, which had been written several years before, entitled the "True Intellectual System of the Universe," the epithet "intellectual" being intended to contrast it with any physical theory, as the Ptolemaic or Copernican. The design of the work was to establish human liberty against the fatalists, and according to the scope of the author it was to consist of 3 parts; the first being a refutation of atheism and atheistic fatalists; the second, of those who admitted a Deity, yet acting necessarily and without moral perfections; and the third, of those who granted the moral attributes of God, but affirmed that human actions are governed by necessary laws ordained by him. Only the first part of this scheme was completed, and the "Intellectual System" consists of a most erudite argument against atheistic fate. To account for the operation of physical laws without the continued agency of Deity he devised the theory of a plastic nature, which he treats as a real being, giving it "a drowsy unawakened cogitation," and which he makes the immediate and obedient instrument in the execution of divine purposes. He also reviewed the systems of ancient speculation in order to show that a belief in one sovereign and omnipotent God underlay the polytheistic views of the pagan nations. Dr. Cudworth left several large ethical and theological works, which still remain in manuscript in the British museum. His "Treatise concerning Eternal and Immutable Morality," was first published by Bishop Chandler in 1731. Its design is to prove that moral differences of right and wrong are antecedent to any divine law, and it was probably a partial accomplishment of the second division of his proposed "Intellectual System." Cudworth was one of the most eminent of several Cambridge divines who were termed Latitudinarians; and the clear and fearless statements which he made of the arguments of his opponents caused him to be accused by some of his contemporaries of heterodoxy, and of raising "so strong objections that he did not answer them." Bishop Burnet speaks of him as "a great man in all parts of learning, divine and human; an honor to Emmanuel college where he was educated, to Christ's college where he afterward presided, to the whole university of Cambridge which he adorned, and to the church and age in which he lived." The "Intellectual System" was republished in London in 1743, in 1820, and in 1845; the last edition is in 3 vols., and contains translations of the valuable notes of Dr. Mosheim. All of his printed works appeared at Andover, Mass., in 1837.

CUENCA, a S. province of New Castile in Spain, between lat. 39° 20′ and 40′ 47′ N., long. 1° 5′ and 3° W.; bounded N. by Guadalajara,

E. by Teruel and Valencia, S. by Albacete, W. by Ciudad Real, Toledo, and Madrid; area, about 12,000 sq. m.; pop. in 1857, 243,260. It is one of the most mountainous provinces of Spain. The products are timber, excellent honey, several minerals, oil, fruit, hemp, flax, and grain, and wine in the S. W. part. The principal exports are saffron and a superior quality of wool. Only one sixth part of the soil is cultivated, and most of the rest is used for pasturage. There are several medicinal springs in the province. The woollen industry, for which it was renowned in former times, has much declined. It is divided into 9 districts and 318 parishes.—The capital, CUENCA, pop. about 7,000, 85 m. from Madrid, is one of the most picturesque towns of Spain, about 3,400 feet above sea level, between the heights of San Cristobal and Socorro, at the confluence of the Huescar and Jucar. Once celebrated alike for arts, literature, and industry, it is now remarkable only for its Moorish aspect, for its cathedral, and for its scenery. The beautiful forests, called *los pinares de Cuenca*, adjoin the town, as well as many lakes and streams containing trout, while the mountains abound in curious plants and geological objects. Near the cathedral is the bishop's palace. Beside a number of churches, the city contains 2 hospitals, 3 colleges, and a clerical seminary. The most remarkable of the bridges of Cuenca is that of San Pablo over the Huescar. The town is surrounded by high old walls, and has woollen factories, paper mills, and establishments for washing wool.

CUENCA, or RAMBAE, a city of the republic of Ecuador, and capital of a canton and province of the same name, in the district of Assuay; pop. about 25,000. It is built on a beautiful plain 8,640 feet above the sea, near the river Matadero, and about 4 m. from the Machangara, from which streams irrigating canals lead toward the city. It has broad and regular streets, contains a Jesuits' college, a cathedral, 8 churches, the governor's residence, and a well arranged prison, has manufactories of good pottery, and is regarded as one of the finest cities of the republic. Its private houses, however, are mostly low and mean-looking. Its trade is chiefly in grain, hats, bark, and dairy produce. In the neighborhood is the hill of Tarqui, which was fixed upon by La Condamine, Bouguer, and Godin, for establishing their meridian line in 1742; and on the plain which lies around it was fought, in 1828, the battle of Tarqui, between the armies of Colombia and Peru.—The province of Cuenca is mountainous, well watered, and fruitful. It produces grain, sugar, cotton, bark, and cochineal, has manufactories of tapestry, drugget, and cotton, and contains gold, silver, copper, mercury, and sulphur, but the mines are not worked. It is divided into the 3 cantons of Azogues, Cuenca, and Gualaceo.

CUEVA, JUAN DE LA, a Spanish poet, born in Seville about 1550, died about 1608. He wrote several dramas on national subjects; an epic (*La conquista de la Betica*, printed in 1603) on the conquest of Seville by St. Ferdinand—an unsuccessful imitation of Tasso's "Jerusalem Delivered;" and over 100 ballads (*Coro Febeo de romances historiales*, Seville, 1587–'88), mostly taken from the histories of Greece and Rome, and only 4 or 5 from that of Spain. His fame rests more particularly upon his having been the first Spaniard to attempt didactic poetry; his poem, entitled *Egemplar poetico*, which he wrote in 1605, but which was first printed only in 1774 in the 8th vol. of the *Parnaso Español*, constituting the earliest and most original effort of the kind in Spanish.

CUFFEE, PAUL, a philanthropic negro sea captain, born on one of the Elizabeth isles, near New Bedford, Mass., in 1759, died Sept. 7, 1818. His father was a native of Africa, and once a slave; his mother was of Indian extraction. Endowed with a commanding presence, strong common sense, and untiring industry and enterprise, he accumulated a handsome fortune in seafaring pursuits, and for many years commanded his own vessel, having a crew composed entirely of negroes, and visiting many American and foreign ports. He was an esteemed member of the society of Friends. It is related of him that on one occasion, when the custom house officer of Norfolk, Va., refused him a clearance on the ground that he was a negro, he proceeded at once to Washington to submit his case to President Madison, with whom he was well acquainted. "James," said he to the president, "thy customs collector at Norfolk refuses me my clearance; I wish an order from thee, which shall compel him to give it me." President Madison inquired into the circumstances, and wrote the required order, by which he obtained his clearance without further delay. In the latter part of his life Captain Cuffee encouraged the emigration of the free people of color in this country to Sierra Leone. He corresponded with prominent friends of that enterprise in Great Britain and Africa, and in 1811 visited the colony in his own vessel to determine for himself its advantages. In 1815 he carried out to Sierra Leone 38 colored persons as emigrants, 30 of them entirely at his own expense, and on his arrival there furnished them with the means of subsistence, spending in this enterprise nearly $4,000. He was anxious to carry other companies of emigrants; but while waiting for the permission of the British government, American vessels being at that time excluded from the trade of the British colonies, he was seized with the illness which terminated his life.—Rev. PAUL, a native Indian preacher to the Shinnecock tribe of Indians on Long island, born in 1757, died March 7, 1812. He was for 13 years in the employ of the New York missionary society, and was regarded as an able preacher. He was a successor of the celebrated Rev. Samson Occom and the Rev. Peter John.

CUFIC INSCRIPTIONS AND COINS, so called because they bear the *Kufi* or Cufic writing, a character named from Cufah, a city

of Irak-Arabi, on the Nahr-Cufah or Euphrates, in the pashalic of Bagdad. Cufah was built by Sa'ad, in A. D. 639, under Omar, the 2d caliph, after his capture of Modain, the capital of Sassanidic Persia. It was the residence of Ali, the 4th caliph, and, a century later, of Abul Abbas, the founder of the Abbasside dynasty; it also possessed a celebrated school. After the foundation of Bagdad by Abu Giaffar Al Mansoor, the 2d Abbasside, Cufah was neglected and began to decay. At the time of Mohammed the Arabs of Hedjaz used a writing similar to the Neskhi, which may be seen in some papyri in the *Mémoires* of the French academy and in the "Asiatic Journal." According to Arabic tradition, writing at that time was newly invented and in little use. Whether the Arabs of Yemen, Irak, Mesopotamia, and central Arabia, had derived their writing, much earlier, from the Phœnician, or Palmyrean, or Sassanidic, is not ascertained. The *Kiufi*, however, is probably derived from the Syrian *estranghelo* (στρογγυλος, round). It is coarse, stiff, angular, and not so distinct as the modes of writing derived from it. It consists of 18 forms of letters, 8 of which, by being marked with diacritic points, represent 10 sounds of the modern Arabic writing—these we include in parentheses—namely: *a*, *b* (*t*, *th*), the English *j* (*h*, *kh*), *d* (*dh*, the English *th*, as in this), *r* (*z*), *s* (*sh*), *ss* (*dz*, Spanish *c* in *celebre*), *t*, *ain* (*ghain*, both peculiar gutturals, or rather faucals), *f*, *k* harsh, *k* soft, *l*, *m*, *n*, *h* (or merely the *spiritus lenis*'), *u*, *i* or *y* (German *i*, *j*). In manuscripts, the vowels are sometimes marked with red or yellow points. This writing was used in manuscripts for about 3 centuries; and on coins, sepulchral monuments, in titles of books, for about 7 centuries after Mohammed. Even now the writing of the African Arabs and Moors resembles the Kiufi; while the Orientals, who are very fond of flowing, elegant, slender letters, use, especially for copying, the Neskhi, whose introduction is attributed to Ibn Mokla, in the 4th century of the Hegira. There are also many other modifications in Persian, Turkish, Hindostanee, and Malay chirographs. —Cufic characters are found on the coins of almost all Mohammedan nations. The coins of the earlier rulers are mostly without an effigy, and ill-stamped; but the most celebrated ones show the face of the ruler, although this is anti-Mohammedan; and those of later times exhibit either a sign of the zodiac or stars, or the heraldic sign (*tamgna*) of the Turkish sovereigns. The inscriptions on the coins contain the name of the potentate by whom they are issued, the year of coinage, &c., and most frequently the phrase: "Coined in the name of Allah," either around or on the edge, and sometimes in 2 lines. The form is, on the whole, either Byzantine or Persian, in the style of Nushirvan or Chosroes I., and of Parvis or Chosroes II., both Sassanides. The dates of these coins extend from the Ommyiades, who ruled at Damascus from A. D. 661 to 750, down to the emirs of Ghizni, who bore sway in Turkestan, Persia, and India as late as the 12th century; most of them, however, belong to the 10th century of our era. Those of gold are called *dinar;* those of silver, *dirhem;* those of bronze or copper, *fuls*. Of some only halves and quarters of the original pieces now exist. The inscriptions are in several languages, some in two at once, some even in Arabic and Russian. They are found in Africa and Asia, from the Caspian and Euxine to the Baltic, in Pomerania, Brandenburg, &c., where they have been brought by commerce; and they are also met with in Spain, Naples, Sicily, &c. Glass medals are also found bearing Cufic inscriptions on either face or on both; they are about ¼ inch thick, and some have a higher margin on one side than the other. These probably belong to the Fatimite dynasty of Egypt; and some of them come down to the Mameluke sultans (1766). It is uncertain whether they were current as money.—See G. C. Adler, *Museum Borgianum* (Altona, 1780); Silvestre de Sacy, *Mémoires de l'académie Française;* Lindenberg, *Sur quelques médailles Coufiques et sur quelques MSS. Coufiques* (Copenhagen, 1830); Möller, *Orientalische Palāographie* (Gotha, 1844); and other treatises, especially those of Fraehn, published at Kasan and St. Petersburg.

CUIRASS, defensive armor for the body from the neck to the waist. It is generally made of well-hammered plate iron, and its name is probably derived from the French *cuir*, leather, of which material armor was very frequently composed in the early ages. The iron cuirass succeeded the hauberk or hacqueton in the reign of Edward III. The cuirass, under a variety of forms and names, was known to the ancient Greeks, Romans, Persians, and Egyptians. After long disuse it was adopted by Napoleon for his heavy cavalry, and his example has been followed by the English (who arm 3 regiments with it) and continental nations.

CUJAS (Cujacius), Jacques, a French jurisconsult, born in Toulouse in 1522, died in Bourges, Oct. 4, 1590. He was the son of a fuller, and was educated at the university of Toulouse; spent several years in acquiring a knowledge of law, and of the ancient languages, history, grammar, philosophy, mathematics, and even of poetry, and at the age of 25 commenced a course of instruction on the Institutes of Justinian. In 1554 the professorship of Roman law in the university of Toulouse became vacant, and Cujas, not being chosen to it, left Toulouse, and accepted a vacant chair at Cahors; but in 1555 he repaired to Bourges, then perhaps the chief seat of the study of civil law. The jealousy of rival professors having forced him to leave this place, he went to Paris, and published a portion of his works, including the *Observationum et Emendationum XXVIII libri*, which, in the hyperbolical language of the time, received the name of *opus incomparabile, opus divinum*. In 1557 he was invited to fill a chair in Valence, whence, in 1560, one of his rivals in Bourges being dead, he was recalled to that city, and there his

principal works were published. In 1566 he repaired to Turin to lecture in the university, and in 1567 returned to France, fixing his residence at Valence. In June, 1576, he finally returned to Bourges, which he never afterward quitted. The latter part of his life was clouded by domestic cares and by the distress of mind which the unhappy condition of his country created. After the assassination of Henry III., the league, who were powerful in Bourges, endeavored to extort from Cujas a written opinion in favor of the claims of Cardinal Bourbon to the succession. At considerable personal risk he opposed the demand, exclaiming: "It is not for me to corrupt the laws of my country." He died soon after, broken-hearted, it is supposed, at the evils which preyed upon France. The jurisconsults of Europe agree in considering him the greatest, as he was among the first of modern interpreters of the civil law. Beside the Institutes, Pandects, &c., of Justinian, he published, with explanations, a part of the Theodosian code, and the *Basilica*, a Greek version of the laws of Justinian, and commentaries on the *Consuetudines Feudorum*, and on some books of the Decretals. His "Observations and Corrections," extending not merely to books of law, but to a number of Greek and Latin authors, have been of great value to philologists. The edition of Fabrot (Paris, 10 vols. folio) was the first complete collection of his writings; but the reprints at Naples in 1757, and at Venice and Modena in 1758–'82, in 11 vols. folio, contain important additions. Cujas was not less distinguished as a teacher than as a writer.

CULDEES, a religious fraternity who at one time were spread over the greater part of Great Britain and Ireland. The origin of the name is uncertain, some deriving it from the Celtic *cylle*, a cell, and *dee*, house, and others from the Latin *cultor Dei*, worshipper of God. Their history has been raised to importance by certain modern writers, who claim that in the 2d or 3d century they were the priests of a Scottish Christian church which had no bishops, and resembled the Presbyterian organization. It is not known when the order became extinct.

CULLEN, Paul, an Irish Catholic prelate, archbishop of Dublin, born about 1805. He studied theology in Italy, received orders, and for 15 years held an office in the chancery of the Vatican which gave him direction of the ecclesiastical affairs of his native country. He was also for some time rector of the Irish college at Rome. On the death of Dr. Crolly, archbishop of Armagh, in 1849, the suffragan bishops failed to agree in nominating his successor, and Pius IX. therefore conferred this dignity upon Dr. Cullen, with the rank of primate of Ireland and apostolic delegate. He was consecrated Feb. 24, 1850, and soon became conspicuous by his hostility to the system of mixed education which prevailed in the Irish schools, and his support of the scheme for founding a Catholic university at Dublin. To further the latter object, in obedience to the instructions of the pope, he called a synod at Thurles, which took such measures that the university was soon established. In March, 1852, Dr. Cullen was transferred to the diocese of Dublin. He thus ceased to be primate, but his title of apostolic delegate was renewed for life, which places him at the head of the Irish clergy. A curious work against the Copernican system, maintaining on theological grounds that the earth is the immovable centre of the universe, has been attributed to him, it is said, without reason.

CULLEN, William, a Scottish physician, born in Hamilton, Lanarkshire, April 15, 1710, died near Edinburgh, Feb. 5, 1790. He studied medicine at the university of Glasgow, and at the same time served an apprenticeship to a surgeon apothecary of that place. At the age of 19 he procured the berth of surgeon on a merchant ship engaged in the West India trade, and in 1732 returned to Scotland and commenced his professional labors in the parish of Shotts. After several years of practice and study he entered into a partnership with William Hunter, afterward celebrated as a comparative anatomist, by the terms of which they were each to spend a winter alternately at some medical school, while the other remained in charge of the business in the country. In 1741 Hunter repaired to London for the purpose of study, and having with the consent of Cullen settled there, the partnership terminated. In 1745 Cullen took up his residence in Glasgow, and in the succeeding year commenced a course of lectures in the university on the theory and practice of medicine. In 1751 he became professor of medicine, and lectured on chemistry, materia medica, and botany, giving much attention to the application of chemistry to agriculture and the useful arts. In 1756 he removed to Edinburgh to assume the chair of chemistry. He continued to be connected with the university until his death, and for nearly 34 years lectured with great reputation on chemistry, materia medica, and the theory and practice of medicine. He also delivered several series of clinical lectures at the royal infirmary. He possessed in a rare degree the faculty of presenting an abstract subject in a clear and attractive light, and his lectures, which were nearly extemporaneous, seldom failed to excite the interest, and even the enthusiasm, of his pupils. As an illustration of this, it is stated that the class in materia medica, which under the former professor, Alston, a man of great learning, had not exceeded 8 or 10 in number, was at once increased by Cullen to over 100. His works are: "First Lines of the Practice of Physic," containing his system of the nature and cure of diseases, which superseded that of Boerhaave; "Institutions of Medicine;" *Synopsis Nosologiæ Methodicæ;* a "Treatise of the Materia Medica;" and some minor miscellaneous publications. The first of these was translated into several languages, and went through many editions. His clinical lectures were also published after

his death, probably from notes taken by one of his pupils.

CULLODEN HOUSE, a family seat in Inverness, Scotland, which gave its name to the battle that ended the career of the pretender in the rebellion of 1745. The English troops were led by the duke of Cumberland; the highlanders were commanded by Charles Edward in person. The prince's army was composed of highlanders; he was almost destitute of artillery, in which arm the enemy were very powerful. The wild, undisciplined courage of the highlanders was vainly opposed to the discipline and cannon of the regulars. After a desperate attack and great carnage on both sides, the English troops stood firm, and the highlanders, unsupported and unofficered, broke and fled in all directions. The battle was fought on Drummossie moor, April 16, 1746.

CULLOMA, or COLUMA, a post town of California, and formerly the capital of El Dorado co.; pop. in 1852, 2,000. It is situated on the south fork of American river, and on the road from Sacramento City to Nevada. In the vicinity are a number of saw mills, one of which, called Sutter's mill, is memorable as the spot where gold was first discovered in California.

CULM, or KULM (Polish, *Chelmno*), a district and city in the Prussian province of West Prussia, in a very fertile region. The city is situated on a branch of the Vistula; pop. 7,800. It was founded by the knights of the cross in 1230, and became the residence of a bishop. It was under Polish sovereignty from 1454 to 1772, when it was given to Prussia by the first division of Poland. The inhabitants, of German origin, had their chartered city rights, copied from those of Magdeburg, collected and revised as early as 1394, which was ever recognized in old Prussia under the name of *Culmer Handfeste*, or *Jus Culmense*.

CULM, in Bohemia. See KULM.

CULMINATION, the passage of a star over the meridian, that is, over the highest point of its diurnal path. Metaphorically the term is used of any thing attaining its highest state of development.

CULNA, a town in British India, in the district of Burdwan, lieutenant-governorship of Bengal, lat. 23° 14′ N., long. 88° 20′ E., pop. 60,000, on the right bank of the river Hoogly, 26 m. E. of the city of Burdwan, a station for steamers plying between Calcutta and the upper provinces, and long noted for its trade in rice, grain, silk, and cotton. It is the station of the Free church mission, and has an English school containing about 120 boys.—There is a town of the same name, lat 23° 13′, long. 89° 42′, in the district of Jessore.

CULPEPPER, a N. E. central co. of Va., bordered S. by Rapidan river, N. E. by the N. branch of the Rappahannock, drained in the N. part by Hazel river; area, 673 sq. m.; pop. in 1850, 12,282, of whom 6,683 were slaves. The surface is greatly diversified by hills and valleys, and the soil very productive. The Rappahannock and Hazel rivers are here navigable, the latter for small boats only. There are one or two mineral springs in the county, but they are yet very little known. Indian corn, wheat, oats, and wool are the staples. In 1850 the productions were 191,395 bushels of wheat, 359,670 of Indian corn, 62,599 of oats, and 45,444 lbs. of wool. There were 17 churches and 488 pupils attending public schools. A number of woollen factories and flour, grist, and saw mills were in operation during that year. Value of real estate in 1856, $3,068,610. The county was formed in 1748, and named from Lord Culpepper, governor of Virginia in 1681. Capital, Fairfax, or Culpepper Court House.

CULPEPPER, JOHN, an early surveyor-general and political leader of the provinces of North and South Carolina, was a refugee from the southern or Clarendon colony, and in 1678 was the head of an insurrection in the northern or Albemarle colony in favor of popular liberty. The navigation acts, by which excessive taxation was imposed on commerce, and an abridgment of political freedom by the "denial of a free election of an assembly," were the chief grievances. Under his direction, the people deposed the president and deputies of the proprietaries, seized the public funds, appointed new magistrates and judges, called a parliament, and took all the functions of government into their own hands. The insurgents, having completed their institutions, sent Culpepper to England to negotiate a compromise. He was indicted for high treason, but through the influence of Shaftesbury he was acquitted on the ground that no regular government had existed in Albemarle. He returned to Carolina, and in 1680 laid out the city of Charleston, reducing the paths, streets, and squares to comparative regularity, and enclosing the town site with a line of fortifications.

CULPEPPER, THOMAS, lord, governor of Virginia from 1680 to 1683, died in 1719. Under his administration an act was passed to encourage emigration by enabling the governor to naturalize any person by instrument under his seal; also an act of indemnity for all offences committed in the rebellion under Gov. Berkeley, and one to prevent the frequent meeting of slaves. He was one of the grantees of the territory of Virginia, and in the year 1669 purchased of his co-grantees their rights to the country lying between the Rappahannock and Potomac rivers.

CULTIVATOR, in England, an implement used after the plough, preparatory to planting; in the United States, an implement for the same purpose, and also for scarifying the earth between the rows of growing plants, and turning it either to or from them, as desired. In the former country all implements for the latter purpose are called horse hoes. The American classification originated in our early manufacturers so constructing their patterns that the same implement could be used for both purposes. Some leading manufacturers are now,

however, advertising gang cultivators, cultivators, and horse hoes; the office of the first being limited to that of the English cultivator, the second being for operation both before and after planting, and the third for the latter purpose only. But, as other manufacturers apply these terms almost indiscriminately, while the New York state agricultural society awarded a premium to an implement in 1854 as the best cultivator, and again to the same implement in 1856 as the best horse hoe, there seems to be, as yet, no distinctive adherence to names, and no proper uniformity of classification. Cultivators, in a general description, are combined modifications of the plough and harrow. In England they are usually made with rectangular frames, constructed on 3 or 4 wheels, and provided with a series of complex levers, by which they can be raised or lowered for greater or less penetration of the teeth or shares below the surface. They are made of two classes, called grubbers and scarifiers, or cultivators; the first class being for cleansing the earth of roots and weeds, and the second for dividing and pulverizing, without any particular overturning like that given by the plough. The teeth of the former may be compared to fork tines, and of the latter to bent coulters, with small double mouldboards. In the United states there seems, however, to be an increasing desire to have cultivators overturn as well as scarify the earth, and hence the introduction of the gang cultivator, as above classified. This implement consists of a line of small steel ploughs, attached to a beam which passes over the ground at such an angle to the line of draught that each plough turns over and pulverizes some 7 inches of earth from the land side of the preceding one. This beam is fastened to the draught beam, which is armed in front with a coulter, and behind with a double-share cultivator tooth, which serves to balance the implement as it does its work. American cultivators, for the double purpose above described, are either triangular or rectangular frames, with a greater or less number of properly shaped and arranged mouldboard-like teeth, and with their centre beams projecting in front for the proper attachment of wheels and draught clevises. They have handles like those of a plough, and their several beams are so connected by joints that their widths can be increased or diminished as they are required for working between drills or before planting. Horse hoes, according to the above classification, differ from cultivators chiefly in the form and arrangement of their teeth, which, having to operate in ground grown more or less hard between the time of planting and that of the first hoeing, have more of a cutting form, while they can be adjusted to turn the earth from the plants when these are young and tender, and toward them when demanded by a more advanced growth. Horse hoes in the United States are single implements, while in England they are generally constructed to work between a number of rows of plants at the same time; their use in the former country being chiefly for the culture of potatoes and Indian corn, the rows of which are at wide distances. So great is the public sense of the recently discovered importance of a thorough and repeated pulverization of the soil for the easier and more effective operation of those forces by which the various necessary gases are carried to the roots of plants, and for the proper decomposition of humus and the manures, that these implements are now made in all parts of the country; one house alone making 4,000 of them in one season, while another, which confines its operations chiefly to making the teeth of the implement for some of the various smaller establishments, sold 40,000 of these between Feb. and Aug. 1857.

CULVERIN (Fr. *couleuvrine*, from Lat. *colubrinus*, serpent-like), a long and slender piece of ordnance, equal to an 18-pounder, and carrying a ball to a great distance.

CULVERT, an arched channel for the conveyance of water under ground. Channels of this description are very common in the embankments of railways and canals.

CULVERT, George, a head chief and warrior of the Choctaw nation, born in 1744, died at Fort Towson, Ark., Nov. 1839, served under Washington in the revolution, and from him received a commission of major of militia in the U. S. service and a sword. He served under Wayne, and also under Jackson against the Seminoles in 1814. For his bravery, Jackson presented him with a colonel's commission, and afterward (during his presidency) with a sword. He educated his sons and established them on plantations among his people.

CUMÆ, or Cuma, one of the most ancient and celebrated of the Greek cities of Italy, situated on the Campanian shore a little N. of Baiæ. It is said to have been founded by a joint colony from Æolian Cyme and Eubœan Chalcis. The time of its foundation is uncertain, but of its extreme antiquity there can be no doubt, for it was in the zenith of its prosperity and power, ruling over the Campanian plain and the Tyrrhenian sea, while Rome was yet in its infancy. Cumæ was the mother of many famous and flourishing colonies in Italy and Sicily; and of the extent of its commerce and opulence, before the establishment of the Etruscan supremacy, the harbors of Dicæarchia and Misenum were splendid evidences. As the Etruscans became powerful, however, the Cumæans declined, first losing their maritime superiority, then the dominion of the Campanian plain, and ultimately every thing without their city walls. After being thus stripped of their possessions, and when beleaguered both by sea and land by their victorious foes, they applied to Hiero of Syracuse for succor, and by means of the auxiliaries he sent them they were enabled to defeat their enemies once more, and to secure themselves from attack for many years. But the warlike Samnites, after wresting all their southern conquests from the Etruscans, laid siege to Cumæ, took

it, 420 B. C., put most of the male inhabitants to the sword, or sold them as slaves, and planted a colony of their own countrymen in the captured city. In 338 B. C. Cumæ became a Roman *municipium*. During the second Punic war Hannibal besieged it in vain. During the wars of the Goths and Byzantines Cumæ acquired a temporary importance as the last stronghold of the Gothic kings in Italy. After its capture, however, by the army of the victorious Narses (A. D. 552), it rapidly sunk into insignificance. Some remains of the city are still to be traced on the Mediterranean shore. A cavern in the rock on which the acropolis stood is still pointed out as the place where the famous sibyl resided and uttered her oracles. In 1853 the prince of Syracuse discovered there a magnificent temple of Diana; and over 150 tombs were explored in the same year, resulting in the discovery of a great variety of antiquarian treasures. An interesting paper on the waxen heads found in one of the tombs was read, May 28, 1856, before the London archæological association, by Mr. Pettigrew, who exhibited a glass vase, a tooth comb, and other antiquities obtained there by Mr. Wansey, who had attended the prince of Syracuse in some of his excavations.

CUMANA, a province of Venezuela, comprising part of the region sometimes called New Andalusia, bounded N. by the Caribbean sea, E. by the gulf of Paria, S. by the Orinoco, and W. by the province of Barcelona; area, 17,309 sq. m.; pop. in 1846, 75,828. A range of mountains crosses it parallel with the sea, and sends off several ridges toward the south. These hills are steep, but not very high, and covered with dense forests. The valleys and plains, watered by many rivers, the chief of which are the Cari, Mamo, Limones, Guaraco, Guarapichi, Manzanares, and Cariaco, and dotted over with lakes, produce excellent pasturage, sugar, and grain. The peninsula of Araya, on the N. coast, has been noted for several centuries for the production of salt, the consumption of which in Barcelona for curing provisions amounts to about 1,200,000 lbs. per annum, ⅓ of which is obtained from Araya. The principal exports are dried fish, salted meat, hides, cotton, cocoa, and medicinal plants.—CUMANA, or NEW TOLEDO, the capital of the above province, is situated near the mouth of the gulf of Cariaco and on the river Manzanares, 1 m. from the sea; lat. 10° 27′ 52″ N., long. 64° 4′ 47″ W.; pop. about 12,000. It is defended by the fortress of San Antonio, built on a rocky eminence, on which are also the ruins of the castle of Santa Maria. It has an excellent port, capable of receiving all the navies of Europe, but its shipping is insignificant. It has suffered too severely from earthquakes to present much architectural beauty. On Oct. 21, 1766, severe shocks destroyed the entire city in the space of a few minutes; and a similar visitation, Dec. 14, 1797, laid ⅓ of the town in ruins. The climate is exceedingly hot, the temperature from June to October reaching 90° and 95° F. during the day, and seldom falling below 80° at night. Cumana was founded by Diego Castellon in 1523. It has 3 suburbs, the aggregate population of which nearly equals that of the city itself.

CUMANIA, GREAT and LITTLE, two districts of Hungary.—GREAT CUMANIA (Hung. *Nagy Kunság*), in the circle "beyond the Theiss," consists of a low plain, subject to frequent inundations from the rivers, and occupied to a great extent by swamps; area, 424 sq. m.; pop. about 55,000, of whom the majority are Protestants. Cumania differs from most Hungarian districts in having no large land-owners, or feudal lords. The inhabitants, before the revolution of 1848, had a government of their own, and sent representatives to the Hungarian diet. They are a robust, plain, and patriotic people, fond of rural pursuits, and moderately wealthy.—LITTLE CUMANIA (Hung. *Kis Kunság*) consists of several detached portions of land in the circle "this side the Theiss," and is more than twice as large as Great Cumania, having an aggregate area of about 1,000 sq. m.; pop. about 64,000. In physical aspect, general characteristics, and the condition of its inhabitants, it closely resembles Great Cumania.—Both districts have their name from settlements of Cumani, a people of Tartar race, who from the 11th to the 14th century acted a conspicuous part in the history of the nations of eastern Europe.

CUMBERLAND, the name of counties in several of the United States. I. A S. W. co. of Maine, area about 990 sq. m., bordering on the Atlantic, and bounded on the N. E. by the Androscoggin river; pop. in 1850, 68,892. The coast is indented by a number of bays, the principal of which, Casco bay, affords facilities for navigation and the fisheries hardly surpassed on the Atlantic coast. The surface of the county is pleasantly diversified by several small lakes or ponds. From Sebago pond, the largest of these, a canal has been opened to the ocean. The soil is fertile and well cultivated. In 1850 it produced 233,870 bushels of corn, 266,586 of potatoes, 130,465 of oats, and 94,535 tons of hay. There were 134 churches, and 22,724 pupils attending public schools. Capital, Portland. II. A S. W. co. of N. J., area 480 sq. m., bounded S. W. by Delaware bay, and E. by Tuckahoe creek; pop. in 1855, 18,966. With the exception of some ranges of hills between the streams, the surface is generally level. East of Cohansey creek, which intersects the county, the soil is light, sandy, and overgrown with pine forests; west of the creek it is composed of clay and sandy loam. Marl is obtained in this part, and Greenwich township has some mines of iron. In 1850 the productions were 370,267 bushels of corn, 78,000 of wheat, 84,408 of oats, 116,144 of potatoes, 21,795 tons of hay, and 174,802 lbs. of butter. There were 40 churches, and 4,215 pupils attending public schools. This county was formed in 1748, out of a part of Salem county. Capital, Bridgeton. III. A S. E. co. of Penn., area 545 sq. m., lying chiefly within the Kittatinny or Cum-

berland valley, between Blue and South mountains; pop. in 1850, 34,327. The Susquehanna river flows along its eastern boundary, and Conedogwinit creek intersects it. Limestone of superior quality exists here in profusion, and iron ore has been found in some places. The soil is remarkably rich, and agriculture is in a very forward state. The productions in 1850 were 487,182 bushels of wheat, 361,166 of corn, 422,100 of oats, 31,788 tons of hay, and 782,587 lbs. of butter. There were 40 flour and grist mills, 17 saw mills, numerous founderies and factories of various kinds, 5 newspaper offices, 74 churches, and 8,887 pupils attending public schools. Organized in 1750, and named from Cumberland county, England. Capital, Carlisle. IV. A S. E. co. of Va.; area, 310 sq. m.; pop. in 1850, 9,751, of whom 6,329 were slaves. The surface is moderately uneven, and the soil was originally productive, but now in some places worn out. The principal rivers are the Appomattox, which forms its S. E. boundary, James river, which flows along its N. frontier, and Willis river, which intersects it. In 1850 it yielded 118,616 bushels of wheat, 220,535 of corn, and 2,476,135 lbs. of tobacco. There were 16 churches, and 275 pupils attending public schools. Value of real estate in 1856, $2,043,148. The county was formed from Goochland in 1748. Capital, Cumberland Court House. V. A S. central co. of N. C.; area estimated at 1,680 sq. m.; pop. in 1850, 20,610, of whom 7,217 were slaves. It is intersected by Cape Fear river, and in great measure occupied by vast forests of pitch pine. Large quantities of turpentine and lumber are obtained from these forests, and exported by means of steamboats down Cape Fear river. The soil is generally good, and the surface considerably diversified. About ⅓ of the county lies within the hilly and granite region of North Carolina; the remainder is low and level. Several plank roads have recently been built in different parts, and by the facilities which they present for the transportation of the produce of the interior, have contributed greatly to the prosperity of the county. In 1850 the harvest amounted to 376,843 bushels of corn, 142,396 of sweet potatoes, and 156 bales of cotton. Organized in 1754. Capital, Fayetteville. VI. A S. co. of Ky., bordering on Tenn., bisected by Cumberland river (from which it is named); area, about 375 sq. m.; pop. in 1850, 7,005, of whom 1,485 were slaves. The surface is hilly near the river, and the soil of moderate fertility. Productions in 1850, 7,850 bushels of wheat, 434,340 of corn, 30,020 of oats, and 1,238,802 lbs. of tobacco. Number of pupils in the public schools, 1,552. There is a remarkable "oil spring" near the river. Capital, Burksville. VII. An E. co. of Ill.; area, 310 sq. m.; pop. in 1855, 6,099. It is intersected by Embarras river, and diversified by forests and prairies. The soil is fertile, and in 1850 produced 217,015 bushels of corn, 5,122 of wheat, and 33,906 of oats. There were 2 churches. Capital, Greenup.

CUMBERLAND, a river of Ky. and Tenn., rising in the Cumberland mountains, near the S. E. boundary of Ky., flowing W. and S. W., and entering Tenn. between Jackson and Overton counties. After a circuit of nearly 250 m. through middle Tenn., it makes a bend to the N. W., recrosses the Ky. border about 10 m. from the Tenn. river, and runs nearly parallel with that stream until it joins the Ohio at Smithland. Its whole course is estimated at over 600 m. At high water it is navigable by steamboats to Nashville, 200 m. from its mouth, and by small boats for a distance of nearly 500 m. Not far from Williamsburg, in Kentucky, it has a remarkable vertical fall of 60 feet. It drains an area of about 17,000 sq. m.

CUMBERLAND, a thriving town and capital of Alleghany co., Md., on the left bank of the Potomac river, and on the Baltimore and Ohio railroad; pop. in 1850, 6,073. It is the W. terminus of the Chesapeake and Ohio canal, and the E. terminus of the national road. A few miles west of the town, upon the summit of the Alleghanies, commences the district known as the Cumberland coal region, which extends west to the Ohio river. The mines of the eastern portion produce an excellent quality of semi-bituminous coal, and are worked by several mining companies. In 1857 the quantity sent to market was 612,291 tons. Iron ores in the same region, and others of the older formations nearer Cumberland, have given support to a few blast furnaces. The town contains the county buildings, several churches, 3 newspaper offices, 1 bank, and 1 savings institution; has an excellent trade, and next to Baltimore is the largest town in the state.

CUMBERLAND, a N. W. co. of Nova Scotia, bordering on Northumberland strait, and partly separated from New Brunswick by Chignecto bay; area, 1,020 sq. m.; pop. in 1851, 14,339. Its coasts are marked by an immense number of small bays and good harbors. The surface inland is rough and mountainous. The wealth of the county consists principally in coal mines, which are very extensive and among the most valuable in Nova Scotia. The North American mining company annually obtains from these beds large quantities of excellent bituminous coal. Gypsum is also found, and grindstones are made from the rock which underlies the surface. Capital, Amherst.

CUMBERLAND, a N. co. of England, separated from Scotland by Solway frith and the Esk and Liddle rivers, and bounded W. by the Irish sea; area, 1,565 sq. m., or 1,001,600 acres, ⅔ of which are under cultivation; pop. in 1851, 195,492. The surface of the N. and N. W. parts is low and flat or gently undulating; the midland districts are traversed by hills, and the E. and S. W. parts are occupied by lofty mountains, among which are the famous summits of Skiddaw (3,020 feet above the sea), Saddleback (2,787 feet), and Helvellyn (3,055 feet). In this picturesque district are lakes Ulls-water, Thirlmere, Bassenthwaite, Derwent-water, But-

termere, Crummock, Lowes-water, Ennerdale, and Wast-water, renowned for their romantic scenery, and often visited by travellers. The principal rivers are the Derwent, Eden, and Esk. The soil of the valleys and river bottoms is generally rich; the lowlands have been much improved by draining and are very productive; the mountainous districts are fit for little but sheep pastures. Agriculture has improved of late years, and a great deal of grain and other produce is exported. The chief minerals are coal, iron, silver, plumbago, copper, lead, and limestone. The first 3 are abundant, and the iron ore is said to yield more than double the average proportion of metal. The lead mines near Alston belong almost exclusively to Greenwich hospital. A considerable extent of the great Roman wall erected by Hadrian is in this county, and many Roman remains of various kinds have been found here. The county suffered much from the Picts, Scots, and Danes, and was the arena of almost constant warfare during the border troubles. At the time of the conquest it was in such a state of desolation that William remitted its taxes, and it was not included in the Domesday book. The chief towns are Carlisle, Whitehaven, Cockermouth, Penrith, Keswick, and Egremont. It is traversed by the Lancaster, Kendal, and Carlisle, the Newcastle and Carlisle, the Carlisle and Maryport, and the Workington and Cockermouth branch railways. A ship canal extends from Carlisle to the Solway frith. The county returns 4 members to the house of commons.

CUMBERLAND, Richard. I. An English divine, born in London, July 13, 1632, died Oct. 9, 1718. He was a good linguist and zealous student, and when upward of 80 took up the study of Coptic, in which he attained considerable proficiency. He was appointed bishop of Peterborough by William III. without solicitation, the monarch having been informed on trustworthy authority that Dr. Cumberland was the fittest person for the vacant see. He learned the fact of his nomination by reading it in the newspaper of the day. His principal works are a translation of Sanchoniathon's "Phœnician History," with notes and dissertations; *Originis Gentium Antiquissimæ* ("Attempts for discovering the Times of the first Planting of Nations"); and an "Enquiry into the Laws of Nature" (written originally in Latin, and translated by the Rev. J. Tower). II. An English dramatist, born in Cambridge, Feb. 19, 1732, died May 7, 1811. He was great-grandson of Bishop Cumberland, and grandson of Richard Bentley. His connections procured him an early introduction into political life; and after having filled the office of secretary to Lord Halifax, with other minor appointments, he was in 1775 made secretary of the board of trade, an office which was abolished in 1782, when he received a compensation allowance. He published the "Observer," a series of essays, in which he displayed considerable classical learning, with much wit and elegant composition. He wrote a large number of dramatic pieces, the most successful of which were the "West Indian" and the "Wheel of Fortune," still stock pieces on the stage. He was a copious writer on a great variety of subjects, and among his works are several novels and a collection of anecdotes of Spanish painters. He published his memoirs in 1806.

CUMBERLAND, William Augustus, duke of, 3d son of George II. of England, born April 26, 1721, died at Winsdor, Oct. 31, 1765. He was present at the battle of Dettingen, where he was wounded. In 1745 he received the command of the allied army, and fought the celebrated battle of Fontenoy against Marshal Saxe, in which the French were victorious. He was next sent against the pretender in Scotland, and overthrew the army of malcontents at the battle of Culloden; but the glory of this victory, such as it was, was stained by the cruelties and excesses of the victors. He was appointed by the king commander-in-chief of the British army, and was next sent to the Netherlands; was defeated at Lafeldt by Marshal Saxe in 1747, and gained no advantages in this war, which was terminated by the peace of Aix la Chapelle. At the commencement of the 7 years' war the king of England's Hanoverian dominions had to be defended at any cost to the English nation; accordingly the duke of Cumberland was despatched to Germany, when the victory of Marshal d'Estrées at Hastenbeck forced him to the disgraceful convention of Closter Seven (1757), by which the English army, 40,000 strong, was disarmed and disbanded, and Hanover was placed at the mercy of the French, who ravaged it at their will. On his return to England the king was so dissatisfied that the duke of Cumberland threw up his appointments, and was never again invited to take office.—For the duke of Cumberland, afterward king of Hanover, see Ernst August.

CUMBERLAND MOUNTAINS, that portion of the Appalachian group which ranges along the S. W. border of Virginia and the S. E. of Kentucky, and thence passes across the state of Tennessee into the N. E. part of Alabama. It spreads over a width of about 50 m., parallel ridges alternating with longitudinal valleys. The ridges rarely exceed 2,000 feet in height. They are rocky and little cultivated, but the valleys are fertile. These mountains lie west of the range of the granite and metamorphic rocks, which compose the mountains on the W. borders of North Carolina and the N. part of Georgia. They are upon the range of the great coal formation of the middle states, and essentially composed of the same groups of stratified rocks as those of the Alleghany mountains, Chestnut ridge, and Laurel hill in Pennsylvania. The Tennessee river and its branches drain its E. slopes, until this river crosses their range and unites with the Cumberland, the sources of which are on its W. side.

CUMBERLAND PRESBYTERIANS, a denomination of Christians which took its rise during the religious revival in Kentucky and

Tennessee in 1801–'3. So great was the excitement, and so vast the multitudes who came from all parts of the country to the camp meetings, that it was found impossible to supply the demand for ministers, and laymen were appointed to preach by the presbytery of Transylvania. Their reception, however, was strenuously opposed by some of the clergy, and they were refused ordination. A new presbytery, which was formed in 1803 in the southern part of the state, denominated the Cumberland presbytery, subsequently received them and granted them ordination, at the same time taking on trial as licentiates others of similar qualifications. The action of the presbytery in this matter was reviewed by the synod of Kentucky, which denied its validity, and appointed a commission to examine the newly ordained ministers both in regard to their attainments and the doctrines which they held. The result was, that the course pursued by the Cumberland presbytery was condemned, and the sentence of the synod confirmed by the general assembly of the Presbyterian church. The presbytery, demurring to this decision, withdrew from the jurisdiction of the general assembly, and in 1810 organized a distinct and separate body, which has since that time been known as the Cumberland Presbyterian church. Their progress as an independent church was marked with great success, so that in 1813 they formed a synod and adopted articles of religion and a form of church government. In doctrine they occupy a sort of middle ground between Calvinism and Arminianism. They reject the doctrine of eternal, unconditional election and reprobation, and believe in the universality of the atonement and the final conservation of the saints. Their government is presbyterian in form, embracing the session, presbytery, synod, and general assembly, all of which are constituted in the same manner as those of the Presbyterian church. Though they have local pastors, they have adopted the itinerant system of the Methodists. By this system of circuits and stations their ministers have spread themselves over the West and South, and even to California. Their general assembly has under its supervision 17 synods, 48 presbyteries, 1,000 churches, 300 ministers, 480 licentiates and candidates, and a membership of 100,000. Several religious journals are published under their auspices, and they have flourishing colleges in Kentucky, Tennessee, and Ohio, beside 10 seminaries.

CUMING, Hugh, a living English naturalist, born about 1800, and residing in London. His collection of shells, over 60,000 in number, has for several years been famous as one of the finest in Europe. In 1848 it represented more than 19,000 species and varieties, and has since been much increased from the principal cabinets on the continent, which Mr. Cuming visits annually, carrying the duplicates of his rarities and exchanging them. His specimens are wonderfully perfect in form, texture, and color, and have been amassed not only by diligently frequenting the shops of commercial naturalists in seaports, but also by passing 30 years of his life in travel and personal researches, collecting every variety of mollusks from their native seas and rivers, in the Atlantic, Pacific, and Indian oceans, and in the islands of the Malay archipelago. He has thus been able to describe the native habitats and habits of most of his shells. His stores are freely opened to scientific men, and have furnished subjects for many important papers in scientific publications.

CUMMIN SEED, the fruit or seed of the *cuminum cyminum*, an umbelliferous plant, cultivated in the East from the remotest times for its seeds, which have a bitter and aromatic taste, and a peculiar odor. The Latin poets allude to their power of producing languor. They are obtained in Egypt, Greece, Malta, and Sicily.

CUMMING, John, D.D., a popular preacher of London, born in Aberdeenshire, Scotland, Nov. 10, 1810, was educated at King's college, university of Aberdeen, and prepared for the Scottish church, but on completing his theological studies, engaged as tutor in a school near London. Here he continued until 1832, when, having been previously licensed by the Scotch presbytery of London, he became the minister of the Scotch church in Crown court, Covent Garden, a relation which he still holds. He is distinguished for eloquence, both in the pulpit and on the platform, for controversial acuteness, and for his devotion to the interests of the Scottish church. Of this latter cause he has been the principal representative in London, opposing himself steadily to the non-intrusion movement of which Chalmers was the leader. As an author, Dr. Cumming is well and favorably known both at home and in this country, and most of his numerous works have been republished in America. His "Apocalyptic Sketches," "Lectures on the Parables," and "Voices of the Night," have had a wide circulation.

CUMMING, Roualeyn George Gordon, a Scottish sportsman and author, born March 15, 1820. He is the second son of Sir William Gordon Gordon Cumming, and from an early age had abundant experiences in hunting as a deer-stalker in the highlands of Badenoch. He spent some years in the military service in India and the Cape of Good Hope, but left the army about 1843. Between October of that year and March, 1849, he made 5 hunting expeditions into various parts of South Africa, which he has recorded in his "Hunter's Life in South Africa," published in London in 1850, and republished in the United States. His adventures, as related by himself, partake so largely of the marvellous that their accuracy has more than once been called in question. A more serious charge against him is his indiscriminate and useless slaughter of a variety of harmless animals, which he destroyed apparently for no other purpose than to increase the list of his victims. He derived a considerable profit from the skins, tusks, and other trophies of the chase, of which he opened a remarkable exhibition on his return to England. He claims to have killed

more than 100 elephants. Of late years he has found sport chiefly in the Scottish highlands.

CUMMINGS, Joseph, D.D., president of the Wesleyan university at Middletown, Conn., born in Falmouth, Me., in 1817, was graduated at that institution in 1840, and was chosen professor of natural science in the Amenia seminary, N. Y. In 1841 he was licensed to preach, and in 1843 became principal of the seminary. In 1846 he joined the New England conference, and occupied several important stations, after which he was appointed professor of theology in the Methodist general Biblical institute, at Concord, N. H. Subsequently he was president of Geneva college, N. Y., for 4 years, when he was elected to his present position.

CUNDINAMARCA, a central department of New Granada, comprising the table-land of Bogota, a small part of the *llanos* near the sources of the Meta and Guaviare, and the valleys of the lower Cauca and the upper and middle Magdalena; pop. in 1853, 564,955. It is well timbered, contains gold, silver, copper, lead, coal, and rock salt, and produces almost every kind of crop common to New Granada. The cataract of Tequendama and the natural bridges of Iconozo and Pandi are in this department. Capital, Bogota.

CUNEGO, Domenico, an Italian engraver, born at Verona in 1727, died in Rome in 1794. His principal works are 22 plates in Gavin Hamilton's *Schola Italiana*, and his outline of the "Last Judgment," from Michel Angelo's frescoes in the Sistine chapel.

CUNEIFORM INSCRIPTIONS, or Sphenograms (Gr. *σφην*, Lat. *cuneus*, a wedge), called also Claviform, Cludiform (Lat. *clavus*, mediæval *cludus*, a nail), and Arrow-Headed Inscriptions, are monumental records of the inhabitants of the ancient Assyrian, Babylonian, and Persian empires. They consist of letters, some syllables, and a few monograms or compends, which contain two principal elements, namely, a figure resembling a wedge, nail, or arrow-head, and a less frequent figure like a broken bow or a swallow-tail (Fr. *chevron*). Some other shapes, such as a hammer, a dagger, angles of parallel insertion, mere lines, &c., all without a curve, are less frequent. They are either cut or stamped upon the substance bearing them, according to the nature of the material. They occur on tablets cut in rocks, on stone slabs, on bass-reliefs, on winged bulls, on vases, gems, seals (some being so minute as to require a microscope), on sun-baked or kiln-burnt bricks or small cylinders; and mostly in horizontal lines. They are read from left to right. Most of them are found within the boundaries of the ancient great Persian empire, a few only having been discovered elsewhere. Democritus called them Assyrian letters, and is reported to have written a treatise on them, and to have translated an epigraph on a pillar. The companions of Alexander the Great saw a tablet so inscribed near Anchiale in Cilicia. Pietro della Valle sent the first Babylonian brick to Athanasius Kircher in 1622. Figueroa saw sphenograms at Persepolis about the same time. Mandelslo (1637), Chardin (1673), Kämpfer, and Herbert, found traces of gold in some on the Chehel-minar (40 pillars, formerly called Hezer-situn, 1,000 columns, of which only 15 were standing at the time of Ker Porter's visit in 1815). Chardin, Cornelius Le Bruyn, and Gemelli-Carreri, at the close of the 17th century, copied some on the site of Persepolis and elsewhere. Tavernier and others also published some account of them in 1663. Kermanshah (Carine), W. of Behistun, was visited in 1737 by Otter, and in 1743 by Em. de St. Albert, whom D'Anville quotes as the first writer on sphenograms; by Kodja Abd ul Kurrim of Cashmere in 1741, &c. In 1765 Carsten Niebuhr copied some at Persepolis and elsewhere, more accurately than had been done before, also giving measurements of various edifices. In 1786 Bishop Beauchamp found bricks at Hillah, and his nephew, the abbé Beauchamp, visited other places beside the site of Babylon, and in 1790 wrote on the manner of searching for these monuments. André Michaux had sent a sphenogrammatic flint to Paris in 1782, and made researches on the rocks of Alvand (or Ervend, ancient Orontes), near Hamadan (eastern Ecbatana), in 1785. These places were also examined by Olivier in 1796, McKinneir in 1810, K. Porter and Bellino, by Keppell in 1824, Malcolm, Morier, Steuart, and Vidal, who copied two tablets. F. E. Schulz, who was killed by the Koords in 1829, copied, during two journeys, many inscriptions on the rocks, on church walls, grottos, &c., in and near the city of Van. One of these sphenograms contains 98 lines with 1,500 characters, and 42 others contain about 900 lines. Col. Monteith found two near Ardzish, and another on the road to Erzroum, the furthest one to the N. W., in the valley of the Little Euphrates. The indefatigable Rawlinson copied some peculiar ones on the Tash-Tepe, on religious subjects, and saw another on the Keli-Shin, a mountain pass, which was covered with ice. A sphenogram of the same nature was found by Moltke on the Euphrates, on a very high rock above Kumurhan, on the route from Ephesus to Babylon, within the chain of the Taurus, between the Armenian and Mesopotamian regions. It was copied by Mühlbach, in 1840. Lepsius published a sphenographic bass-relief from a rock on the Nahr el Kelb (Lycos) near Beyroot, in 1838, commemorating the conquest of Egypt by Cambyses, having near to it a pillar of Rhamses II. (Sesostris). Gen. Dagua copied one with the head of Darius under hawk's wings in token of his apotheosis, near Abu Kesheid, on the canal from the Nile to the Red sea. Witsen described a sphenogram at Tarku (Albana), N. of Derbend, on the Caspian sea, in the beginning of the 18th century. Schulz had intended to go in search of sphenograms to the country of the Sha-to, on Lop lake, where fire-worshippers are said to dwell. Copies of ancient MSS. belonging to the Christians of St. Thomas, in Malabar, now in the

library of Cambridge, England, contain some very ancient Persepolitan letters, with 4 others in ancient Hebrew, and one in an unknown character. J. Tod affirms that he saw many sphenograms on rocks, pillars, &c., at Mundore, in the state of Jhodpoor. Sir Harford Jones sent a great Assyrian epigraph on stone to the East India company in London, in 1803. W. Ouseley furnished materials for sphenographic literature in 1811. The widow of Claudius J. Rich republished (London, 1839) his journey to Babylon and Persepolis, made in 1811, with some valuable notices, especially on Babylonian antiquities. The greatest of all sphenograms, that of Behistun, discovered by Ker Porter, telescopically examined by Coste and Flandin, and explained by Rawlinson, is spoken of below. The rudest cunei, as to design and execution, are those found at Shuster (in Khuzistan or Susiana). Layard describes a species, containing many peculiar groups, found near Mal-Amil, between Shuster and Hamadan. A new period of sphenographic discoveries, joined with those in ancient Asiatic architecture and other great mementoes of bygone civilization, was inaugurated by P. E. Botta, the French consul at Mosul, who, encouraged by J. Mohl, disinterred a great palace at Khorsabad, in March, 1843 (*Monuments de Ninivé*, with designs by E. Flandin, 5 vols., Paris, 1849–'50). His rival, the Englishman Austen Henry Layard, exhumed 3 palaces in the mound of Nimroud in 1845, and one in that of Kuyunjik in 1848, during two visits, beside making discoveries in other places. Two of the former are the most ancient of all. The German Oppert is now (1859) engaged in examining the site of Babylon, on behalf of the French government. The number of sphenograms thus brought to light is surprising. A summary of the discoveries at Nineveh, Babylon, and Persepolis, was published in London, by Vaux, in 1851.—The origin of sphenography is enveloped in utter darkness. Ker Porter thinks it antediluvian, and connected with the tower of Babel. Brandis and others derive it from iconography, in the manner of the Egyptian demotic and the Chinese system of writing. Though no cuneiform manuscript has yet been found, Quatremère supposes a cursive style, for the purposes of common transactions, to have been the prototype of the monumental style, as well as of the square character of the Hebrews, after their return from the Babylonian captivity. Pauthier endeavored to prove the origin of cunei from a cursive style, analogous to the Zendic, Sassanidic, or Palmyrenic letters. Schöttgen attributes the introduction of sphenography into Persia to Darius. Barrois very expeditiously explains all styles of sphenography by dactylology, or the use of the fingers, in indicating the sounds of language. Gell discovered in 1812 a bronze table relating to the Olympian games, probably of the 50th Olympiad, or 577 B. C., in sphenoid letters. Some, probably accidental, resemblance to cuneiforms is also perceived in the runes of Helsingoland. W. Price saw in 1825, at Shiraz, an old manuscript in two kinds of letters, one of which seemed to him to resemble the Persian style of cunei. Niebuhr distinguished 3 styles in the Persepolitan epigraphs, and classified the most remarkable groups. In 1798 O. G. Tychsen supposed that royal titles were written over the portraits of kings, and gave some hints as to the means of reading them. With Münter, he recognized the key in a frequently recurring word, which he suspected to signify king. Münter, with Herder, in 1800, supposed that there were 3 modes of writing, viz.: alphabetic, syllabic, and monogrammatic; he thought that religious matters were written in Zend, and political affairs in Pehlevic. Joseph J. Hager, in 1801, believed the Babylonian to be alphabetic, sacred, and not composed of mere magic signs, as some had thought; having inverted the cylinders, he tried to read it in the Chinese direction downward and leftward. A. A. Lichtenstein (1798–1803) asserted the Assyrio-Persian, as he named it, to be in Cufic letters, containing sentences from the Koran, and the deeds of Tamerlane in Neo-Persian. The abbé Beauchamp believed the epigraphs to have been directions for the masons, as the inscribed side of the Babylonian bricks is found turned inward in the walls. Witte even alleged that the characters had been produced by worms. G. F. Grotefend, following the method of Sylvestre de Sacy in deciphering the Pehlevic inscriptions of the Sassanides at Naksh-i-Rustam (1803), although he had not a profound knowledge of oriental languages, attempted, on the suggestion and with the aid of Fiorillo, by logical induction, to unravel 2 inscriptions copied by Le Bruyn and Niebuhr, on which Tychsen had made trials. He guessed the 2 other writings accompanying each inscription to be of the same contents with the inscription. After a careful scrutiny of the forms of groups, Grotefend examined the Greek historians, Münter's essay, and Heeren's historical researches, to ascertain the age of the Persian kings. Then he tried to find in the epigraphs the names of Cyrus and Cambyses; but the groups had not the same initials. Cyrus and Artaxerxes were too unequal in length. Darius and Xerxes, not offering either of the difficulties, were at last discovered. The groups that might denote the father and the son were also found in proper relation with each other, on both specimens; so that the import of 4 words could be relied on. Now the value of each group, as a letter, was to be ascertained. Anquetil-Duperron's *Zend Avesta* was resorted to. But as Darius is there called *Eanteraffesh*, Grotefend examined *Weorokeshe*, which is the name of Araxes, and so arrived at the sound of the letter *x* in Xerxes, fixing its sound to be *ksh*. By repeated examinations, and aided by materials furnished to him by Bellino and others, he determined the values of *d*, *d̂*, *r*, *u*, *s*, *kh*, *p*, *t*, Eng. *j* and *f*, and came near to *b*, *dh*, *hm*, respectively, by calling them *v*, *th*, *h*. He thus gave a series of 29 letters and one compound

sign for king, and read: *Darheush*, *Ksharsha*, *Goshtaspahe*, *Akhcotshoskoh*; which Rawlinson reads: *Dáryavush*, *Khshárkhsha*, *Vishtáspahyá*, *Hakhamanishiya*. These efforts were made from 1802 to 1816, and were published in Heeren's works in 1815, and in English in 1833. In 1826 Rask rectified Grotefend's *ŏ* by changing it to *m* and *tsh* to *n*, whereby the word answering to *Achæmenius* became clear. St. Martin, following Klaproth, spoiled the *m* by changing it to *a*, and the *n* to *m*; but he agreed with both his predecessors as to *a*, *u*, *t*, *d*, *p*, *s*, and determined correctly *v*, *sh*, *y*, among his 25 letters. Eugène Burnouf (*Commentaire du Yaçna*, Paris, 1833) made out the key to the grammar of the language of the Persian text. This language is derived from the Zend, has decaying grammatic forms, foreshadowing the Neo-Persian, and approaches the Semitic type by the disappearance of vowel signs. He assigns to 15 letters different values from those given by his successors, and makes 32 letters in all, admitting *l*, which is rather *r* or *ru*. Burnouf and Christian Lassen had worked independently at first, but joined their efforts afterward. Lassen's exertions date from 1836, 1839, and 1844, when on receiving exact copies of various Persepolitan epigraphs, made by N. L. Westergaard on the spot, he changed some of his previous views, and admitted 32 Persian letters and 2 compounds (*thr*, *rp*), arranging them analogously to the Dêvanâgarî, after a rectification of the values of all his predecessors. H. C. Rawlinson, who had commenced the deciphering of the same style in 1835, having obtained an impression on paper, made by skilful Koordish climbers, of the high trilingual rock-hewn epigraphs of Behistun, published his views in 1847 ("Journal of the Asiatic Society," vol. xii.), almost totally agreeing with Lassen, and admitting 35 letters and 2 monograms (*dah*, people, and *buhmi*, earth). E. F. F. Beer reviewed Grotefend, Burnouf, and Lassen in 1837, and gave some useful hints. Jacquet also discussed the subject in 1838; he supposes the Behistun epigraphs to belong to Semiramis, and commits other inaccuracies.—The 2d Achæmenian style of trilingual sphenograms, hypothetically named Median by Westergaard, was to a great extent deciphered by him in 1844 (*Mémoires de la société royale des antiquaires du nord*, Copenhagen). He gives 16 groups of consonants, beside *t* and *th*, 6 vowels, and 72 pure syllables, with 2 ending in *s* (*as*, *ahs*); out of 82 perfect and 10 mutilated and spurious groups. He also derives compounds for *phaph*, *rph*, *thr*, *dah*, and *bumi*, counting some groups both as letters and as syllables. The reading of the whole is, however, yet hypothetical to a great extent, owing to the uncertainty of scholars as to the language in which this version of the Persian text is written. Edward Norris calls this version Tartaric, and goes so far as even to construct a Scythian grammar, by means of the Ostiak and Cheremisse dialects ("Journal of the Asiatic Society," xv.). Haug also wrote on this version in 1855.—The 3d Achæmenian style, called Babylonian by Rawlinson, very much resembles the Assyrio-Babylonian, and is yet a problem both as regards its phonetism and its language. This is almost generally admitted to be a Semitic dialect. Ernest Renan, one of the greatest modern Semitists, asserts the 2d style to be Semitic, although he denies the employment of such uncouth letters for a language whose alphabet he asserts to be more ancient and better than the oldest sphenograms. Oppert thinks the language of the 2d style nearer to Ehkili and Mahri, which are classed under the name of Cushitic, as a branch of the Semitic family. Pehlevi or Huzvaresh, an Aryo-Semitic idiom, seems to be the real language of the 2d or Median text. This disagreement of authorities, amounting even to a confusion of the two versions of the Persian text with each other, shows how little is yet known about either. M. A. Stern, encouraged by Benfey of Bonn, asserts that he has found the key to the 3d style, which is to him nearly Hebrew and Chaldaic, and which he professes to read almost without any difficulty. He rejects the whole theory of Rawlinson and of Hincks, who admit a great many ideograms, and a confused polyphony in the values of the characters. He reads each syllable otherwise than De Sacy, adopts literal groups, and classifies 257 of them in 26 categories, headed by 18 Hebrew letters (omitting *l* and *ain*), adding 32 groups for combined sounds. He accepts Botta's homophons, and sneers at Rawlinson for denying triliteral roots, and eliciting the sense of only 200 words from the Behistun text, whereas he himself has found 4 times as many, in proportion, in 15 short epigraphs. Botta does not venture on the slippery path of exegesis, but arranges the Ninevite sphenograms on the basis of 15 dominant figures, and gives a general catalogue of 642 groups, with their variants, in 15 classes, which are named from the number of elements composing them, and contain respectively as follows: 1st class, 4; 2d, 16; 3d, 29; 4th, 54; 5th, 91; 6th, 84; 7th, 77; 8th, 85; 9th, 72; 10th, 51; 11th, 29; 12th, 22; 13th, 12; 14th, 10; 15th (15, 16 or 17 elements), 6. He also gives tables of substitutions and parallels of the sphenograms of Van, Babylon, and the 3d Achæmenian. Edward Hincks, considered by some as the decipherer of the cunei of Van, having written on the Khorsabad style of Botta, afterward abandoned many of his rash assertions, and published his Assyrio-Babylonian phonetic characters, in 1852 ("Transactions of the Royal Irish Academy," 1855). He abandons the method of proper names, but relies, especially in triliteral roots, on radical analysis; asserts that all groups represent syllables, and that the characters of single syllables, exclusive of the 4 vowels (*a*, *e* or *o*, *i*, *u*), have 7 different forms (for instance, *pa*, *pe*, *pi*, *pu*, *ap*, *ip*, *up*); also that the syllabic values of many signs are fixed with all but mathematical certainty. J. Brandis attempts to exhibit what has been gained for history from the deciphering of the Assyrian

sphenograms; also the fundamental traits of the Assyrio-Babylonian system (1856); but his attempts fall very short of the mark in respect of both these objects. Barrois indulges his imagination both on sphenograms and hieroglyphs, and strenuously endeavors to write out the law tablets of Moses in arrow-heads.—The Assyrian, Babylonian, and Elymæan systems and languages still wait for an Œdipus to solve their riddles. It is certain that from time immemorial 3 peoples of different characters and languages were living in close contact and in various relations as to political power, in the countries where sphenography was practised. These 3 groups of nations are the Semitic, Aryan or Iranian, and the Turanian (Aniranian, Scythic, Tartaric, or Allophylic of various writers). Westergaard distinguishes 5 styles of sphenograms, viz.: the Babylonian, Assyrian, and the 3 on the Achæmenian monuments. Rawlinson assumes that there are 5 Assyrio-Babylonian styles, viz.: the primitive Babylonian, Achæmeno-Babylonian, Medo-Assyrian (at Van, Layard's earlier Assyrian), Assyrian (Layard's later Assyrian), and Elymæan or Susianian. Of these the Assyrian of Nimroud is, however, more ancient than the Babylonian, which is rather elongated and hence apparently derived from the former. The styles of Khorsabad and Kuyunjik are less ancient than that of the northwestern palace at Nimroud. Botta, Stern, and others attribute many of the variations to provincial and calligraphic causes. As to their configuration, the Babylonian sphenograms are most complicated, the Persian the most simple and of the latest date, having probably ended with the overthrow of the Achæmenian empire by Alexander. The vertical cunei prevail in the Persian, while the other languages abound in the horizontal. There the words are divided at the end of the lines; not so in others, which exhibit the Semitic mode, by carrying the cunei sometimes even over to the back of the slabs. In the Assyrian the wedges have 4 directions, often crossing each other, and the names of persons, God, countries, &c., are preceded by determinative monograms. The Babylonian cunei lie in 8 directions, and every epigraph on bricks begins with a star-like figure of 4 wedges crossing each other; it has also parallel angles inserted within others, and opening downward and rightward; also many dagger-like lines. Of this style, Rich distinguishes 3 species. Rawlinson thinks that the following list contains all the Persian epigraphs: 1, Morier's on the 4 broken pilasters at Murgab, near Pasagardæ, N. E. of Persepolis, containing "I, Kurush, king Achæmenian;" 2, that at Persepolis, on the palace of Darius, twice over the doors; 3 and 4, on 2 slabs, enumerating nations; 5, at Alvand; 6, at Naksh-i-Rustam, near Persepolis, on the rock-sepulchre of Darius, containing more names of conquered nations than that of Behistun; 7, one of about 60 lines, of which Westergaard copied but 2, containing probably moral and religious precepts; 8, near Suez: "Darius, king great;" 9, that on the windows of the palace of this king, in 18 places, all trilingual; 10, that of Behistun; 11, 3 only on Babylonian cylinders: "I, Darius, king." All these, except the first, are of Darius; the 8 now following are of Xerxes: 1, at Alvand, a single line, perhaps on a road-mark; 2 to 5, on various parts of his palace; 6, at Van, probably engraved on his return from Europe, copied by Schulz, and more completely by E. Boré, in 1828, a Babylonian transcript; 7, on the palace of Darius, at Persepolis, stating: "My father built this house," &c.; 8, Darius, trilingual, on the vase of Caylus, where the hieroglyphs show the phonesis: *Khshayārsha naga wazarka.* No sphenograms of Artaxerxes Longimanus or of Artaxerxes Mnemon have yet been found. The 2 of Artaxerxes Ochus exhibit barbarisms; they are: 1, on the staircase of the terrace of the palace of Darius, relating his descent from Arshama and Vishtāspahya, &c., and invoking the blessing of Ormuzd; 2, the legend in Babylonized orthography: *Ardakhchashcha naga wazarka*, "Artaxerxes, king great," upon an Egyptian vase, in hieroglyphs and the 3 Achæmenian species, preserved in the treasury of St. Mark's, at Venice. The most recent of all known sphenograms, with mixed characters, is that of Tarku, which Burnouf attributes to one of the 30 Arsacidæ, kings of Parthia (250 B. C. to A. D. 226). Herodotus mentions 2 pillars of Darius on the Bosporus, erected while he was assailing the Scythians, with the names of the nations in his army; the one in Greek, the other in Assyrian.—Rawlinson's Behistun inscription consists of 4½ great Persian columns and 11 detached pieces, embracing as much of the language as had been previously discovered from all other monuments put together. The 5 columns of the so-called Median are partly mutilated, and the Babylonian version is only on 4 columns. This document is inscribed upon the sacred rock on the W. frontiers of Media, on the high road from Babylonia eastward. The hill of Bagistane (God's place), rising abruptly from the plain to a vertical height of about 1,700 feet, was most fit for a memento of the deeds of Darius, immediately after he ascended the throne. It informs the world, that while occupied in the reform of the national faith, an insurrection was easily checked in Susiana; that soon afterward a pretended son of Nabonidus of the house of Nabonassar was conquered in Babylon; that a league between Media, Assyria, and Armenia was defeated with great difficulty by himself in person; and that several other insurrections, especially a most dangerous one in Persia, raised by another pseudo Smerdis, had been suppressed. When probably on the road to Babylon to quell a new rebellion, and he heard of its being put down, he engraved his thanksgiving to Ormuzd on this sacred spot, in the 5th year of his reign (516 B. C.). The incision is about 300 feet from the base of the rock; and its inaccessibility preserved it from the iconoclastic fury of Islam. For extent, beauty of execution, uniformity, and correctness, this in-

scription is perhaps unequalled, the Persian being superior to any engraving even at Persepolis, the Median equally admirable. A coating of silicious varnish is yet visible on the tablet, where it has not fallen off from the limestone, which is softer than this covering. Darius begins by proclaiming his genealogy and titles in the following strain: *Adam Dārayavush, khshāyathiya vazarka, khshāyathiya khshāyathiyanām, khshāyathiya Pārsiya, khshāyathiya dahyaunām, Vishtāspahyā putra, Arshāmahyā napā, Hakhāmanishiyā.* Regularly translated into Latin, which language admits the inflections of the original, this is: *Ego Darius, rex magnus, rex regum, rex Persiæ, rex gentium, Hystaspis filius, Arsamis nepos, Achæmenius.* Some defective Persian passages are restorable from both versions or from either, and *vice versa.* All other paragraphs or specific proclamations begin thus: *Thātiya Dārayavush khshāyathiya* (*Prædicat Darius rex*). The 6th of the 1st column enumerates, after the heading, the provinces of his empire, thus: *Imā dahyāva tyā manā patiyāisha, vashnā Auramazdāha adamshām khshāyathiya āham* (*Ecce regiones quibus ego potitus; gratia Ormuzdi ego fuctus rex sum*): *Pārsa, 'Uvaja, Bābirush, Athurā, Arabāya, Mudrāya, tyiya darayahyā, Saparda, Yunā, Māda* (restored from the Scythic *Ma-pata*), *Katapatuka, Parthva, Zaraka, Hariva, 'Uvārazmiya, Bakhtarish, Suguda, Gadāra, Saka, Thatagush, Hara 'uvatish, Maka, fraharvam dahyāva XXIII* (*Persia, Susiana, Babylonia, Assyria, Arabia, Misra* [*Ægyptus*], *quæ maritimæ, Saparda, Ionia, Media, Cappadocia, Parthia, Zarangia, Arya, Chorasmia, Bactria, Sogdiana, Gandaria, Sacæ, Sattagydia, Arachosia, Mecia, simul provinciæ XXIII*). J. Oppert, one of the latest investigators of Babylonian and other kindred antiquities, published in 1857 the translation of the inscription on the sepulchre of Darius I. at Naksh-i-Rustam. He believes it to be next in importance to that of Behistun; and he calls the first version of the Persian text Medo-Scythic, and the second Assyrian. It runs thus: *Baga vazarka Auramazdâ hya imâm bumim adâ hya avam asmânam adâ hya martiyam adâ hya Siyatim adâ martiyahyā hya Dārayavum khsâyathiyam akunaus aivam paruvnām khshâyathiyam aivam paruvnâm framâtâram*, &c.; in Latin: *Deus magnus Ormazdes, qui hanc terram creavit, qui istud cœlum fecit, qui hominem fecit, qui imperium dedit homini, qui Darium regem constituit unum multorum regem, unum multorum imperatorem*, &c. Next follow his titles and genealogy, and the names of his provinces, viz.: *Māda, Uvazā, Parthava, Haraiva, Bākhtris, Sugda, Uvarazmis, Zaranka, Harauvatis, Thatazus, Gāndāra, Hindus, Sakā humargā, Sakā tigrakhauda, Yaunā Sakā tyaiy paradaruya, Skudra Yaunā, Putiyā, Kusiyā, Maciyā, Karkā*; in Latin: *Media, Elymaïs, Parthia, Aryana, Bactria, Sogdiana, Chorasmia, Sarangia, Arachotis, Sattagydia, Gandaria, India, Scythæ pastores, Scythæ sagittarii; qui trans mare: Scodri Iones crinibus plexis* (European Greeks), *Put, Cus, Maxyes* (Libyans), *Carthago.* Then follows a passage concerning the usurper Pseudo-Smerdis: *Auramazdā yathā avaina imâm bumim yâtum pasāva dim manā frābara mām khshāyathiyam akunaus*, &c.; *adam sim gâthavâ niyasādayam*, &c.; in Latin: *Ormazd quum vidisset hanc terram magicam* (under the superstition of the Magi), *tunc eam mihi tradidit*, &c.; *ego in rectum reposui*, &c. Oppert agrees with Niebuhr and Heeren, in following Herodotus in the belief that the rebellion of Gaumata, recorded at Behistun, was that of Smerdis the Magian both as a national and religious, or Medo-Magian, leader. But Rawlinson and others contend that it was merely an attempt to substitute the rule of the priests for that of the warriors. Magism, as the religion of Turan, was opposed to the Mazdeism of the Aryan Persians and Medes. The latter was upheld by the Achæmenian dynasty, as a state religion, even after it had yielded to the former in Media. On account of the restoration of the temples and worship, after the overthrow of Gaumata, Darius was believed by some to have been contemporary with Zoroaster. The Achæmenidæ were one of the 13 tribes of the Pasagardæ. The families of the 6 conspirators, who had assisted Darius against the first rebel Magus, had the privilege of furnishing wives to the Achæmenians. There was no other nobility by birth in Persia.—The oldest Assyrian records are those of conquests. In the N. W. palace at Nimroud there are slabs, vases, &c., bearing the names of kings, an Egyptian cartouche, and the best sphenograms yet discovered. A second period shows still further traces of an intercourse of the empire with Egypt, as early as the 18th Egyptian dynasty. Egyptian monuments confirm this intercourse reciprocally, as shown by H. Brugsch (*Geographie der Nachbarländer Aegyptens*, Leipsic, 1858). The results of a thorough and unprejudiced comparison of the Assyrian monuments with those of Egypt, are likely to upset a great many theories on the races, politics, religion, industry, and fate of the early inhabitants of western Asia.—Among the numerous legends on Babylonian bricks, cylinders, &c., the standard one of Nebuchadnezzar is the most remarkable. It begins with his titles, continues with prayers to Merodach and Nebo, then records the wonders of Babylon, viz.: the great temple of Merodach (the mound of Babel is its tower), the Borsippa temple (Birs Nimroud), and other temples, and finally describes the city, thus: "The double enclosure which Nabopolassar, my father, had made, but not completed, I finished. With 2 long embankments of brick and mortar he bound its (Euphrates) bed, made a bridge, &c. The Irgar-Bel and the Nimiti-Bel—the great double wall of Babylon—I finished," &c. In this legend the names of many works at Babylon and Borsippa, mixed with invocations to the gods and wishes for the duration of various edifices, are mentioned in great detail. It may also be remarked that the bricks were mixed with chopped straw, and often glazed; that the walls built with them

were cemented with bitumen. No remains of columns occur, either at Babylon or at Nineveh. The bricks may have been public documents, or dedications to the gods; the cylinders may have been used instead of seals; in short, most of the points concerning these remains are yet involved in obscurity.—See also Thomas Maurice, "Observations on the Ruins of Babylon" (London, 1816); Obry d'Amiens, *Revue du mémoire de Burnouf*, &c. (*Journal Asiatique*, t. ii. 1836); Cullimore "On Oriental Cylinders" London, 1842); Holzmann, *Beiträge zur Erklärung persischer Keilschrift* (Carlsruhe, 1845); "The History of Herodotus," by George Rawlinson, assisted by Sir Henry Rawlinson and Sir J. G. Wilkinson (London, 1858–'9).

CUNHA, Tristan da, a Portuguese naval commander of the latter part of the 15th century. He figures in Camoëns' "Lusiad" as a discoverer of a group of islands, the most important of which continues to bear his name.

CUNHA MATTOS, Raymunde José da, a Brazilian general, born Nov. 2, 1776, at Faro, in the Portuguese province of Algarve, died in March, 1840. He entered the Portuguese army in 1790, and served 3 years in the south of France, and 18 years in the island of St. Thomas, Africa; was then called to Rio de Janeiro, and afterward acted for some time as governor of St. Thomas. From the first he distinguished himself both as a soldier and as a writer on the countries through which he passed. In 1817 he returned to Brazil, and was appointed commander-in-chief of the artillery of Pernambuco, and subsequently military governor of the province of Goyaz. Here he collected valuable materials for a work upon the interior of Brazil, which was published in Rio de Janeiro in 1836. To this city he removed in 1826, on occasion of his election to the Brazilian legislative assembly. The military academy of Rio was placed under his direction in 1832, and shortly afterward he was promoted to the highest rank in the Brazilian army. He was secretary for life of the industrial aid society, and one of the founders and for several years vice-president of the historical society of Rio de Janeiro.

CUNHA BARBOSA, Januario da, a Brazilian prelate and statesman, born July 10, 1780, died Feb. 22, 1846. Brought up for the priesthood, he was for some time chaplain of John VI., and afterward professor of moral philosophy. In conjunction with Ledo he established (Dec. 15, 1821) a political journal at Rio de Janeiro, entitled *Reverbero constitucional fluminense*, in which he exerted a powerful influence upon the public mind in favor of Brazilian independence. After this had been declared, Cunha was at the instigation of his enemies arrested, Dec. 7, 1822, and banished to France. Two years afterward the government offered him a reparation for the injustice of which he had been the victim, by appointing him officer of the newly founded order of the Cruzeiro, and canon of the imperial chapel. In 1826 he took his seat in the first Brazilian legislative assembly as member for the province of Rio de Janeiro. The rest of his life was devoted to the political and intellectual development of Brazil. In concert with Gen. Cunha Mattos, he founded the historical and geographical society of Rio de Janeiro, and conducted the *Revista trimensal*, which recorded its proceedings. At the same time he was editor of the *Diario do governo*, a political journal favorable to the policy of the government, and of the *Auxiliador da industria nacional*, a paper devoted to the interests of agriculture and industry. These multitudinous journalistic labors did not interfere with his clerical duties, nor with the various trusts which devolved upon him as examiner of the synod, imperial historiographer, and director of the national library. He was just about to propose a comprehensive educational reform when he died. He left 2 small volumes of poems.

CUNIN-GRIDAINE, Laurent, a French manufacturer, born at Sedan in 1778, rose to the position of minister of commerce in 1837. Apprenticed in early life to the extensive cloth manufactory of Gridaine and Bernard, he became the son-in-law and partner of M. Gridaine. In 1817 he was chosen to the chamber of deputies, where he afterward opposed the administration of Polignac. After the revolution of 1830 he became secretary and vice-president of the chamber, and officiated as minister of commerce almost uninterruptedly from 1837 to 1848.

CUNNINGHAM, Alexander, a Scottish classical scholar, son of the minister of Cumnock, Ayrshire, died in 1730. The date of his birth is uncertain, as is also the place of his education, although circumstances indicate that he studied at Leyden and Utrecht, and defrayed the cost of his studies by acting as private tutor. By the interest of the Queensberry family, whom he had taught, he received from the crown the appointment of professor of civil law in the university of Edinburgh. In support of this office the Scottish parliament in 1698 voted £150 sterling annually for 10 years. The magistrates of the city, however, were jealous of the power assumed by the crown to nominate to professorships, and in 1710 they gave the place to another. Mr. Cunningham retired to the Hague, where he spent the rest of his days in philological pursuits. He enjoyed the friendship of Leibnitz, Le Clerc, and indeed of most of the scholars of the day. He published annotated editions of Horace, Virgil, and Æsop. Some of his criticisms aroused a lively controversy with Dr. Bentley. His chief work, which he did not live to complete, was a critical digest of the Pandects of Justinian. He had also in contemplation a work on the evidences of Christianity. —Another man of celebrity, named Alexander Cunningham, flourished at the same time. The two are often confounded. Both were Scotchmen, educated in Holland, the sons of clergymen; both were classical scholars, and, in their youth, tutors. The present Cunningham, a historian, was born at Ettrick in 1654, died in Lon-

don about 1737. His pupils having introduced him into the upper circles of society, he returned from Holland to England in the suite of the prince of Orange. Subsequently he was George I.'s minister to Venice, from 1715 to 1720. Long after his death his Latin manuscripts fell into the hands of his relative, Dr. Hollingbery, archdeacon of Chichester; and in 1787 Dr. William Thomson published a translation, entitled the "History of Great Britain, from the Revolution in 1688 to the accession of George I."

CUNNINGHAM, Allan, a Scottish poet and miscellaneous writer, born at Blackwood, in Dumfriesshire, in 1785, died in London, Nov. 5, 1842. He was of humble parentage, his family, which had formerly been wealthy, having lost its patrimonial estate by taking the side of Montrose. He learned from his father a love for old Scottish tales and ballads, and was sent to school till his 12th year, when he was apprenticed to a stonemason. In his 18th year, having already written several poetical pieces, he sought the acquaintance of the Ettrick Shepherd, who has left in his "Reminiscences" a notice of him as at that time "a dark, ungainly youth, with a broadly frame for his age, and strongly marked manly features, the very model of Burns, and exactly such a man." Cromek, who had collected the poetical relics of Burns, having determined to gather the remains of Nithsdale and Galloway song, engaged Cunningham for an assistant, who furnished him materials sufficient for an octavo volume, which was published in 1810. It soon appeared that Cunningham was the original author of the most beautiful pieces in the collection. At the age of 25 he went to London, and during 4 years established a literary reputation by numerous contributions to periodicals, especially to the "London Magazine." At once a mason, poet, and journalist, in 1814 he was selected by the sculptor Chantrey to be his foreman and the confidential manager of his establishment, in which congenial position he remained till the artist's death. To him Chantrey was indebted not only for many suggestions, but for numerous critiques in periodicals by which his reputation was extended. Though relieved from the necessity of depending on authorship, Cunningham continued a diligent and constantly improving writer. Some of his songs, with which his fame began, and upon which it will mainly rest, were declared by Sir Walter Scott to rival those of Burns. His various publications are: "Sir Marmaduke Maxwell" (1822), a wild drama founded upon border superstitions; several novels, often written with beauty and force, but distinguished by exaggerated ornament and extravagance of imagination, as "Paul Jones," "Sir Michael Scott," "Lord Roldan," and "Traditional Tales;" the "Life of Burns" (1834), and the "Life of Sir David Wilkie" (1843); the "Maid of Elvar," a poem; the "Songs of Scotland, Ancient and Modern, with Introduction and Notes" (1826), which contains many of his own best poems; the "Lives of the most eminent British Painters, Sculptors, and Architects" (1830), which was characterized by Prof. Wilson as "full of a fine and instructed enthusiasm;" and the literary illustrations to Major's "Cabinet Gallery of Pictures." His ballads and smaller poems are graceful, natural, airy, and eminently Scotch.—Peter, eldest son of the preceding, an English author, born in London, April 7, 1816. He was made clerk in the audit office by Sir Robert Peel at the age of 18, is one of the regular contributors to "Fraser's Magazine," and had the charge and arrangement of the works of art in the Manchester exhibition of 1857. He has written an excellent "Handbook of London," full of pleasant and curious local information, together with other interesting topographical works. He edited the poems of Drummond of Hawthornden (1833), and has edited the "Works of Goldsmith," and a new edition of "Johnson's Lives of the Poets," and is now (April, 1859) completing Croker's edition of Pope.

CUNNINGHAM, John, a British poet, born in Dublin in 1729, died in 1773. He was the son of a wine merchant, adopted the stage as a profession, in which, however, he did not attain celebrity, although he was much respected, and wrote several small volumes of poetry, distinguished by pastoral simplicity and sweetness (London, 1766, 8vo.; reprinted in the 14th vol. of Chambers's collection of the poets).

CUNOCEPHALI, or Cynocephali (Gr. κυων, dog, and κεφαλη, head), in the mythology of the Egyptians, a kind of dog-faced baboons, greatly venerated by them, and supposed to be endowed with wonderful powers. By the assistance of these animals they discovered the particular periods of the sun and moon, and it was said that half of the animal was often buried while the other half survived. The dog-head was a favorite symbol with the Egyptians. The god Anubis was represented in this manner, though the head of his image, as is rendered probable by modern researches, is that of a jackal. Cunocephali have also been found in India and elsewhere.

CUPEL, Cupellation. In the article Assaying the method of separating the unoxidizable metals gold and silver from the easily oxidized metal lead, by the process of cupellation, has been described. The cup-shaped vessels, called cupels, in which the melted alloy is exposed to a current of air playing upon its surface, are made of a paste formed of the ashes of burnt bones, mixed with water, to which a little glue may be added or not. This is kneaded into the form of a shallow cup, and dried not so rapidly that the paste shall crack. Cupels are manufactured on a large scale, to be used in separating silver and gold from lead, and from lead and copper; on a smaller scale, for use in the mints and assay office; and of very small size for blowpipe operations. The great cupels or tests used in large metallurgic operations are of oval form, 4 feet long and 2½ feet on the smaller diameter. They are constructed within a hoop or frame

of ½-inch bar iron, 4 inches deep, with several wide cross bars arranged to form an open kind of floor, upon which the sifted bone ash, mixed with about $\frac{1}{10}$ its bulk of fern ashes or $\frac{1}{40}$ its weight of pearlash, is firmly rammed. In this a cavity is scooped out with a trowel about 2¾ inches deep, leaving a wall of bone ash 2 inches thick at top and 3 at bottom, one end only retaining 5 inches thickness—the bottom 1 inch. At the thick end or breast a segment of the bone ash is removed, leaving an opening between the cupel and the hoop. The whole piece is then set in a furnace, of which it forms the floor, and after being cautiously heated, the alloy, called rich lead, is poured into it. At the end opposite the breast the nozzle of a powerful blowing apparatus is placed, so as to direct a current of air over the surface of the melted metals. A portion of the litharge sinks into the cupel, and the remainder is blown across and falls through the opening in the breast into a vessel placed to catch it.

CUPICA, a village and seaport of New Granada, on a small bay of the same name, near the entrance to the bay of Panama; lat. 6° 40′ N., long. 77° 50′ W. It has been proposed as the Pacific terminus of an interoceanic ship canal; its distance from the head of navigation on a branch of the Atrato river, which flows into the gulf of Darien, being only 17 miles.

CUPID (Lat. *cupido*, desire), called by the Greeks Eros, the god of love. In the earlier times of Grecian mythology Eros was one of the chief and oldest of the gods, and an important agent in the formation of the world, he having brought order out of chaos. But later he was the god of sensual love, and one of the youngest of the celestials. It is from this later Eros that we have our common idea of Cupid. He is the son of Venus; but the honor of his paternity is variously given to Mercury, Mars, and Jupiter. He is usually represented as a winged boy, with a bow and arrows; sometimes he is figured as blind, and he usually accompanies his mother Venus. He held sway over gods and men, and the great Jupiter himself was not secure from his attacks. He was very mischievous, and his wantonness furnished the later poets with the theme for many stories. He had sharp, golden arrows, to excite love, and blunt, leaden-headed darts, to inspire aversion in the breasts of his victims.

CUPPING, a method of local abstraction of blood, through small scarifications of the integument, by the assistance of bell-shaped glasses exhausted of air; when the object is merely to draw blood to a part, for purposes of revulsion, the exhausted glass is used without incision of the skin; the latter is called dry cupping. The old method of exhaustion was by burning a bit of paper, or a few drops of alcohol, in the interior of the glass, which was then immediately applied to the skin; a more convenient and certain exhaustion is now obtained by means of a small syringe attached to the cup; by the latter method the risk of burning the patient is avoided, the locality may be carefully selected, and the pressure accurately graduated. Even for dry cupping it is well to apply heat to the skin, in order to render it more vascular. If, after the blood be drawn to the part by a dry cup, it be desirable to deplete the vessels, the skin may be cut by a bistoury or lancet, or by an instrument for the purpose, called a scarificator; this consists of a square box of brass, in which are mounted from 6 to 16 blades, which are set and discharged by a spring; the depth of the incision can be exactly regulated, and the action is so instantaneous that very little pain is felt. From these little wounds the pump draws into the glass from 1 to 5 oz., according to its size; after sufficient blood has been drawn, a piece of adhesive plaster is put on to close them and prevent suppuration. Dry cupping is of great utility in congestions of the brain and lungs, applied in the first case to the nape, shoulders, and arms, and in the second to the back and base of the chest; also in diseases of the eyes. The amount of blood taken by cups can be well measured; they are less disgusting than leeches, quite as effectual when they can be applied, and not liable to be followed by inflammation of the wounds; they are employed both after, and in place of, general bleeding. In pneumonia, pleurisy, and abdominal inflammations, and various local affections, they are applicable when venesection would be out of the question, and are generally preferable to leeches. Cups may be used to prevent the absorption of the virus in poisoned wounds and bites. M. Junod, in France, in 1838, invented a monster apparatus, capable of receiving the whole lower extremity, in which by means of a pump the limb could be compressed or placed in a comparative vacuum; the derivative and revulsive effects of this apparatus were most energetic, amounting, if desired, to the production of syncope.

CURAÇOA, Curaçao, Curazoa, or Curassou, an island of the Dutch West Indies, in the Caribbean sea, 46 m. N. from the coast of Venezuela; lat. 12° 3′ to 12° 24′ N., long. 68° 47′ to 69° 16′ W.; length from N. W. to S. E. 36 m., breadth 8 m.; pop. in 1857, 17,864, of whom 15,076 were Catholics, 1,922 Protestants, and 866 Jews. It has a hilly surface, with rugged coasts, and is exceedingly barren. The climate is dry and hot, though tempered by sea breezes, and the island is visited by the yellow fever every 6 or 7 years. Fresh water is scarce, and is obtained either from rain or deep wells. Severe droughts frequently occur; the soil is so poor that provisions are imported, and some of the products once cultivated, as indigo, cotton, and cocoa, are now entirely neglected. Sugar, tobacco, maize, cochineal, cattle, horses, asses, sheep, and goats are raised; the tamarind, banana, cocoa palm, orange, and various kinds of kitchen vegetables, grow well, and from the lime is made the celebrated Curaçoa liqueur. Excellent fish are taken off the coast, but the staple of the island is salt, which is obtained by natural evaporation

to the amount of about 250,000 barrels per annum. Iron and copper ores exist, but are not worked. The total imports are valued at $1,000,000 annually, and the exports at $1,125,000. The principal harbor is that of Santa Anna on the S. W. coast, one side of the narrow entrance to which is defended by Fort Amsterdam, while on the other stands Willemstad or Curaçoa, the capital of the island and of a government which includes this and the neighboring islands of Buen Ayre, Oruba (or Aruba), and Little Curaçoa, and presided over since 1855 by R. F. van Lansberge. Curaçoa was settled by the Spaniards in the 16th century, taken by the Dutch in the 17th, captured by the British in 1798, restored to Holland at the peace of Amiens, again seized by England in 1806, and finally given up to the Dutch in 1814.

CURASSOW, a name given to two genera of birds of the order *gallinæ*, and the family *cracidæ;* the two genera are *crax* and *pauxi*, both peculiar to America. The curassows have the bill moderately long, strong, generally elevated at the base, with the culmen curved, and the sides compressed to the obtuse tip; the nostrils are lateral and large, with an opening partly closed by a crescentic or rounded membrane; the hind toe is long, and on the same plane with the others. In the genus *crax* the bill is moderate; the wings short and rounded, with the 6th to the 8th quills equal and the longest; the tail long and rounded; the tarsi robust, longer than the middle toe, and covered in front by broad scales; the toes long, strong, and covered with prominent scales, the lateral toes being equal; the claws are moderate, compressed, and curved. Six species are described, of which the most interesting are: 1. The crested curassow (*C. alector*, Linn.), of a general black color, with the lower belly white, and the cere yellow; the head is ornamented with a crest of recurved and frizzled feathers, radiated, alternately white and black; the sides of the head and base of the bill are bare; at certain ages the body, wings, and tail are banded with white. It is 3 feet long, about as large as a turkey. This species has frequently been carried to Europe from Guiana, and is the one generally seen in collections; in addition to its pleasing appearance, it is mild and social in its manners, and affords a savory and nutritious article of food. It inhabits the forests of tropical America in large flocks, whose peaceable members seem not to fear man unless in the neighborhood of dwellings. The nest is of very rude construction, placed upon dry branches on trees, and lined with leaves; the eggs are from 2 to 6 in number, white, resembling those of the turkey. Though living in the wildest localities, it exhibits a remarkable disposition to become tame, and flocks of them are frequently domesticated; they perch in elevated situations, on roofs and high trees; they are easily reared, as almost any kind of vegetable food agrees with them; maize, rice, bread, potatoes, and all kinds of fruits, are eagerly eaten by them. There is no doubt that these and the allied species could be introduced with advantage into the list of domesticated birds, both in this country and in Europe. 2. The globose curassow (*C. globicera*, Linn.) is distinguished by a callous globular tubercle at the base of the bill, inclining backward, covered, like the base of the mandibles, with a bright yellow cere; the general color is black, with the vent and tip of the tail white. This bird unites with the preceding and the next species, producing hybrids, which may be more or less continued by intermixture of the primitive stocks, presenting a very great variety of colors; from this has arisen many a supposed new species. 3. The red curassow (*C. rubra*, Linn.) has no tubercle on the bill, and has the region of the eyes feathered; the color of the under parts is a bright chestnut, with the head, neck, and tail banded with black and white, and occasionally with yellow. 4. The wattled curassow (*C. carunculata*, Temm.) has the head black, the belly chestnut, and the cere and naked parts red, with a black crest. The other species are *C. globulosa* (Spix), and *C. urumutum* (Spix).—In the genus *pauxi* the bill is short, and the culmen is elevated and much curved; the 6th and 7th quills are equal and the longest; the greater part of the head is covered with short velvety feathers. Three species are described: 1. The cushew curassow (*P. galeata*, Lath.), with a hard and thick oval tubercle, of a blue color, at the base of the bill; general color black, but about the vent and the end of the tail white; it is about the size of a turkey, and, like the other curassows, is readily domesticated. 2. The razor-billed curassow (*P. mitu*, Linn.) is smaller than the preceding, being about 2½ feet long; of a black color, with the belly chestnut. 3. The *P. tomentosa* (Spix).—The curassows (or hoccos, as they are sometimes called) and the pauxis, with the *penelope* or guan, are to South America what the turkey is to North America; in the state of domestication they exhibit the same traits and habits as ordinary poultry; they are polygamous, many females being attached to a single male; they are easily acclimated in Europe, and of course would be in the United States; they live in peace with other gallinaceous birds, and rarely utter any discordant cries—qualifications of which many of our domestic fowls are destitute. The flight of the curassows is heavy and ill sustained; but they run with great rapidity, carrying the tail in a pendant position. According to Sonnini, their cry may be represented by the syllables "pohic;" in addition to this they make a dull humming sound, as does the turkey, variously modified by the remarkable sinuosities of the windpipe. The trachea in the *cracidæ* differs from that of other gallinaceous birds in its remarkable circumvolutions. In the curassows proper they take place at the lower part of the neck, or in the thoracic cavity; in the pauxis they are directed on the muscles of the breast, immediately under the integuments; but in none of them does the trachea form its con-

volutions in the interior of the breast bone, as in the swans. In the crested curassow the trachea is flattened, chiefly membranous, with the rings entire and very distant from each other; it describes a broad curve between the bones of the furca, goes back 2 inches over the muscles of the neck, and then makes a second circumvolution, from which it takes the usual form as far as the lower larynx, where it is suddenly dilated. In the *pauxi*, the trachea at the opening of the thorax ascends over the right great pectoral muscle at a distance from the crest of the breast bone, continues along this muscle, and forms a curve passing somewhat behind this bone; it then proceeds over the left pectoral muscle, making a turn on the side of the breast bone, passing behind it above the first curve; then it turns again to the right, and passes over the right clavicle into the cavity of the chest. The windpipe may be shortened or lengthened by muscular action. This conformation is doubtless connected with the loud and sonorous voices of these birds. The curassows are extensively distributed over America, being found in the Guianas, Brazil, Paraguay, Mexico, Central America, and probably in some of the West India islands. It would be worthy of trial to introduce this family of birds into our southern and middle states; they would in course of time add an important article of food, and afford a new source of profitable industry.

CURATE (Lat. *curare*, to take care), the lowest degree of clerical rank in the church of England, so called from having the care of souls. The curate is the substitute or assistant of the actual incumbent. Perpetual curacies are those where there is neither rector nor vicar, but the tithes having been appropriated, the lay appropriator is obliged to appoint a curate at a stipend. In large parishes it is usual to appoint more than one curate to officiate in the parish church, and to assist the incumbent in his duties. There are also curates in chapels of ease, and in the modern foundations known as district churches, which belong to ecclesiastical subdivisions within parishes, and subordinate to the rector or vicar in some matters, though independent in others. By act 1 and 2 Victoria, the lowest stipend to be paid to a curate is £80; the sum rising, in proportion to the population of the cure, to £150, as a maximum. Curates who are not merely assistants to a rector or a vicar, are usually incumbents of churches in which no vicarage was ever established, or incumbents of foundation later than the date of the foundation of parishes, and endowed by the special bounty of particular persons.

CURCULIO, or Plum Weevil, a small beetle of the family *curculionidæ*, and genus *rhynchænus* (Fabr.), *R. nenuphar* (Herbst.). The perfect insect is about ⅛ of an inch long, of a dark brown color, variegated with white, yellow, and black spots; it looks like a dried bud when shaken from a tree, and remains motionless when disturbed, feigning death. The head is furnished with a long curved snout, bent under the thorax when at rest, which is used to make the crescent-shaped cut in which the egg is deposited; the jaws are at the end of the snout; the thorax is uneven, and the wing cases are ridged and humped, covering 2 transparent wings by which the insect flies from tree to tree; behind the humps there is a yellowish white spot; each thigh has 2 small teeth on the under side. These beetles appear between the first of April and the middle of June, according to the forwardness of vegetation. When the plums are about the size of peas, the female begins to sting the fruit, making an incision in the skin, in which she deposits a single egg; she goes from plum to plum, placing an egg in each until her store is exhausted, hardly a fruit escaping when these insects are abundant. The grubs, resembling whitish, footless maggots, with a rounded, distinct, light brown head, are hatched by the heat of the sun, and immediately burrow obliquely to the stone; the fruit, weakened by the gnawing of the grub, becomes gummy, and falls to the ground before it is ripe; by this time the grub has attained its full size, quits the fruit, and enters the ground between the middle of June and the middle of August in New England; it there becomes a pupa, and comes forth a perfect insect in about 3 weeks. Several broods may be hatched in a season, the latest ones remaining as pupæ in the ground all winter; some good authorities believe that the curculio passes the winter above ground in the perfect state, and therefore that any operations in the soil at this season can be of no advantage in guarding against its ravages. Not only plums, but nectarines, apricots, peaches, cherries, apples, pears, and quinces, are attacked by the curculio. The grubs are sometimes found in excrescences on plum trees, in which the beetle, finding in them an acid resembling that of the fruit, has deposited the eggs, and hence has often been wrongfully accused of producing these swellings. As the curculio is a good flier, any efforts to prevent its ascending the trunks of trees must be of no avail. Among remedies which have been found successful on a small scale, the following deserve mention: sudden jars of the limbs in the morning and evening in June, when they are depositing their eggs, will cause many to fall upon sheets spread beneath the trees, from which they may be collected and destroyed; scattering air-slacked lime in damp days on the trees once a week for 6 weeks, beginning soon after the fruit is discoverable; sprinkling flour of sulphur over them about the time the fruit is setting, and once or twice afterward; applying by means of a syringe a whitewash solution, rendered sticky by a little glue. All fallen fruit should be destroyed by heat, that the grubs may not escape into the ground, and give rise to a new generation; diseased excrescences should be cut out; the admission of swine and poultry about the trees will cause many of the larvæ to

be devoured before they can enter the ground.—The gray-sided curculio is pale brown, from ¼ to ⅓ of an inch long; the larvæ live in the trunks of the white oak, on which the beetles may be found about the beginning of June. Other *curculionidæ* destroy pine trees, and infest various kinds of nuts in this country. In Europe there are many species which as yet are not found here. The most destructive of the family are those which attack wheat and other grains. (See Weevil.)

CURES, in ancient geography, a town of the Sabines, 25 m. from Rome, near the left bank of the Tiber. In the time of Romulus, according to tradition, the people of Cures were united with the inhabitants of Rome, whence the latter were afterward designated Quirites. The colleague of Romulus, Tatius, and Numa Pompilius, the 2d king of Rome, were both natives of Cures. The city fell into decay at a very early period, was revived by Sylla, and was at last destroyed by the Lombards in the 6th century. The modern village of Correse occupies its site.

CURETES, priests and ministers of Cybele or Rhea. The rites and orgies with which they celebrated the worship of their deity were almost identical with those of the Corybantes.

CURFEW, the evening bell (spelled also curfeu, carfou, and courfeu, a corruption of Fr. *couvre feu*), so called from the evening bell having been the signal to extinguish fire on the hearth and remain within doors. The practice was common in the middle ages. Polydore Virgil states that William the Conqueror introduced it into England as a measure of police. The obligation of extinguishing fire and light on the ringing of the curfew was abolished in England by Henry I. in 1100, but the evening bell itself was continued. We find entries in the municipal records of "ryngyng ye curfewe," "a man to ring the curfew," "new rope for the curfew bell," and so on, as late as the beginning of the 16th century. The evening bell and prayer bell, still tolled at stated hours in some places, had their origin in the *couvre feu*.

CURIÆ, the name of certain divisions of the people of ancient Rome. Romulus divided the whole population into 3 tribes, and each tribe into 10 curiæ. Although there were afterward 35 tribes, yet the number of the curiæ remained always the same. At first these curiæ possessed considerable political importance, but from the time when Servius Tullius instituted the centuries, their influence became slight. The place where a curia met was also called curia, and the place where the senate met was designated by the same name. In the Roman provincial cities, the name was applied to the body which administered the affairs of the town, and was responsible to the Roman government for the taxes. In the middle ages the name was also given to a solemn assembly of the counts and prelates of the empire.

CURIATII. See Horatii.

CURIO, C. Scribonius. I. A Roman publicist, a son of C. Scribonius the orator, died in 53 B. C. He was tribune of the people in 90 B. C., prætor in 82, and consul in 76. On the expiration of his consulship, he obtained the province of Macedonia, where he distinguished himself by waging successful war against the barbarians dwelling north toward the Danube. In 57 he returned to Rome and was appointed pontifex maximus, which office he held till his death. He had some reputation as an orator, and was at once a virulent enemy of Cæsar and an intimate friend of Cicero. II. A son of the preceding, was made tribune of the people in 50 B. C. On the outbreak of the civil war Cæsar sent him to act against the party of Pompey in Sicily. He succeeded in driving Cato out of that island, but venturing to cross over to Africa, he was defeated and slain.

CURLEW, a bird of the order *grallæ*, family *scolopacidæ*, subfamily *limosinæ* (which includes both curlews and godwits), and genus *numenius* (Lath.). The bill is long, slender, curved from the base, with sides compressed and grooved; the upper mandible projecting over the lower, and obtuse; wings long and pointed, the 1st quill the longest; tail short and even; tarsi long and slender; toes moderate, lateral ones unequal and united at their bases; hind toe long, slender, and partly resting on the ground; claws short and dull. There are nearly 20 species described, scattered over the temperate regions of the world in the winter, and going north in summer; they frequent the borders of the sea, and muddy and sandy shores, sometimes visiting moors and marshy plains, in search of worms, larvæ, crustacea, and mollusks, which they extract from the moist ground, often from under water, with their long bills; they also eat berries from the fields and woodlands. The nests are formed on the ground in holes, lined with grass, and the eggs are generally 4 in number. The long-billed curlew, or sickle-bill (*N. longirostris*, Wils.), is the largest of the American species, and may readily be distinguished from all others by the length of the bill, which is from 7 to 9 inches; the total length to end of claws is 29 inches, the extent of wings 40 inches, and the weight about 1¾ lbs. The general color of the plumage is pale reddish brown, the head and neck streaked with dusky; the upper part of the throat, and a band from the bill to the eye, light buff; above marked with blackish brown, tail barred with the same; abdomen plain yellowish red; feet bluish. Though found in the north, it is most abundant at the south, where it resides all the year and breeds; it feeds during the day in the marshes, retiring to the shores in large flocks at night; the favorite food is small fiddler crabs. They are easily shot, though rather tenacious of life, frequenting for some time the same resting place; they answer readily the fowler's call. The flesh is tough and fishy, and decidedly inferior to the smaller species. They are occasionally seen as far north as Boston. The Esquimaux curlew,

sometimes called dough-bird (*N. borealis*, Lath.), has a bill about 2¼ inches long, and tarsi 1⅝ inches; the length to end of claws about 17 inches, extent of wings 28 inches; weight ½ lb. The upper plumage is dusky brown, marked with numerous spots of light brownish yellow; a line of white from the bill to the eye; upper part of head brownish black, with streaks and a median line of grayish or yellowish white; throat white; neck and breast yellowish gray, with longitudinal marks and spots of dusky; abdomen dull yellowish white; flanks with brown bars; tail and its upper coverts pale grayish brown, with deep brown bars, and brownish white tip; primaries dark brown, the first shaft white with dusky tip. The females very closely resemble the males. In the New England and middle states this bird arrives from the north in the latter part of August, remaining through October, when it moves off to the south in flocks, going north again to breed in the spring. In Labrador its favorite food is the curlew berry, a small black fruit growing on a creeping shrub an inch or two high; in the open grounds in the vicinity of the sea, it feeds on insects, especially grasshoppers, seeds, worms, and berries. In the autumn they are very fat, hence their common name, and are considered great delicacies. They are not shy, running, squatting, and flying very much like a snipe. The Hudsonian or short-billed curlew (*N. Hudsonicus*, Lath.) is considerably larger than the last named species. Its bill is about 4 inches long; the total length to end of claws 21 inches, extent of wings 33 inches, and weight a little over a pound. The upper part of the head is deep brown, with a central and 2 lateral whitish lines; between the bill and eye, and behind the latter, brownish; the neck pale yellowish gray, with longitudinal brown streaks; chin grayish white; upper parts generally blackish brown, with numerous brownish white spots; wings and rump lighter; tail and its upper coverts with brown and yellowish gray bars, the former white-tipped; primaries brownish black; lower parts grayish white, the sides cream-colored and barred with grayish brown; shaft of first quill white. This species often associates with the sickle-bill, and arrives in large flocks on the New Jersey shore in May from the south; they soon move northward to breed; they return toward the last of August, remain a few weeks, and then proceed to the south to spend the winter. The habits and food are about the same as in the other species. The flight is high and rapid, and in their migrations accompanied by a constant whistling; they fly steadily, answer the sportsman's whistle readily, and are easily shot; they are considered excellent eating. Like the long-billed curlew, this species will linger around its wounded companions until many of a flock are killed; the latter, however, is much the rarest bird in most parts of the northern states. The largest of the European curlews is the *N. arquatus*, (Linn.), of the size of a capon; the general color is brown, with the edges of the feathers whitish; the rump is white, and the tail barred with white and brown. It is a well-flavored species. The whimbrel (*N. phæopus*, Linn.) is about half the size of the preceding, which it resembles in its plumage.

CURLING, a favorite Scottish game, played on the ice with large stones of a spherical form, flattened so that their length shall be equal to twice their thickness. They are carefully selected, so that they shall not be liable to break, have their under side polished, and vary in weight from 30 to 60 lbs. They have handles of wood or iron by which they are impelled over the ice. The path in which the stones move is called the *rink*, and may be from 30 to 50 yards long. At each end of the rink a mark or hole is made in the ice, called the *tee*. The players are divided into two parties, and each person endeavors either to leave his own stone as near the tee as possible, to remove those of the opposite party, or to guard those of his own side. When all have played, the one nearest the tee counts one, and the second, third, &c., if of the same side, count each one more. The side which first scores 31 wins.

CURRAN, John Philpot, an Irish orator, born at Newmarket, county of Cork, July 24, 1750, died at his residence in Brompton, a suburb of London, Oct. 14, 1817. His father was officer to a manorial court, and a person of great cultivation of mind, and his mother an accomplished woman, who made great efforts to procure for her son every possible advantage of education. After having been under the instruction of Nathaniel Boyse, the resident clergyman, who, as he himself says, made a man of him, and through a preparatory course at the free grammar school of Middleton, he entered Trinity college, Dublin, with a view of preparing himself for the church, but afterward determined to adopt the profession of the law, and in 1773 became a student of the Middle Temple, London, the Rev. Mr. Boyse having advanced him funds for that purpose. The succeeding year he married the daughter of Dr. Creagh, of Dublin, and in 1775 was called to the Irish bar. For some time he gave the rein to his generous social disposition. A club which he formed, under the name of the monks of St. Patrick, gathered together the leading liberals of the Irish metropolis. Here Curran shone in all his brilliancy. At the same time he was often in great pecuniary straits. He relates that one day, unable to pay his rent, he returned to the house in a state of despondency, when he found a brief awaiting him with 20 guineas. This brief was the commencement of his fortune, and was put in his way through the kindness of Lord Kilwarden, who, although differing with him in politics, continued his friend through life. His clients became so numerous that he was soon in easy circumstances. In 1782 he was returned to the Irish parliament as member for Kilbeggan. His attacks on the gov-

ernment soon led to duels, first with Mr. Fitzgibbon (afterward earl of Clare), then attorney-general, and next with Major Hobart, both ending without injury to either party. Step by step he rose in his profession, till he became the most popular barrister of his time. He had a dashing, fearless way that suited his auditory. His eloquence was thoroughly Irish. Rarely attempting to convince by argument, he always addressed himself successfully to the feelings. His style of metaphor was bold and original—often extravagant. In the cross-examination of witnesses he exceeded the recognized limits of forbearance, and was frequently bullying and insolent. On one occasion he so goaded Mr. St. Leger, a witness in the case of an assault by an Irish nobleman upon an aged priest, that he had to fight him. In persuasive powers Curran had no rival. His diction was fluent and charming, and he not unfrequently wound up his address by some solemn adjuration from Scripture. His voice was not naturally good, but he improved it by careful training. Personally he was the reverse of prepossessing, having a soft and boyish look. In the height of his prosperity he met with a severe domestic blow in the elopement of his wife. He obtained a verdict against the seducer, but would not touch the damages awarded. He even allowed the faithless wife a stipend, and went to London to see her when she was supposed to be on the point of death. Ireland was at that period in an excited political condition. The question of Catholic emancipation especially agitated the people. Curran advocated liberal principles in the house of commons, and defended liberal politicians in the courts of law. Although his talents in parliament were conspicuous, it was in the courts that he shone preëminent. There he made his finest political orations. His defence of the leaders of the rebellion of 1798 was his crowning effort; his most noted speeches being those in defence of Theobald Wolfe Tone, Major Rowan, Oliver Bond, the brothers Sheares, Jackson Finney, and Finnerty—in the latter of which he made a powerful appeal for the liberty of the press. During the sympathy excited for the French revolution Curran remained faithful to England, even while exhausting every element of opposition against her government. In 1800 the union of Ireland with Britain was accomplished. Curran, who had opposed it, viewed the event with despondency. Indeed, he had at one time decided to abandon the country and seek a new home in America; but other events, which followed rapidly, dispelled this idea. The peace of Amiens, in 1802, permitted him to visit the continent. On July 23, 1803, the rising under Robert Emmet took place. Curran had a deeper interest in this event than he himself was aware of, for an affection subsisted between Emmet and his daughter Sarah. The young man was executed, Sept. 20, 1803. During this year he made his celebrated speech in defence of Owen Kirwan. Political matters continued in much the same state until 1806, when the death of Pitt threw the power into the hands of Fox and the liberals. Curran was offered the post of master of the rolls in Ireland, which he accepted, although more desirous of the office of attorney-general. The duties of the office were unworthy of his abilities, and were hampered by petty jealousies. From this time his genius declined, and he sank into a state of hypochondria from which he never recovered. Occasionally the influence of travel or of music, in which he had some skill, would revive him, but only temporarily. In 1814 he exchanged his place for a pension of £2,700 per annum. He resided chiefly in his mansion at Brompton, where he enjoyed the acquaintance of Sheridan, Horne Tooke, Lord Erskine, the prince regent, and other notables. Godwin the novelist, and Moore the poet, were his devoted friends. In Sept. 1817, he wrote that he had "closed his accounts with hope." Afterward he complained of "a mountain of lead at his heart." Occasional flashes of his former wit lit up his decline. Speaking of a passing attack of apoplexy, he described it as "a runaway knock at death's door." On Oct. 8 he was seized with a second fit, of which he died in the following week. His "Speeches on the late very interesting State Trials" appeared in Dublin in 1808, and his "Speeches, with Memoirs by a Barrister," in London, 1817 (new edition, with memoir by Davis, 1845). His "Letter to the Rev. H. Weston" was published in 1819.—See also "Memoirs of the Life of Curran," by Alex. Stephens (1817); "Memoirs of the Legal, Literary, and Political Life of the late Rt. Hon. John Philpot Curran," by William O'Regan (1817); "Recollections of J. P. Curran and some of his Contemporaries," by C. Phillips (1818); "The Life of the Right Hon. John Philpot Curran," by his son William Henry Curran (1819).

CURRANT (*ribes*, Linn.), the name of a small, valuable, and well-known garden fruit, of which there are numerous varieties. Two principal species are commonly known, but there are several beside. The *R. rubrum* (Willd.), according to Persoon, grows spontaneously in Sweden, and in the northern parts of England, and is the origin of the garden kinds. It bears abundance of semi-transparent red berries in racemes, which diminish in size at the apex of the bunch. There is a white-fruited variety, more esteemed by some on account of its less acid juice. Great improvements have been made on these fruits by repeated experiments, and not only the plant has been rendered more robust, but the size of the berries has been increased. The London horticultural society's catalogue for 1842 gives a list of 10 sorts of the red and 3 sorts of the white currant, of which the red Dutch and the white Dutch, known also under many synonymes, have stood high in the estimation of practical gardeners. Knight succeeded in raising some improved kinds from seed, favorably known and bearing his name. Several lately introduced from France bear fruit of remarkable size and flavor; scarce-

ly any difference is to be seen in the size of the first and of the last berry on the raceme, and indeed they could be compared to miniature bunches of grapes. It has been thought that the red currant is a native of this country, an opinion founded on its identity with the *R. albinervium* of Michaux. According to the "Flora of North America," the red currant appears to be "abundant in our northern latitudes, agreeing in every respect with the European form." It occurs throughout Canada to the mouth of Mackenzie river, at Sault Ste. Marie, and at the sources of St. Croix river (Torrey and Gray). It has been noticed growing wild on the rocky banks of the Winooski, in Vermont. Josselyn, who wrote in 1672, makes mention in his "New England Rarities" of "red and black currants." The black currant (*R. nigrum*, Lam.), differing from the common currant in the great size of the plant, in smoother leaves, in flower and in fruit, also in possessing a powerful aromatic principle with proportionately less acidity, has by successive experiments become ranked with the most valuable of the smaller garden fruits. The variety known as the black Naples has larger berries than any other, and is considered the best. The fetid currant (*R. prostratum*, L'Héritier), with pale red and bristly fruit, exhaling, as well as the leaves, a disagreeable odor, grows on mountain sides and in cold woods at the northward, reaching as far as Lake Superior and the Rocky mountains. The thirsty wayfarer and the hunter, on meeting with its berries, find them not too unpleasant for refreshment. The *R. floridum* (L'Hér.), with rather large yellow-greenish flowers, and with smooth, black fruit, occurring in woods from Canada to Kentucky, is our native black currant, but is inferior in value to the European species. The Missouri currant (*R. aureum*, Pursh.) is remarkable for its early yellow blossoms, exhaling a delicious, spicy odor, and considered a highly ornamental shrub. The red flowering currant (*R. sanguineum*, Ph.), from western America, and abundant among rocks along the streams throughout Oregon, is a very beautiful shrub, bearing clusters of light crimson blossoms, which appear early in spring. Its fruit is insipid, but its flowers recommend it for the garden. Another, with flowers not so brightly colored (*R. malvaceum*, Sm.), has been noticed as a native of California. The genus *ribes*, embracing the gooseberries, comprises in North America something like 28 distinct species.—The propagation of the currant is easy, as it will grow in almost any garden soil, in the open sun or in the shade of fences, where the fruit is longer in ripening but still sure. The best mode to be pursued is, never to allow suckers taken from the roots of old plants to be used for new planting out; but to employ well ripened, straight, and stout shoots, removing all the buds or eyes from the lower portions which are to be inserted in the soil, which will prevent future suckers from springing up around the stem. Sometimes, after the stem has been trained upright for 2 or 3 feet, the branches are spread thinly upon a low espalier; or, in case this is not used, a thin, spreading head is carefully grown. All superfluous wood, as it makes its appearance, is removed, and about midsummer the ends of the fruit-bearing branches are pinched off, in order to allow the fruit to swell and increase. But the currant will reward the least degree of attention that is given to it. The juice of the currant contains sugar and malic acid, to the presence of which is owing its pleasant flavor. Currant wine is considered a valuable beverage, and for preserves, tarts, or for the dessert, currants are especially esteemed. When freshly gathered they are refrigerant and very grateful to the palate. An excellent jelly is prepared from them, and for other domestic purposes their reputation is well known. The fruit of the black currant is far less esteemed, indeed to many persons is positively disagreeable. A jelly made of it is used as a remedy for hoarseness or sore throat, and lozenges made of the berries, and especially of their skins, are of much service in pectoral complaints. A wine is made in Russia from the black currant berries, and in Siberia the leaves, dried and mixed with souchong, are made into a drink resembling in flavor green tea. The fruit, leaves, and wood are tonic and stimulant. We have seen the dried fruit of the better garden sorts used in making puddings which possessed much merit.—The word currant is said to be a corruption of Corinth, the original place whence the small raisins were brought known as the currants of commerce. The Ionian islands, Greece, and Turkey are the principal currant-exporting countries, and directly from those countries, and indirectly through England, not less than about 2,500,000 lbs., valued at about $150,000, were imported into the United States in the year ending June 30, 1857.

CURRENCY. See MONEY.

CURRENT RIVER, an affluent of Black river, Arkansas, rises in Texas co., Mo., and has a S. W. course of over 250 m. It is navigable by flatboats, and abounds with excellent fish. Jack's Fork is its principal branch.

CURRENTS. See ATLANTIC OCEAN.

CURRIE, JAMES, a Scottish physician, born at Kirkpatrick-Fleming, Dumfriesshire, May 31, 1756, died at Sidmouth, Devonshire, Aug. 31, 1805. In early life he went to Virginia, with a view of following commercial pursuits, but returning after the breaking out of the American war, he commenced the study of medicine at Edinburgh, was graduated at Glasgow in 1780, and in the following year began to practise in Liverpool. He was very successful in applying affusions of cold and tepid water to the cure of disease, and his great work on this subject, "Medical Reports on the Effects of Water, cold and warm, as a Remedy in Febrile Diseases," appeared in 1797, a 2d volume in 1804, and a 5th edition in 1814. Beside several other medical works, he wrote "A Letter, Commer-

cial and Political, to William Pitt," under the assumed name of Jasper Wilson, which attracted much attention. In 1800 he published an edition of the works of Robert Burns, in 4 vols., for the benefit of the poet's family. This edition has been frequently reprinted. It contains an account of the life of Burns, and a criticism on his writings, to which are prefixed "Some Observations on the Character and Condition of the Scottish Peasantry."

CURRITUCK, a N. E. co. of N. C.; area estimated at 200 sq. m.; pop. in 1850, 7,236, of whom 2,447 were slaves. It borders on Va., and embraces within its limits several islands separated from the mainland by Currituck sound. The surface is level, and the soil sandy. In 1850 the productions were 292,593 bushels of corn, 66,332 of sweet potatoes, and 20,382 lbs. of butter. The county was named from a tribe of Indians who once possessed the land. Capital, Currituck Court House.

CURRY, Daniel, an American clergyman and author, born in Peekskill, N. Y., Nov. 26, 1809, was graduated in 1827 at the Wesleyan university at Middletown, Conn., and was in the same year elected principal of the Troy conference academy, where he remained several years. In 1841 he removed to Georgia, where he was regularly inducted into the ministry of the Methodist Episcopal church, and was stationed successively at Athens, Savannah, and Columbus. When the difficulties arose on the subject of slavery, which finally resulted in a division of the church, he connected himself with the northern branch, and entered the New York conference. After having been stationed in the cities of New York, New Haven, Brooklyn, and Hartford, he officiated for 3 years as president of the Indiana Wesleyan university. He then returned to Brooklyn, and is now (1859) pastor of the Methodist church in Middletown. He has contributed largely to various magazines of the day, and among his works are his "Life of Wycliffe" and "Metropolitan City of America." He has also published an edition of Southey's "Life of Wesley," with notes.

CURRY POWDER, a powder used in cooking, prepared in the East Indies. The ingredients in its manufacture are turmeric, coriander, black pepper, 4 oz. each; fenugreek, 3 oz.; ginger, 2 oz.; cummin seed, ground rice, 1 oz. each; cayenne pepper and cardamoms, ½ oz. each. Curry powder is subject to extensive adulteration, and with very pernicious ingredients, red lead being frequently detected in it. As this is a highly poisonous oxide, the quantity taken in curry powder at a meal has been known to produce a serious effect. It is therefore a safer, as well as a more economical plan, to purchase the materials, and prepare the article.

CURRYING, the art of finishing tanned leather to give it the smoothness and pliancy it requires for most of its uses. The skin is first softened by soaking it in water, and it is then beaten with a mace or mallet upon a hurdle or lattice-work support. It is next laid over a plank called a beam, which projects at a slant from the floor, and the workman, leaning over the end of this, and against the skin to hold it in its place, shaves off the inequalities on the flesh side with a broad blade, called a head knife or beam knife, the edge of which is turned over. This instrument is held firmly in both hands; and as it is used, the currier continually examines with his fingers the effect produced, and moves the skin to bring all parts of it under its action. After it is sufficiently shaved, the skin is thrown into cold water, and well scoured upon a stone slab, the flesh side being laid next the stone, and the grain or hair side well rubbed with a tool of metal or stone called a stretching iron, which is held in both hands. The whitish matter (bloom) gathered from the tan pit is thus forced out, and the inequalities of thickness still more reduced. Tools of several kinds are employed for scraping and dressing down the irregularities of the surface—sometimes a circular knife, among others, shaped like a bowl, the bottom being open for the insertion of the hand. By these operations the skin is softened and prepared for the dubbing (daubing) process. Each side of it is well rubbed with an oily compound made by boiling cod oil with the skins of sheep; and the leather is then hung up to dry. Either before or after this it is subjected to the action of rubbing with the pommel or graining board, an instrument shaped somewhat like a brush, with a leather strap on the back to give a secure hold for the hand slipped under it. It is entirely of hard wood, the under or rubbing surface made with transverse grooves like a crimping board. The leather is folded over, leaving the flesh side out, and is strongly rubbed with the pommel. It is then spread out, leaving the other side exposed to receive a similar application. By this operation the flexibility is greatly increased. After this graining process, the leather is in good condition for storing and keeping till wanted for sale; or, after delicately shaving the flesh side with a very sharp knife, it may be immediately submitted to the process of waxing. A color composed of oil and lampblack is well rubbed in on the flesh side with a hard brush till the surface is thoroughly black; upon this is applied with a brush or sponge a coat of stiff size and tallow, and when dry it is rubbed with a broad smooth lump of glass. The sizing and rubbing are then repeated. Leather thus treated is distinguished either by the name "waxed," or "black on the flesh," and is used for the uppers of men's boots and shoes. If curried on the other side, it is called "black on the grain," and this sort is used for the uppers of ladies' shoes. The treatment is the same for both up to the waxing. To the leather to be made black on the grain is applied a solution of copperas, the effect of which is to produce a black dye by the union of the iron of this salt with the gallic acid of the tan. It is then rubbed with a brush dipped in stale urine, and when dry the application of oil and lampblack is

made; and when this is dry another application of the copperas with rubbing. After this it undergoes the treatment with the pommel again, and several other processes of rubbing, polishing, and dubbing or oiling.

CURTIS, Benjamin Robbins, an American jurist, born in Watertown, Mass., Nov. 4, 1809, was graduated at Harvard college in 1829. He was admitted to the bar in 1832, and commenced the practice of the law at Northfield, Mass., but soon removed to Boston, where he took a high rank and secured an extensive business. He was remarkable for the extent and readiness of his legal attainments, the clearness and accuracy of his statements, and the vigorous grasp of his logic. Upon the death of the late Judge Woodbury, he was appointed a judge of the supreme court of the United States in September, 1851. This office he held till the autumn of 1857, when he resigned it. Since his retirement from the bench, he has resumed the practice of his profession in Boston. Few distinguished lawyers in our country have devoted themselves so exclusively to their profession as Judge Curtis. He was for one or two years a member of the house of representatives in Massachusetts, but has taken very little part in politics.—George Ticknor, an American lawyer and juridical author, younger brother of the preceding, born in Watertown, Mass., Nov. 28, 1812, was graduated at Harvard college in 1832. He was admitted to the bar in 1836, and has ever since been engaged in the practice of the law in Boston. He has made several valuable contributions to the literature of his profession. He is the author of treatises on the "Rights and Duties of Merchant Seamen" (1844); on the "Law of Copyright" (1847); and on the "Law of Patents" (1849). These are all works of acknowledged merit. He has also compiled a volume of "Equity Precedents," a digest of English and American admiralty decisions, and 2 vols. of the series of digests of the reports of the United States, published by Little, Brown, and co., were prepared by him. He has also published (1854) the first volume of a work entitled "Commentaries on the Jurisprudence, Practice, and Peculiar Jurisdiction of the Courts of the United States," which was highly commended by Chief Justice Taney. But the work by which he is best known is a "History of the Origin, Formation, and Adoption of the Constitution of the United States," the first volume of which was published in 1855, and the second in 1858. This is a work of careful and patient research, candid political judgment, and great clearness of style. Mr. Curtis served for 2 or 3 years as a member of the Massachusetts house of representatives, but he has allowed politics to interfere but little with the labors of his profession, and his historical and constitutional investigations.

CURTIS, George William, an American author, born at Providence, R. I., Feb. 24, 1824. His father, George Curtis, was from Worcester, Mass.; his mother was a daughter of James Burrill, a U. S. senator from Rhode Island, who distinguished himself in opposition to the Missouri compromise. Mr. Curtis received his early education in Mr. Green's school at Jamaica Plain, Mass. When he was 15 his father removed from Providence to New York, where he began an apprenticeship to trade in the counting-house of a dry goods importer. He remained in this position, however, only a year. In 1842 he went with his elder brother to reside with the association for agriculture and education at Brook Farm, in West Roxbury, Mass., where he passed a year and a half in study and agricultural labor; after which, attracted by the cultivated and intellectual society at Concord, Mass., in whose circle Mr. Emerson and Mr. Hawthorne were included, Mr. Curtis, with his brother, spent 18 months there, living with a farmer, and both taking part regularly in the ordinary work of the farm; and then 6 months in tilling a small piece of land on their own account. In 1846 Mr. Curtis went to Europe, and after a year in Italy entered the university of Berlin, where he remained a few months, and witnessed the revolutionary scenes in that city in the spring of 1848. The 2 subsequent years he spent chiefly in travel through central and southern Europe, and in Egypt and Syria. In 1850 he returned to the United States, and in the summer of that year published his first book, the "Nile Notes of a Howadji." He soon after joined the editorial staff of the "New York Tribune," and in the summer of 1851 wrote a series of letters to that journal from various watering places, which were afterward collected in a volume, under the title of "Lotus Eating." His second book, however, was the "Howadji in Syria," published in 1852. In the autumn of 1852 "Putnam's Monthly" was commenced in New York, of which Mr. Curtis was one of the original editors, and with which he continued connected till the magazine was merged in another, and virtually ceased to exist. "Prue and I," which was published in 1856, was made up from some of his contributions to that periodical. The second publishers of "Putnam's Monthly" were Dix, Edwards, and co., and in this house Mr. Curtis was a silent partner, pecuniarily responsible, but taking no part in its commercial management. In the spring of 1857 the house was found to be insolvent, and he then, in connection with Mr. Miller, who had been its printer, assumed its assets and liabilities, in the hope of saving the creditors from loss. The attempt was unsuccessful, and he was compelled in a few months to abandon an enterprise in which his private fortune had been entirely sunk. As a lyceum lecturer, upon which field of labor Mr. Curtis entered in 1853, he has met with great success. He delivered a poem at the university of Rochester in 1853, and another before a society in Brown university the year following. His orations on similar occasions have been numerous. In the presidential canvass of 1856 he enlisted with great zeal as a public speaker on behalf of the republican party.

In the winter of 1858 he appeared as the advocate of the rights of woman, in a lecture entitled "Fair Play for Women." To the current literature of the day he has been a constant contributor since 1853, through "Harper's Monthly," as well as through "Putnam's Monthly," as long as it existed, and through "Harper's Weekly," newspaper, since the autumn of 1857.

CURTIUS, Ernst, a German philologist and archæologist, born in Lübeck, Sept. 2, 1814, became professor in Berlin in 1843, was tutor of Frederic William, the son of the present regent of Prussia, until 1850, and appointed in 1856 professor in Göttingen, as successor of the famous Herrman. He has written largely on Grecian antiquities. Among his more recent works is *Die Ionier vor der Ionischen Wanderung* (1855).—His brother, Georg, born April 16, 1820, officiating since 1851 as professor in Prague, has written several philological works, including a Greek grammar for the use of colleges (2d ed. Prague, 1855).

CURTIUS, Marcus, a Roman hero, who lived about the middle of the 4th century B. C., and who is said to have sacrificed himself for the good of his country. The legend which relates this event is in substance as follows: An earthquake once happening at Rome, a large portion of the area of the forum sank down, and a vast chasm appeared there. All attempts to fill it up were vain, and the city was smitten with consternation, especially as the haruspices had declared that it could only be filled by casting into it that on which the greatness of Rome depended. While every one was hesitating and doubting as to the meaning of the haruspicial declaration, the heroic Marcus presented himself, and proclaiming that Rome contained nothing more indispensable to her greatness than a valiant citizen fully accoutred for battle, he offered himself as a victim; and, having arrayed himself in complete armor and mounted his war horse, he galloped into the abyss. Then the earth closed, the chasm vanished, and the forum resumed its wonted aspect. But the place of the chasm, and of the sacrifice of Marcus, was ever after called *Lacus Curtius*. Other versions of the legend are given by different authors, but the above has obtained the greatest currency.

CURTIUS RUFUS, Quintus, the Roman historian of Alexander the Great. Respecting his life and the age in which he lived we have no accurate information. Some critics make him contemporary with Vespasian, and some with Constantine, but it is probable that the former are nearer the truth. The history of Curtius is entitled *De Rebus Gestis Alexandri Magni*. It consisted originally of 10 books, but the first 2 have perished, and the 8 that remain are not by any means perfect. It is not a good historical authority. The best edition is that of Zumpt (Berlin, 1849).

CURULE CHAIR, a state chair among the ancient Romans, permission to use which was a mark of high honor, and only granted, under the republic, to the dictator, consuls, prætors, censors, chief ædiles, the flamen dialis, and those deputed by the dictator to act under himself. In the times of the empire this honor was granted to others. The magistrates entitled to use this chair were called curule magistrates, and when they went to council, the chair was borne on a chariot (*currus*), whence its name. At first it was only adorned with ivory, but in later times it was overlaid with gold.

CURVE, or Curved Line, in geometry, a line which continually and continuously changes its direction. In the higher geometry, a curve is a line in which the coördinates of each point fulfil the same laws. The circumference of a circle is the simplest of all curves. The laws which each point in it must obey are various. One is that each point is equally distant from the centre; another that each part of the line is equally curved, &c. The circle is taken as the measure of curvature. The circle which would exactly fit any curve at any point is called the circle of curvature at that point, and its radius, the radius of curvature. A law by which this radius increases and diminishes in going to different points is usually considered the most vital law of the curve, or intrinsic equation.

CURZON, Paul Alfred de, a French painter, born Sept. 7, 1820. He excels chiefly in landscape painting, has explored the Morea in company with Edmond About and Charles Garnier, and has executed many good pictures, especially those of the Acropolis of Athens, and the shores of the Cephissus, which were favorably noticed at the universal exhibition in Paris in 1855. He also received a second medal in 1857.

CUSH, the name of the eldest son of Ham, as well as of a southern region of the scriptural world, which is rendered Ethiopia by the Septuagint, the Vulgate, and by almost all other versions of the Hebrew Bible, and *Mohrenland*, or land of the blacks, by Luther. There can be no rational doubt that Ethiopia, in its more common and limited sense, was designated by that appellation in Hebrew, though Bochart has contended for its meaning exclusively southern Arabia. Ezekiel (xxix. 10) speaks of it as lying beyond Syene, which perfectly agrees with the classical definition of the boundaries of Ethiopia; Mizraim (Egypt) and Cush are often connected by the prophets, and mentioned together in the Psalms (lxviii. 31). The Cushites appear together with other African nations in historical relations; their black complexion is alluded to in the Bible as well as in the Mishna. But whether Cush did or did not include any other region in the world known to the Hebrews, especially southern Arabia, is a question which has elicited a great deal of ethnological controversy. Michaelis and a number of other critics defend the affirmative. Gesenius maintains the negative. The former opinion is strengthened by a number of scriptural passages in which Cush appears together with Arabian tribes, by its being rendered Arabia in the Chaldee paraphrase of Jonathan, and by the existence of a

tribe called Beni Chusi in Yemen, according to Niebuhr. We find, beside, the land of Cush compassed by the river Gihon (Gen. ii. 13), and Cush as the father of Nimrod, who founded empires in Asia; the same name is connected by Ezekiel with Elam or Susiana, which again agrees with the classical names of Cissians and Cossæans given to the inhabitants of the latter country, and with its modern name, Khusistan. The Himyarites, an ancient people of southern Arabia, are styled by Syrian writers both Cushæans and Ethiopians. The classical term Ethiopia, too, comprised many distant and distinct nations, having in common only their sun-burnt complexion. Homer calls them "a divided race, the last of men, some of them at the extreme west, and others at the extreme east." Strabo says nearly the same. Herodotus speaks of an eastern or Asiatic, and a western or African Ethiopia. The prevalent opinion of the latest ethnological and biblical scholars is, therefore, that Cush in its limited meaning designates Ethiopia, but is also the name of several other Asiatic regions situated along the shores of the southern ocean, and inhabited by people of the Hamitic family. "Recent linguistic discovery," says George Rawlinson ("Translation of Herodotus," book i. essay xi.), "tends to show that a Cushite or Ethiopian race did in the earliest times extend itself along the shores of the southern ocean from Abyssinia to India. The whole peninsula of India was peopled by a race of this character, before the influx of the Aryans; it extended from the Indus along the sea-coast through the modern Beloochistan and Kerman, which was the proper country of the Asiatic Ethiopians; the cities on the northern shores of the Persian gulf are shown by the brick inscriptions found among their ruins to have belonged to this race; it was dominant in Susiana and Babylonia, until overpowered in the one country by Aryan, in the other by Semitic intrusion; it can be traced, both by dialect and tradition, throughout the whole south coast of the Arabian peninsula; and it still exists in Abyssinia, where the language of the principal tribe (the Galla) furnishes, it is thought, a clue to the cuneiform inscriptions of Susiana and Elymais, which date from a period probably a thousand years before our era."

CUSHING, Caleb, an American statesman and jurist, born in Salisbury, Essex co., Mass., in Jan. 1800. He belongs to an old colonial family, which has been largely represented in offices of public service. At the age of 17 he was graduated at Harvard college, and for nearly 2 years subsequent performed the duties of tutor of mathematics and natural philosophy in that institution. Meanwhile he entered upon the study of law, and after the unusual preparatory period of 5 years, was admitted to the bar, commencing practice at Newburyport. Although he attained high professional success, he continued to give a part of his attention to literary studies, and became prominent among the contributors to the "North American Review," by his papers upon historical and legal topics. The political life of Mr. Cushing commenced in 1825, when he was elected a representative from Newburyport in the lower house of the Massachusetts legislature. In 1826 he was elected to the state senate. At the beginning of his public life he was a member of the then republican party. In 1829 Mr. Cushing visited Europe on a tour of pleasure, and remained abroad nearly 2 years. The fruits of this tour were his "Reminiscences of Spain," a collection of miscellanies published in 1833, which indicated a minute acquaintance with Spanish history and literature. To this succeeded, in the same year, his elaborate and learned "Historical and Political Review" of the revolution of Three Days in France, and of the consequent events in other European nations. A portion of this work, which was issued in 2 volumes, had previously appeared in the "American Annual Register." In 1833 Mr. Cushing resumed political life, and was again elected a representative from Newburyport to the Massachusetts legislature, in which position he continued 2 years. In 1835 he was elected from the Essex north district of Massachusetts a representative to congress, in which body he served for 4 consecutive terms. Having supported John Quincy Adams for the presidency, Mr. Cushing thenceforward, until the administration of President Tyler, remained a member of the whig party. At that time, however, in company with Mr. Wise of Virginia and others, abandoning his former political associates, he supported the administration, and has ever since been connected with the democratic party. His congressional career was distinguished by unusual application to public service, as well as by eloquence and parliamentary accomplishments of a high order. His influence was felt, not less in the labors and deliberations of the committee room, than in the debates of the house, as is attested by the numerous and voluminous reports which he had occasion to prepare and submit for its legislative action. In 1843 President Tyler nominated Mr. Cushing as secretary of the treasury, but the nomination was rejected by the senate. The appointment of commissioner to China was then tendered him, and in the summer of 1843 he proceeded to that country. In 1844 he negotiated the first treaty of the U. S. government with the emperor of China. On his return home he was again elected to represent Newburyport in the state legislature, and during the session of 1847 became conspicuous by his advocacy of the Mexican war, a measure not at all favored by a majority of the people of the state. A bill to appropriate funds to equip the Massachusetts regiment of volunteers having been defeated in the legislature, Mr. Cushing furnished the requisite sum from his own means. He was then appointed colonel of the regiment, and in the spring of 1847 accompanied it to the Rio Grande in Mexico. Soon after his arrival at the seat of war, where he was attached to the army under command of Gen. Taylor, he received the appointment of brigadier-general. During the war he was one of the 3 officers con-

stituting the board of inquiry for the investigation of the charges against Generals Scott, Pillow, and Worth. In 1847, while still in Mexico, he was nominated by the democratic party of Massachusetts as its candidate for governor, but was defeated. In 1850, for the 6th time, he represented Newburyport in the legislature of his native state, where he was active in opposing the election of Mr. Charles Sumner as U. S. senator, and the coalition between the free-soil and democratic parties. In 1850 he was elected as the first mayor of the city of Newburyport, and in the year following was reëlected for a second term. In 1852 Mr. Cushing was appointed a justice of the Massachusetts supreme court, a position which he filled with marked ability until March, 1853, when he was invited by President Pierce to fill the office of U. S. attorney-general, from which he retired, March 4, 1857. Notwithstanding the number and complexity of novel questions (arising partly from the expansion of the national domain) submitted for the attorney-general's consideration, the duties of the office were never, on the whole, more thoroughly and ably performed than by Mr. Cushing. The opinions given by him as legal adviser to the cabinet have been published, and although more voluminous and covering a more extended variety of topics, they are in no respect surpassed by those of his official predecessors. In 1857, 1858, and 1859 he again served in the legislature of Massachusetts. In addition to his speeches in congress and at the bar, Mr. Cushing has delivered many addresses on occasions of literary and political festivity, and is the author of various published letters, elaborately discussing the political questions of the time.

CUSHING, Luther Stearns, an American jurist, born in Lunenburg, Mass., June 22, 1803, died in Boston, June 22, 1856. He became clerk of the Massachusetts house of representatives in 1832, judge of the court of common pleas in 1844, and after 4 years on the bench became reporter to the supreme court. In the last capacity he published 8 vols. of reports. He was a leading editor for some years of the "Jurist and Law Magazine," and left several able works on jurisprudence, including "Rules of Proceedings and Debates in Deliberative Assemblies" (18mo. 1854); "Introduction to the Study of Roman Law" (12mo. 1854); "Law and Practice of Legislative Assemblies in the United States" (8vo. 1855).

CUSHING, Thomas, LL.D., lieutenant-governor of Massachusetts, born in Boston in 1725, died Feb. 19, 1788. He represented the city of Boston in the general court, became speaker of that body in 1763, and so warmly espoused the cause of his country in the disputes with Great Britain that Dr. Johnson, in his "Taxation No Tyranny," made this remark: "One object of the Americans is said to be, to adorn the brows of Mr. Cushing with a diadem." He was a member of the 1st and 2d congresses, and afterward of the council of his own state. On the adoption of the present constitution he left the bench of Suffolk co., where he had filled the office of judge of the courts of common pleas and of probate, and was elected lieutenant-governor, a station which he retained until his death.

CUSHING, William, LL.D., an American jurist, born in Scituate, Mass., in March, 1733, died in 1810. He was graduated at Harvard college in 1751, and in 1772 succeeded his father, John Cushing, as justice of the superior court of Massachusetts. He became chief justice 5 years later, and on the organization of the federal government in 1789 was raised by President Washington to the bench of the U. S. supreme court.

CUSHMAN, Charlotte Saunders, an American actress, born in Boston, Mass., July 23, 1816, the oldest of a family of 5 children by a 2d marriage. In consequence of the bankruptcy of her father she was called upon at the age of 12 to contribute to the family support. Possessing a fine voice and much musical taste, she had already acquired some local reputation as a vocalist, when she was engaged to sing in a concert with Mrs. Wood, who declared her voice to be the finest contralto she had ever heard, and advised her to cultivate it for the stage. Against the advice and wishes of her friends she resolved to adopt this course, and made her *début* at the Tremont theatre, Boston, April 18, 1835, as the Countess, in the English adaptation of Mozart's *Nozze di Figaro*. Her success was such that an engagement was procured for her to sing in English opera at New Orleans. Scarcely had she arrived there when her voice failed her under the effect of a sudden change of climate and of an unwise attempt to convert it into an available soprano. In this emergency she resolved to become an actress, and under the tuition of Mr. Barton, an actor who proved a sincere friend, studied the part of Lady Macbeth, in which to the surprise of all she made her appearance with complete success. The piece was repeated many nights, and she returned to New York with considerable reputation for histrionic ability. She accepted a 3 years' engagement at the Bowery theatre, but after performing a week to large audiences, she was prostrated by fever, the result of over-excitement and exertion, and during her illness the theatre, and with it her entire theatrical wardrobe, was destroyed by fire. After an interval of several months she accepted an engagement as stock actress in the Park theatre, and for 3 years appeared in a great variety of parts, thus perfecting herself in stage business and acquiring the versatility for which she afterward became distinguished. During this period she assisted her younger sister, Mrs. Merriman, better known as Miss Susan W. Cushman, to make her *début* on the stage, and afterward appeared with her for several seasons at Philadelphia and New York. For the purpose of encouraging and improving the young actress, and of obtaining for her prominent female characters, Miss Cushman was accustomed to take the chief male parts in the plays in which her sister

appeared. In this manner they performed in "London Assurance" in New York for upward of 90 nights; and for one season in Philadelphia they played all the principal characters. Miss Cushman afterward undertook the direction of one of the Philadelphia theatres, which she retained until invited by Mr. Macready in 1844 to accompany him on a professional tour in the northern states, in the course of which she undertook the higher range of tragic parts with great success. In 1845 she went to England, and, unknown and unheralded, made her first appearance before a London audience, at the Princess's theatre, as Bianca, in Milman's tragedy of "Fazio." Her reception was enthusiastic, and for 84 nights she appeared in a variety of characters, including Lady Macbeth, Julia in the "Hunchback," Mrs. Haller, Beatrice, Lady Teazle, Rosalind, and Juliana in the "Honeymoon." Her sister having joined her, they acted together for several years at the Haymarket theatre in London and in the chief provincial towns of Great Britain. In 1849 she revisited the United States, and, in addition to her ordinary characters, assumed that of Meg Merrilies, in the play of "Guy Mannering"—a striking personation, and one which she may be said to have created. After another professional tour in England she returned to America, and having accumulated a fortune by her profession, took a formal leave of the American stage. She subsequently acted a round of engagements in England, and appeared again in the United States in 1857 and '58, after which she returned to Rome, where she had previously resided. As an actress, particularly in the higher walks of the serious drama, Miss Cushman ranks with the most eminent living, and in her Shakespearean characters is distinguished for a rigid adherence to the letter as well as the spirit of the text.—Her sister Susan, who attained considerable popularity in such parts as Ophelia, Juliet (which she acted to her sister's Romeo for upward of 200 nights in England), Olivia, &c., was married in March, 1848, to Dr. James S. Muspratt of Liverpool, where she now resides.

CUSHMAN. I. Robert, one of the founders of Plymouth colony, born in England about 1580, died in 1625. He joined the nonconformist exiles at Leyden, and in 1617 was sent by them to London with John Carver, as their agent to negotiate with the Virginia company for leave to settle within their domain in North America, and to petition King James for "liberty of conscience there." Not gaining the last point, which was the chief desire of the exiles, he returned to Leyden, after an absence of about 6 months. In the latter part of the same year he, with the same colleague, was again despatched with written terms from the Leyden Congregational church, but gained no better result, for the company was now distracted by dissensions among its officers, so that "no business could well go forward." In 1619 Mr. Cushman was sent the 3d time on the same embassy (associated with Elder William Brewster), and a patent was finally obtained in the name of John Wincob, which, however, was not used, as that person did not emigrate. In 1620 he was despatched the 4th time to London, with Carver and Martin as his associates, to receive money and provide for their embarkation. The "Merchant Adventurers" of London now began to withdraw their means and promises, and insisted upon two stringent alterations in the terms of their contract previously agreed upon with his associate. Cushman assented to them, a step which gave temporary dissatisfaction to many of his friends, though they afterward perceived that it saved the expedition and their ventures in it from utter failure. He procured the Mayflower, a pilot, &c., and finally sailed in her, as "assistant governor" to the passengers, from Southampton, Aug. 5, 1620, in company with the Speedwell. Eight days out, the Speedwell proving leaky, both vessels put into Dartmouth for repairs, and remained there 8 days. They took their 2d departure Aug. 21, and in 3 days the Speedwell was reported leaking again; both vessels then put into Plymouth, when the Speedwell was dismissed as unseaworthy, and her company compelled to remain. Mr. Cushman was appointed to the care of those left ashore, and followed in the next vessel, the Fortune, 55 tons, bringing most of them and others, and reaching New Plymouth, Nov. 9, 1621. On Dec. 12 he preached in the "common house" of the little colony the first sermon in America that was printed: "On the Sin and Danger of Self-Love"—a practical, far-seeing discourse, abounding in wisdom, and enriched with very many illustrations and examples drawn from sacred history, evidently written to allay any dissatisfaction that might have been apprehended among the colonists. He sailed for England the next day, in the same vessel by which he came, which was captured by the French, plundered, and detained 2 weeks on their coast. After his arrival he wrote and published an eloquent vindication of the colonial enterprise, and appeal for Christian missions to the American Indians; which was the first published argument for English emigration to this country. He continued to reside in London, acting as agent for the colonists. In 1623, he with Edward Winslow, envoy from New Plymouth, procured from King James, through Lord Sheffield, a charter for territory on Cape Ann. Early in 1625, while preparing to emigrate thither by the next ship, to join his son, and make New Plymouth his permanent residence, he died. II. Thomas, son of the foregoing, born in England in 1608, died at Plymouth, Dec. 11, 1691. He came with his father to New Plymouth in the Fortune, Nov. 9, 1621, and was left in the care of Gov. Bradford, in whose family he lived till manhood. He married Mary, 3d child of Isaac Allerton, who was the last survivor of the Mayflower passengers, and who died in 1699, aged 90. His life and death are best depicted in the following extract from the Plymouth 1st church records, vol. i.:

"1691. It pleased God to seize upon our good Elder, Mr. Thomas Cushman, by sickness, and in this year to take him from us. He was chosen and ordained Elder of this Church, April 6, 1649; he was neere 43 yeares in his office, his sicknesse lasted about eleven weeks; he had bin a rich blessing to this church scores of years, he was grave, sober, holy and temperate, very studious and solicitous for the peace and prosperity of the church, and to prevent and heale all breaches: He dyed, December 11, neare the end of the 84th yeare of his life; December 16: was kept as a day of humiliation for his death,—the Pastor prayed and preached. Mr. Arnold and the Pastor's 2 sons assisted in prayer; much of God's presence went away from this church when this blessed pillar was removed.

"A liberal contribution was made that fast day for the Elder's widow, as an acknowledgement of his great services to the church whilst living.

"August 7, 1715. A contribntion was moved and made, both by the church and congregation, to defray the expense of Grave Stones sett upon the grave of that worthy and useful servant of God, Elder Thomas Cushman; the whole congregation were very forward in it."

A massive granite monument to the memory of these 3 Cushmans was erected at Plymouth by their numerous descendants, and publicly consecrated, Sept. 16, 1858.

CUSK, a fish belonging to the cod family or *gadidæ*, and to the genus *brosmius* (Cuv.), characterized by an elongated body, a single dorsal fin extending the whole length of the back, fleshy ventral fins, and one barbel at the chin. The American cusk, which is considered specifically distinct from the European, is the *B. flavescens* (Lesueur); the color varies from brownish with yellowish sides, to whitish with brownish patches; the immature fish is of a uniform dark slate color, sometimes with transverse yellow bands; the dorsal, caudal, and anal fins are bordered with bluish black, and edged with white; the dorsal and anal are continued to the base of the tail. The length of the fish varies from 2 to 3 feet and more, one of the first dimensions weighing about 4 lbs.; it is taken generally on the middle bank, with the hook, by the deep water cod-fishers. In the spring it is seen in Boston market, when it is less esteemed than cod, but in the winter it commands a higher price; as a fresh fish it is considered a delicacy, and salted is generally preferred to cod. It is found along the shore of the British provinces, and even to high latitudes. The European species, *B. vulgaris* (Cuv.), called torsk or tusk, is also a northern fish, occurring plentifully among the Shetland islands, where it forms a considerable article of trade; it is caught, salted, and dried in the same manner as cod; it is common on the coasts of Norway, Iceland, and the Faroe islands. It resembles very much the *B. flavescens*, and the two are considered by some as varieties of one species.

CUSP (Lat. *cuspis*, a spear-point), in astronomy, a horn or point of the moon, or of any other luminary. In geometry, it denotes the point or corner in which two branches of the same or of different curves meet. In architecture, it is applied to the spear-shaped ornaments which terminate the internal curves of trefoiled and quatrefoiled Gothic arch windows. In astrology, it denotes the first point of each of the 12 houses in a scheme of the heavens.

CUST, Sir Edward, an English major-general, master of ceremonies at the court of Queen Victoria since 1847, born in London in 1794, served in the army under Wellington, and was for several years, until 1832, a member of the house of commons.

CUSTINE. I. Adam Philippe, count de, a French general, born in Metz, Feb. 4, 1740, guillotined in Paris, Aug. 29, 1793. He served with distinction in the 7 years' war, and in the American war of independence under Washington. On his return to France he was appointed governor of Toulon, and in 1789 was elected by the nobility of Lorraine as deputy to the states-general. He was a partisan of the revolution, but his noble birth and associations with the nobility made him a constant object of suspicion to the republicans of plebeian origin. He returned to military life, and was in June, 1792, appointed commander-in-chief of the French army on the lower Rhine. He took possession of Landau, Spire, Worms, Mentz, and Frankfort-on-the-Main; but suddenly evacuated the German towns, and withdrew to Alsace. This gave umbrage to the leaders of the convention; but he succeeded in vindicating himself, and received the command of the northern army. However, he was finally accused of treason, sentenced to death on Aug. 28, 1793, and guillotined on the following day, but asserted to the last his loyalty to the principles of the revolution. A few months later, his son, Renaud Philippe, his aide-de-camp, was doomed to share the same fate. II. Astolphe, marquis de, grandson of Count Adam, born in Paris in 1793, died at his chateau of St. Gratien, near Pau, Sept. 1857, was the author of several novels, of which *Romuald* and *Le monde comme il est* (the former of a religious, and the latter of a philosophical tendency) have been translated into German. A tragedy of his, *Béatrix Cenci*, disappeared from the stage after a single representation. He travelled extensively on the continent, in England and Russia, and published 3 works of travels, of which that on Russia, *La Russie en* 1839, achieved the greatest popularity. It is written in a somewhat flippant, but entertaining, and in many respects instructive vein. It passed through many editions, and was translated into English and German.

CUSTIS, George Washington Parke, the adopted son of George Washington, born at Mount Airy, Md., in April, 1781, died at Arlington house, Fairfax co., Va., Oct. 10, 1857. He was the youngest child of John Parke Custis, a son of Mrs. Washington by her first husband, and an aide-de-camp to Gen. Washington at the siege of Yorktown. John Parke Custis died at Eltham, Md., of camp fever, just after the surrender of Cornwallis, leaving 4 children, the 2 youngest of whom were adopted by Washington. George Washington Parke Custis was brought up at Mount Vernon, subsequently pursued his classical studies at Princeton, and remained a member of Washington's family until the death of Mrs. Washington in 1802, when he went to reside at Arlington, an estate of 1,000

acres in the neighborhood of Washington, which he had inherited from his father. He erected the mansion known as Arlington house, and devoted his life to literary and agricultural pursuits. After 1852, when his sister Eleanor Parke Custis, who was married to Major Lawrence Lewis, died, he was the sole surviving member of Washington's family, and his residence was for many years an attractive resort on account of the many interesting relics of that family which it contained. Mr. Custis was the author of a number of remarkable orations, of several plays, and of the "Recollections of Washington," published at various times in the "National Intelligencer," of Washington. He was fond of painting, and in the latter part of his life executed a number of pictures of revolutionary battles. He was married in early life to Miss Mary Lee Fitzhugh, of Virginia, and left a daughter and several grandchildren.

CUTCH, or Cutch Bhooj, a native state of Hindostan, under the political superintendence of the Bombay government, bounded N. W. and N. by Sinde, E. by the Guicowar's dominions, S. by the peninsula of Cattywar and the gulf of Cutch, and S. W. by the Arabian sea. It lies between lat. 22° 47′ and 24° 40′ N., long. 68° 26′ and 71° 45′ E.; greatest length from E. to W. 205 m., breadth 110 m.; area, exclusive of the great salt marsh called the Runn of Cutch, which covers the N. part of the territory, and communicates with the gulf, 6,764 sq. m.; pop. 500,536. The Runn is 160 m. long from E. to W., from 4 to 80 m. wide, and about 7,000 sq. m. in area, including several islands. During the rainy season it is impassable except in a very few spots, and the S. part of the state becomes a vast island; but as the waters subside tolerable pastures appear here and there, and barren sand banks, covered with saline incrustations, are left exposed. The rest of the surface is hilly, and exhibits traces of volcanic action. Earthquakes are occasionally felt, and in 1819 a severe shock was experienced, which destroyed several hundred lives, and raised an enormous mound of sand and earth, several miles in extent, while a corresponding depression took place in the neighborhood. With the exception of a few fertile tracts, the country is generally sterile, and almost destitute of perennial rivers. The staple agricultural product is cotton, beside which there are plantations of sugar and of the common grains of India. Timber is scarce, but there are valuable minerals, including coal, iron, and alum. Cutch produces excellent horses, a poor breed of oxen, and numerous sheep and goats. Wild asses are met with in large herds near the Runn. The principal towns are Bhooj, the modern capital, and Anjar. The dominant race is a Rajpoot tribe, formerly noted for their almost universal practice of female infanticide.

CUTCH, Gulf of, an arm of the Arabian sea, running N. N. E. between Cutch and the peninsula of Cattywar (Guzerat), 110 m. long, and 25 m. wide at the entrance. It has often been described as very dangerous to navigation, but though full of eddies it is tolerably free from rocks, and is crossed by the natives at all seasons without fear.

CUTCH GUNDAVA, a province in the N. E. of Beloochistan, bordering on Sinde and Afghanistan, and bounded W. by the Hala mountains, in which is the famous Bolan pass. It lies between lat. 27° 40′ and 29° 50′ N., long. 67° 20′ and 69° 17′ E.; length from N. to S. about 160 m., breadth 130 m.; area, about 10,000 sq. m.; pop. about 100,000. It consists mainly of a vast arid plain, little cultivated, but in some parts thickly peopled. The S. E. part is occupied by the desert of Shikarpoor, 40 m. in extent, the soil of which is hardened clay, almost destitute of vegetation. The climate is proverbially sultry, water is scarce, and the chief productions are bajra and Indian millet. There are some fertile tracts, however, devoted to the cultivation of cotton, sugar, madder, and fruits. Capital, Gundava.

CUTHBERT, a saint and bishop of the English church, born near Melrose, probably in the first quarter of the 7th century, died March 20, 687, which day is observed as his festival. He was early attracted to the monastic life by the virtues of St. Aidan and his pious brethren, and was constrained by a timely vision to join himself to the fraternity. In 664 he was chosen prior of Melrose, and some years later was transferred to the charge of the monastery of Lindisfarne, or the "Holy island," a few miles S. of Berwick. His fondness for ascetic practices was not satisfied by the comparative ease and indulgence of this large establishment, and after a few years he retired to the lone and desolate isle of Farne, where he might enjoy a life of solitude. The island was barren, without wood or water; but the industry of the hermit, aided, according to the legend, by repeated miracles, opened springs, awakened fertility, and covered the ground with fields of grain. The fame of his holiness brought to him many visitors, among them Elfleda, daughter of the Northumbrian king Oswy, with whom he usually conversed through a window in the wall, not stirring out of his cell. For the purpose of more effectual isolation he dug a trench around his cabin. But he was compelled at last to yield to the persuasions of the Northumbrian king and church, and take the bishopric of the province of Lindisfarne. He held this office for 2 years, when, worn out by labors and austerities, he died in the island of Farne. His body, buried at his request in the monastery of Lindisfarne, was exhumed 11 years later, when, according to Bede, it was found to be undecayed. The Danish invasion, breaking up these northern convents, dispersed the monks over all the northern region. The bones of St. Cuthbert found a final resting place on the banks of the river Wear, and a convent, cathedral, and city were successively built around them. The legends and relics of St. Cuthbert remained for ages the chief treasure of the cathedral of Durham. He received the name of the "Thaumaturgus of

Britain." His memory was venerated for many centuries, and no intercession was deemed so powerful by the peasantry of the north of England. Pilgrimages were made to his shrine as to the shrine of St. Thomas of Canterbury. Diseases of the eye and palsy of the limbs were cured by the sight of his relics, or by kneeling at his tomb. A tooth of the saint was preserved in a nunnery in Paris, and a copy of John's Gospel in MS., taken from Cuthbert's coffin, was still extant in the last century. The Roman Catholic church celebrates on Sept. 4 the festival of the translation of St. Cuthbert's relics from Lindisfarne to Durham; in some parts of the region of Northumberland the day is still observed as a holiday.—St. Cuthbert of Durham is to be carefully distinguished from Cuthbert the Benedictine monk, who was a pupil of Bede, attended him in his last hours, and wrote a memoir of his life. Another Cuthbert was archbishop of Canterbury for 18 years from 740 to 758.

CUTLER, Manasseh, an American clergyman, born in Killingly, Conn., in 1744, died at Hamilton, Mass., July 28, 1823. He was graduated at Yale college in 1765, engaged in the whaling business, and opened a store at Edgartown, on Martha's Vineyard. While thus actively employed, he still continued his studies, and was admitted to the bar of Massachusetts in 1767, and pleaded a few cases in the court of common pleas. But this profession was not a congenial one; he cherished a preference for the ministry, and determined to prepare himself for it. After living in Edgartown 3 years, he removed with his family to Dedham, for the purpose of pursuing his theological studies with the Rev. Thomas Balch, whose daughter he had previously married. He was licensed to preach in 1770, and preached 6 months as a candidate at the Hamlet parish, then a part of Ipswich, Mass., but which was incorporated as a separate town under the name of Hamilton in 1793. Over this parish he was ordained, Sept. 11, 1771. At that period the difficulties between the colonies and Great Britain were assuming a threatening aspect, and he watched with deep interest the approach of the revolution. When the news of the battle of Lexington reached him, he made a short and stirring address to the minute men mustered in Ipswich on that occasion, and accompanied them on horseback to Cambridge, coming in sight of the enemy as they were retreating into Boston. Desirous of serving his country in deed as well as in word, he received a commission, Sept. 1776, as chaplain of the regiment commanded by Col. E. Francis, under whom and Col. Titcomb he served a year. Toward the close of the revolutionary struggle, as the physician of the Hamlet parish was employed in the army, and the people left destitute of medical advice, Mr. Cutler applied himself to the study and practice of medicine. For several years he administered to the bodily as well as spiritual maladies of his flock, for the former services receiving little or no compensation; yet notwithstanding these arduous labors, he soon became noted for his scientific taste and attainments. In 1781 he was elected a member of the American academy, and in the volume of memoirs published by that society in 1785 will be found scientific papers from his pen, bearing the following titles: "On the Transit of Mercury over the Sun, Nov. 12, 1782;" "On the Eclipse of the Moon, March 29, 1782, and of the Sun in the following April;" "Meteorological Observations, 1781, '82, '83;" "An Account of some of the Vegetable Productions naturally growing in this part of America;" and in the 3d volume of the memoirs appeared "Remarks on a Vegetable and Animal Insect." His botanical paper was the first attempt at a scientific description of the plants of New England. Dr. Cutler may well be termed the pioneer of botany in that region. He was induced to pursue this branch of science by casually meeting with an English work on botany, and his attention being thus drawn to the plants growing in his own immediate neighborhood, he examined and described 350 species according to the Linnæan system. In the preface he remarks that he may be guilty of many errors, as he had never before that year (1784) looked at plants with an eye to their scientific arrangement. During the same year he, with 6 others, ascended the White mountains; this party are said to have been the first white men who ever reached the summit. Dr. Cutler carried up instruments, and computed Mount Washington to be 10,000 feet above the level of the sea, thus giving it too great an elevation. With Dr. Peck's assistance he prepared the chapter on trees and plants in Dr. Belknap's "History of New Hampshire." Owing to the difficult and uncertain condition of affairs at the close of the revolutionary war, Dr. Cutler thought he could improve his condition by removing to the West, then a wild and almost unexplored part of the union. In 1786 a number of officers of the army met to form the Ohio company for the purpose of having their bounty lands located together. Major Winthrop Sargeant, one of the most efficient of their number, was acquainted with Dr. Cutler, and consulted with him about the proposed colony; the result was that he became a member of the company, and was appointed by its directors an agent in connection with Major Sargeant, with whom in this unexpected capacity Dr. Cutler visited the seat of government, and made a contract with the proper authorities for 1,000,000 acres of land north-west of the Ohio river. They also obtained a grant of 500,000 acres more, as an allowance for bad lands and incidental charges. By order of the directors Dr. Cutler, on his return home, immediately prepared to fit out an expedition for the intended settlement. He had a large wagon built and covered with black canvas, on which were painted in white letters the words: "Ohio, for Marietta on the Muskingum." The use to which this vehicle was appropriated, the circumstances under which it left New England and reached that then un-

cultivated wilderness, have placed this exploring wagon historically by the side of the Mayflower. Forty-five men were engaged to accompany it, and to help to settle and defend the new country for the space of 3 years. These emigrants started from Dr. Cutler's house, Dec. 1787; they were well armed, and fired a volley as a salute on their departure from his door. Their number having been increased to 60, they commenced the settlement of Marietta, April 7, 1788, under Gen. Rufus Putnam. In the further discharge of his agency Dr. Cutler started in a sulky for Ohio, which he reached in 29 days by a route of 750 miles. On Aug. 27, 1788, he performed the burial service for a child of Major Cushing, the first funeral that occurred among the whites at Marietta. While there he examined the fortifications and mounds in the neighborhood, which he considered were the work of a nation more civilized and powerful than any existing tribe of Indians. During the few weeks of his visit at the West, he was treated with great kindness, and highly honored; but he felt that at his age he had better remain in New England, and he bade a final adieu to the colony which he was in a great measure the means of founding. In 1795 President Washington tendered to him a commission as judge of the supreme court of the Ohio territory, which honor he declined. He was afterward elected by his people representative to the state legislature, and from 1800 to 1804 he served as a representative in congress.—Jervis, son of the preceding, one of the earliest emigrants to the western states, born in 1769 at Hamilton, Masss., died at Evansville, Ind., June 25, 1844. In 1788, at the age of 19, he joined the little company who, under Gen. Rufus Putnam, settled at Marietta, Ohio, then in the midst of Indian battle grounds. He was afterward able to say that he was the first man who ever cut down a tree for an emigrant's clearing in that great state. He was the last survivor of that pioneer company.

CUTLER, Timothy, D.D., president of Yale college, born in 1685, died in Boston, Mass., Aug. 17, 1765. He was graduated at Harvard college in 1701, and after a ministry of 10 years at Stratford, Conn., was chosen president of Yale college in 1719. In 1722 he renounced his connection with the Congregational churches, whereupon the trustees of the college passed a vote "excusing him from further service as rector of Yale college," and requiring in future from their rectors evidence of the "soundness of their faith in opposition to Arminian and prelatical corruptions." He then went to England, where he took orders. Returning to Boston in July, 1723, he became rector of Christ church, where he remained till his death. He published a sermon delivered before the general court at New Haven, in 1717, and one upon the death of Thomas Graves, 1757. A series of his letters published in Nichols's "Illustrations of Literary History," have considerable historical value.

CUTLERY (Fr. *coutellerie*), a general term including sharp cutting and many pointed instruments, made of iron and steel, as knives, forks, razors, &c. Instruments of this character were made in ancient times of various hard stones like flint; and shells also are still used by rude nations in the want of better cutting instruments. The ancient Egyptians appear to have possessed the art of giving a hardness to bronze, which adapted it to purposes for which only the best tempered steel is now found suitable. The Greeks also employed it before they were acquainted with the properties of steel; but these they appear to have understood in the time of Homer, distinct reference being made in the Odyssey to the process of tempering it. Their citations, as also those of the Romans, of districts famous for their production of iron, might still be correctly repeated; yet the ancient swords found in Herculaneum and Pompeii, the surgical and other cutting instruments, are not of the material, *ferrum*, always connected by the Latin writers with the weapons named, but of bronze. The manufacture of articles of cutlery was practised by the ancient Britons at as early a period certainly as the time of the Roman invasion, when they possessed broadswords, scythes, hooks, and spears, made from the products of their iron mines. Sheffield was a noted place for their manufacture in the time of Chaucer, who says of the miller of Trompington :

A Shefeld thwytel bare he in his hose.

Forks were not used till a much later period; even in the time of James I. they were regarded as a curious device of the Italians, worthy of a formal notice by the traveller Coryat. —Steel is the proper material for the cutting edges of all articles of cutlery; the backs may be made, if preferred for the sake of using a cheaper material, of iron, to which the steel is welded. So also of the handles of the instruments, or the tangs by which they are secured to handles of other materials. The steel for many instruments may be the blistered steel, or this after it has been fagoted and drawn down by tilt hammers to the bars called shear steel. This is a tough variety, easily worked, and answers very well for table knives, plane irons, scythes, &c. But when a fine finish is required, or great hardness, the blistered steel should be converted by fusion into cast steel, and the ingots be forged into bars, and these into the shapes required. Simple articles of cutlery, as chisels, are made by hammering a bit of cast steel into the shape of the cutting end, giving length enough to allow of considerable wear. This is made very thin, as it is intended only for the edge, and upon it is laid and welded a flat slip of iron, which has been forged into the shape of the chisel, and upon which the shoulder is shaped by driving it into a cavity in the anvil or a block with a suitably formed die to give the shape desired, and hammering upon the shank above a swage which fits around it like a collar. One side of the chisel is thus iron intended to be ground away:

the other side is the steel, which may be tempered to a proper degree of hardness. Small chisels are hammered entirely out of slender bars of steel.—The materials employed for scissors are still more various. Common qualities are of shear steel, with the blades only hardened. The best qualities are of cast steel, with blades, bows, and shanks all hardened. Large scissors, as the shears used by tailors, are of steel only in the blades, the rest being of iron; formerly only the edge was of steel. Some scissors are made of a good quality of cast iron, to which the English manufacturers give the name of run or virgin steel. Even of these there are inferior qualities, made for exportation, of common cast iron. A dozen pair of these sell for 3½*d*. But scissors of the best steel are manufactured with bows and shanks of gold that sell for more than 10 guineas the single pair. When made wholly of steel, the blade is hammered out at the end of a small bar, which is cut off with enough of the steel for the shank and bow. Through this a hole is punched, which is enlarged over the point of a small anvil or beak iron. By hammering and filing the exact shape is given; the joint is then squared, the hole bored for the rivet or screw, the blades are ground, and the bows smooth filed and burnished with oil and fine emery. Any ornamental devices are given by swaging in dies which contain the patterns. The blades are hardly measured except by the eye in the process of forging, and not being made with reference to pairing, the matches are afterward selected among many blades. Being sorted, and a pair screwed together, they are made to "walk and talk" well, as the "putter together" calls their playing with a smooth motion. After this follow various operations of hardening, grinding to give the exact shape, glazing and polishing, and the final burnishing with polished steel tools, which is done by women. An ingenious device is introduced, by which the cutting edges of the blades are brought in close contact with each other only at the point where the cutting is effected, which point moves from the end next the pivot to the extremity of the blades, in the operation of closing these. This consists in giving a slightly bowed shape to the blades, and raising upon the inner surface of each, close behind the pivot, a little triangular prominence, which makes the blades cant more and more toward each other as they are closed. The effect of these bulges and of the bow shape may be observed on holding a pair of scissors edgewise to the light; when closed the blades are seen to touch each other only at the point and at the centre on these enlargements, which are called the riding part. The arrangement also gives a certain degree of elasticity which adds to the smooth action of the instrument.—The blade of a table knife and of other large knives is hammered out upon an anvil at the end of a bar of shear or cast steel, and cut off. It is then welded on to a bar of wrought iron about ½ an inch square, and enough of this is cut off to form the bolster or shoulder and the tang. The blade is heated and hammered, or, as it is called, smithed, which serves to condense the metal and enables it to receive a higher finish. The mark of the maker is then stamped upon it, and it is hardened by heating to redness, and plunging into cold water. It is tempered to a blue color, and is then ready for grinding. The small blades of penknives are hammered entire out of the best cast steel. A temporary tang is drawn out to secure the blade in a small handle while it is ground. A number of blades are heated together for tempering, by being placed over the fire upon a flat plate of iron, their backs downward; when at the proper degree of redness so as to take a brown or purple color, they are dipped in water up to the shoulder. For razors the very best cast steel is selected, and when the blade is shaped upon the anvil from a bar as thick as the back of the razor and ½ an inch wide, it is well smithed to condense the metal as much as possible. Only the best steel will bear the working down of one part of the blade to the requisite thinness, while the back is left thick. By grinding on a dry coarse stone, the shape is further improved, and the scale is removed, which might interfere with the tempering. This operation is performed after the blade is drilled for the pin of the joint and stamped. It is next ground on a stone wet with water, and is afterward submitted to several processes of glazing and polishing, the last being effected on a soft buff wheel, covered with dry crocus and slowly revolving. Forks are hammered out of square steel rods, commonly of ⅝ inch. The tang and shank are roughly shaped at the end of the rod, and are then cut off with about an inch of the square steel beside. This is drawn out flat for the prongs; and the shank and tang are then shaped by the die and swage. The other end, heated to a white heat, is laid in a steel die upon an anvil, when another die attached to the under face of a heavy block of metal is allowed to fall upon it from the height of 7 or 8 feet. The prongs are thus shaped, and all but a thin film of steel removed from between them. This is afterward cleaned out with an instrument called a fly-press. A number of forks are then collected together and annealed by heating and allowing them to cool slowly. This renders them soft, so that they are easily shaped by the file and by bending. They are hardened by another heating to redness followed by sudden cooling in cold water, when they are at last tempered at the heat at which grease inflames.—The process of tempering, to which all articles of steel cutlery are subjected, is intended to remove the brittleness consequent upon the hardening of the steel. This is effected by reheating it to a proper temperature and suddenly plunging the metal into cold water. The higher the temperature of this reheating, the softer and stronger is the steel; at lower degrees of heat a greater hardness is secured, but with proportional brittleness. The different temperatures

with the corresponding colors appropriate for the tempering of various articles are given as follows by Mr. Stodart:

1. 430° F.; very pale straw yellow; temper suitable for lancets.
2. 450°; a shade of darker yellow; razors and surgical instruments.
3. 470°; darker straw yellow; penknives.
4. 490°; still darker straw yellow; chisels and shears for cutting iron.
5. 500°; brown yellow; axes and plane irons.
6. 520°; yellow, slightly tinged with purple; table knives and cloth shears.
7. 530°; light purple; } swords and watch springs.
8. 550°; dark purple; }
9. 570°; dark blue; small fine saws.
10. 590°; paler blue; } large saws with teeth to be set with pliers and sharpened with a file.
11. 610°; still paler blue; }
12. 630°; same, with tinge of green; too soft for steel instruments.

The film which presents the color appears to be owing to the oxygen of the air, as it could not be produced by Sir Humphry Davy in nitrogen. The action is probably upon the carbon of the steel, and the effect is to partially protect the steel from oxidation producing rust.—In places where the manufacture of cutlery is carried on upon an extensive scale, as at Sheffield, the grinding and polishing is conducted in large mills or "wheels" devoted to this purpose. The rooms of these establishments, called hulls, are furnished each with 6 arrangements for grinding, which are called troughs. They consist of the stone for grinding, a polisher, and the pulley for driving them. The stones are of various sizes, from 4 inches to 2 feet in diameter, adapted to the articles to be ground. The convex surface of the small 4 or 5 inch stones gives the concavity on the face of the razor blades. Some are used dry, and others, employed for grinding articles, the temper of which might be injured by the heat, are kept wet. The dry grinding is more expeditious, but unless the troughs are furnished with a ventilating fan and flue for carrying off the fine metallic particles and the dust from the stones, the health of the workmen is very seriously affected. Fork grinding, which is always done without water, is described by Dr. Holland of Sheffield as probably more destructive to human life than any other pursuit. The air of the rooms becomes filled with the fine dust, and the inhaling of this produces cough and inflammation of the lungs, reducing the average age of the fork grinders to 30 years or less. Glazing or lapping succeeds to the grinding. Each process consists in applying the articles to the face of a revolving wheel, upon which a lump of emery cake is occasionally rubbed. The glazier is a wheel made of 6 or 8 pieces of some close-grained wood, arranged so that the grain lies as much as possible in the line from the centre to the circumference. The lap is a thin wooden wheel faced around its edge with a rim or tire of metal. This usually consists of 4 or 5 parts of lead to 1 of tin, and is secured by being run when melted between the projecting edges of the face of the wheel. After being cast it is turned true, and is then indented or grooved in order to make it hold the dressing of emery and oil. Various qualities of polish are produced upon steel blades by drawing them from end to end across the revolving lap, according to the fineness of the emery with which this is fed, or the smoother face given by the application of a stick of charcoal succeeded by that of a smooth piece of flint. For giving the finest polish to razors and other articles of fine cutlery, polishing wheels of wood are used with faces covered with leather and charged with dry crocus.—The handles of articles of cutlery are made from a variety of materials; as the ivory of the elephant and walrus, different kinds of horn, mother-of-pearl, tortoise shell, and some sorts of wood, as cocoa and snakewood. Ivory is used more than other materials for table knives, &c. A solid piece of the right size is cut out, and the hole for the tang is bored in one end. Sometimes this is made entirely through the handle, so that the end of the tang may be secured by riveting upon a metallic cap which is thus attached to the extremity of the handle. When it passes only part way through, it is secured by cement, or by a late contrivance of the Messrs. Rodgers of Sheffield—a little spring catch fastened to the tang, which falls into a notch made in the cavity in the handle as the tang is introduced, and prevents its being withdrawn. Balance handles are made with lead introduced into the further end of the cavity for the tang, the object being to counterbalance the blade, so that the knife when laid down rests only upon the outer extremity of the handle and the projecting shoulder of the blade at its other end. Common knives are made with a thin flat tang, to which strips of wood or bone are securely riveted for a handle, one on each side. The handles of penknives are much more elaborate in their construction, involving a greater variety of processes than the blades themselves. The springs are nice pieces of work requiring their peculiar temper, and a final glazing upon their backs. The slips for the handles demand great care in their fitting and frequently in their ornamentation. The thin plates, called scales, which form the sides and divisions of the handle, must be exactly adjusted to all the other parts, to which they are secured by rivets passing through the springs and outer pieces. It is stated that a three-bladed knife passes through the finisher's hands about 100 times.—The manufacture of table cutlery is of recent introduction in the United States. It was commenced in January, 1834, by Mr. John Russell of Greenfield, Mass., and some time afterward was undertaken by the Messrs. Ropes of Portland, Me., and the Messrs. Lamson of Shelburne Falls, Mass. It made but slow progress until the processes were improved by the application of machinery to form the blades, by the plan of Mr. Russell, which has since been introduced in the European works. The establishment of the Green river manufacturing company, near Greenfield village, has produced for several

years past table cutlery and butcher and shoe knives to the amount of $300,000 annually, giving employment to from 300 to 340 men and boys, and consuming every year 100 tons of cast steel, 180 tons of Granadilla wood for handles, 50 tons of ebony, 50 tons of horns of cattle, 16,500 lbs. of ivory, 150 tons of anthracite, 15,000 bushels of charcoal, 175 tons of grindstones. Their knives are found in all parts of the United States, and are exported to South America, and some even to Australia and other parts of the world. The aggregate value of cutlery produced in Massachusetts in 1855 was $573,625, chiefly in Franklin county. As regards the quality of the articles, Fleischmann, in his work on the branches of industry in the United States, remarks that "the manufacturers of cutlery have far surpassed those of the old world in the manufacture of tools, and that not merely in the excellence of the metal used, but especially in the practical utility of their patterns, and in the remarkable degree of finish of their work." This finish, it may be remarked, appears to be applied in American work only where it will be conspicuous, and hence useful; but in the machinery of American clocks and watches it is saved as a useless expense, adding as it does in English work of this class much to the cost, with no corresponding benefit. The value of cutlery exported from the United States during the year ending Sept. 30, 1857, was $12,663, and of imports, $2,140,824, viz.: from England, $1,953,396; Germany, $87,540; France, $73,315; other countries, $26,573. During the 11 months ending Nov. 30, 1858, the imports of cutlery and hardware from England amounted to about $2,800,000.

CUTTACK, a province of British India, in the Bengal presidency, bounded E. and S. E. by the bay of Bengal, and lying between lat. 19° 40′ and 21° 45′ N., long. 85° 8′ and 87° 31′ E.; area 6,705 sq. m.; pop. 1,556,395. It is divided into the districts of Pooree, Cuttack proper, and Balasore. The district of Cuttack has an area of 3,061 sq. m. It is well watered and has a diversified surface, the coast being level and the N. W. part traversed by wooded hills which produce teak and other valuable timber. Wheat, maize, rice, sugar, pulse, spices, and dyestuffs are the principal productions. The best salt in India is made on the coast, and iron is found among the hills. The climate is hot and unhealthy. The province was acquired by the British from the rajah of Berar in 1803. In 1817 it was the theatre of a serious revolt, and in 1857 was somewhat disturbed, though free from any considerable outbreak. The Cuttack Mehals, a group of 18 petty states, with an aggregate area of 16,929 sq. m., and a pop. of 761,805, became subject to the East India company on the acquisition of the province. They comprise a small proportion of arable land, but are valuable for their timber.—Cuttack, the capital of the above district, is situated on a tongue of land between 2 branches of the Mahanuddy river, 60 m. from its mouth and 220 m. S. W. from Calcutta; pop. estimated at 40,000. Embankments faced with stone protect it from the frequent overflows of the river, which has been known to rise 6 feet above the level of the town in a single night. It is half in ruins, has little trade, and contains no handsome buildings. Many of its private dwellings, however, are well built of brick or stone, and it has manufactories of cooking utensils and shoes. Near it is the decayed fortress of Barahbattee, now used as a quarry. The town was the capital of the ancient province of Orissa, and its name, from the Sanscrit *catak*, signifies a royal residence. It was captured by the British in 1803.

CUTTER, a small vessel with one mast, and a straight running bowsprit, which may be run in upon deck. It differs from the sloop by having no stay to support its jib. They are fast-sailing, and are often employed by smugglers, and also by the government for the purpose of apprehending them; in the latter case they are termed revenue cutters.

CUTTLE FISH (*sepia officinalis*), a molluscous animal or shellfish, a species of the family *sepiadæ*, of the class of cephalopods. The shell of the animal, which characterizes the family, is a broad laminated plate imbedded in the back part of the mantle, and terminating behind in an imperfectly chambered apex (*mucro*), which is supposed to answer as a sort of guard or fender in the collisions the animals are exposed to in swimming backward. This shell is a friable calcareous substance known as cuttle bone, or pounce, and used for polishing soft metals. The bone of a Chinese cuttle fish has been found 1½ feet in length. As a fossil the bone has been met with in the eocene clays of the London basin, and of forms indicating different species from those now living. The cuttle fishes are provided with 8 arms and 2 long tentacles, all of which radiate from around the head. The tentacles are provided with suckers, and reach beyond the arms to seize prey, and serve also to moor the animal. The suckers hold so fast to objects that the limb will part from the body before they let go. By means of their arms they walk on the bottom with their heads downward; the same organs aid them in swimming, and a propelling force is moreover obtained by violently ejecting water from their branchial chamber. As a means of defence they are provided with an ink bag, the discharge of which opens into the funnel by which the water is ejected from the 2 gills; when attacked the animal instantly darkens the water with the black fluid from this bag, and retreats in the obscurity it occasions. Several species of sepia produce this inky substance. It was well known to the ancients, and is described by Aristotle. It appears to have been used for writing; and in modern times it has served for the preparation of the brown pigment called sepia, but this is now prepared from lampblack. The ink consists of carbon in a finely divided state, of albumen, gelatine, and phosphate of lime. The bag must be dried immediately when taken from

the animal, as it is liable to putrefy. The dried material is triturated with a caustic alkali, and then boiled with a solution of the same. After filtering, the alkali is neutralized by adding an acid, and the precipitated sepia is collected, washed, and dried. Buckland states that he had some sepia prepared from ink bags of extinct cephalopods found preserved in a fossil state in the lias formation, and that the pigment was of such excellent quality as to attract the attention of a celebrated painter. Cuttle fishes are found in the open sea in almost all parts of the world; and they appear near the coasts periodically in shoals. They have large eyes placed on the sides of the head, which seem designed for use in the night or in the darkness of deep waters, as the animal avoids the light of day. No other mollusca attain so large size as the cuttle fish. One has been met with of about 6 feet in length.

CUTTY STOOL, the stool of repentance, formerly employed in the Scotch kirk, for offenders against the law of chastity. The criminal having been deprived of church ordinances, and duly taken to task privately for his or her offence, was required to make a public acknowledgment of the sin prior to being restored to communion. The penance consisted in occupying the cutty stool, in face of the congregation, and being lectured by the minister on the enormity of the offence. Sometimes the offender was clad in a white sheet, the stool of repentance being painted black, and placed conspicuously in an upper gallery. The custom has fallen into disuse.

CUT-WORM, the caterpillar of an owlet moth of the tribe of *noctuæ*, and group *agrotididæ;* this name has also been given to many other grubs and worms living in the ground. This caterpillar remains by day about the roots of plants, and comes forth at night to cut off the tender stems and leaves of cabbages, beans, corn, and many other culinary plants. Some of the moths of this family fly by day, others only at night; the wings are nearly horizontal when closed; the thorax smooth and slightly convex; the antennæ of the males generally with 2 rows of fine tooth-like points on the under side; the fore legs are often quite spiny. Most of these moths appear in July and August, laying their eggs in the ground; in Europe the caterpillars are hatched in early autumn, and feed on the tender roots of plants; descending deeper in winter, they remain torpid until spring. The caterpillars of the agrotidians are smooth, shining, naked, dark-colored, with longitudinal pale and dark stripes, and a few black dots on each ring; cylindrical, short, and thick, with 16 legs; the chrysalis is transformed in the ground, without a cocoon. The most destructive European species are the winter dart moth (*agrotis segetum*), and the wheat dart moth (*A. tritici*), both destroying the roots and leaves of winter wheat and buckwheat; the eagle moth (*A. aquilina*), an occasional pest in vineyards; and the antler moth (*charæas graminis*), very destructive in meadows and mountain pastures. The American species have the same habits, appearing about the same time, destroying whole fields of corn, potatoes, cabbages, beans, and other vegetables, and also asters, pinks, balsams, and other ornamental plants. The caterpillars vary in length from 1 to 2 inches, and are thick, of a dark ashy gray color, with a brown head, and a pale dorsal stripe, with minute black dots; the chrysalis is of a shining dark brown, and the moth appears from the 20th of July to the middle of August. There are at least 5 species in New England. The largest is the *A. telifera* (Harris), having the fore wings light brown, divided by 2 transverse bands of wavy dark brown lines, and with 3 spots (one lance-marked) encircled with dark brown; the hind wings are pearly white, the abdomen gray; expanse of wings at least 2 inches. The *A. inermis* (Harris) is slightly smaller, resembling the preceding except in the absence of the lance-shaped spot; the thorax is reddish brown. The *A. messoria* (Harris) has the fore wings reddish gray, with 5 wavy blackish bands and 3 wing spots; the hind wings whitish, and dusky brown behind; the body grayish; the expanse of wings $1\frac{3}{4}$ inches. The *A. tessellata* (Harris) expands only $1\frac{1}{4}$ inches; the fore wings are dark ash, with only a faint trace of bands, and with large alternate pale and black spots; the hind wings brownish gray in the middle, and blackish behind. The *A. devastator* (Harris), the moth of the cabbage cut-worm, has the fore wings dark satiny ashy gray, with 4 narrow, wavy, whitish bands edged with black, and white dots and dark spots; the hind wings are a light brownish gray, dusky behind; body gray; expanse of wings $1\frac{1}{2}$ to $1\frac{3}{4}$ inches. All these fly only at night; the last is not easily taken from its rapid motions, and often flies into lamps and candles after the middle of July. Other species are described by Dr. Harris. The ravages of the true cut-worms are not prevented by any treatment of the seed, as they feed only on the young sprouts and stalks; the only effectual way to prevent their depredations is to open the earth daily at the foot of the growing plants and kill the worms, which are easily found. It is said that a manure of sea mud will protect a garden from these worms; some cultivators protect their cabbage plants by wrapping a walnut leaf or paper cone firmly around the root, secured by an earth embankment. Turning up in the fall lands which are to be planted the next year, exposes many grubs to cold and to the birds, but has been considered a remedy of doubtful utility.

CUVIER, Georges Chrétien Léopold Dagobert, a French naturalist, born at Montbéliard (now a French town, but formerly the chief place of a principality belonging to the duke of Würtemberg), Aug. 23, 1769, died in Paris, May 13, 1832. The family came originally from a village in the Jura which still bears the name of Cuvier; at the time of the reformation it settled at Montbéliard, where some of its members held offices of distinction. The grandfather of

Cuvier had 2 sons, the younger of whom entered a Swiss regiment in the service of France; a brave man and an excellent officer, he rose to high honors, and at the age of 50 married a lady considerably younger than himself; by her he had 3 sons; the oldest died in infancy, the second was the subject of the present sketch, and the third was Frédéric Cuvier. Of delicate constitution, his mother watched over him with the tenderest care, and took upon herself the management of his early education; she taught him to read, made him repeat to her his Latin lessons, instructed him in drawing, and, by causing him to read the best works in history and literature, developed in his youthful mind that ardent desire for knowledge which was so remarkable in him. At the age of 10 he entered the gymnasium, or high school, where he remained 4 years, distinguishing himself in every branch there taught; at this early period his taste for natural history was stimulated by reading a copy of Buffon which he found at the house of a relative; his memory was so retentive that at the age of 12 he was perfectly familiar with birds and quadrupeds. At the age of 14 he formed a kind of academy from among his schoolmates, of which he was president, at whose weekly meetings the merits of some book were discussed; here his declamatory and administrative powers began to manifest themselves. A petty trick of a malicious teacher prevented his being sent to the free school of Tübingen, where he would have prepared himself for the church; and this change in his studies he always regarded in after life as a most fortunate accident. Charles, duke of Würtemberg, took him under his special favor, and sent him at the age of 14 to the academy of Stuttgart, in March, 1784; after studying philosophy one year, he applied himself to the science of fiscal administration, because it gave him an opportunity to pursue his favorite natural history in books, in the fields, and in cabinets. While here one of the professors gave him a copy of the "System of Nature" by Linnæus, which was his library on natural history for several years. Occupied by such reading and the collection of specimens, he did not neglect his class studies, but obtained several prizes for his eminent proficiency. He would doubtless soon have been appointed a professor, but the circumstances of his parents did not permit delay; a situation as private tutor in Normandy being offered him just as he left Stuttgart, he accepted it, and entered upon its duties in July, 1788, at the age of 19 years. While in the family of the count d'Héricy, he followed natural history with great zeal, and was very favorably situated for the study of both terrestrial and marine animals; he remained here until 1794. Some *terebratulæ* having been dug up in his vicinity, he conceived the idea of comparing fossils with living species; and the dissection of some mollusks suggested to him the necessity of a reform in the classifications of animals; here originated the germs of his two great works, the *Ossemens fossiles*, and the *Règne animale*. Through his acquaintance with M. Tessier, who had fled to Normandy during the reign of terror, Cuvier began a correspondence with Geoffroy St. Hilaire, Lacépède, and other Parisian savants, on subjects of natural history; in the spring of 1795 he accepted their invitation to come to Paris, and was appointed professor in the central school of the Pantheon, for which he is said to have composed his *Tableau élémentaire de l'histoire naturelle des animaux*, in which he first gave to the world his ideas on zoological arrangement. M. Mertrud had been appointed professor of comparative anatomy at the *jardin des plantes;* at his advanced age, feeling himself unable to discharge all its duties, he called upon Cuvier to assist him, who at this time invited his brother Frédéric to join him. From this moment he commenced the collection of comparative anatomy, which has since become so famous and extensive. In 1796 the national institute was formed, and Cuvier was associated with Lacépède and Daubenton in the section of zoology, and was its third secretary. In 1799 the death of Daubenton made vacant for Cuvier the chair of natural history at the college of France; and in 1802 he succeeded Mertrud as professor of comparative anatomy at the *jardin des plantes*. In 1800, M. Duméril, one of Cuvier's pupils, published the 1st and 2d volumes of his lectures, under the title *Leçons d'anatomie comparée;* the 3d, 4th, and 5th of the 1st edition, prepared by G. L. Duvernoy, appeared in 1805. In 1802, appointed by Bonaparte one of the inspectors-general to establish *lycées* or public schools in France, he founded those of Marseilles, Nice, and Bordeaux. He quitted this office in 1803 on being elected perpetual secretary to the class of natural sciences in the institute, a position which he held to the day of his death; in this capacity he made in 1808 his celebrated report on the progress of the natural sciences since 1789, so pleasing to the emperor, which appeared in 1810. In 1808 he was also made one of the counsellors for life to the imperial university, by which he was frequently brought into close communication with Napoleon. In 1809–'10 he was commissioned with the organization of the new academies in the Italian states which were annexed to the empire. In 1811 he was sent on a similar mission to Holland and the Hanseatic towns, and was made chevalier of the legion of honor. In 1813, though a Protestant, he was sent to Rome to organize a university there, and was also appointed master of requests in the council of state. In the same year he was made imperial commissioner to go to the left bank of the Rhine, and endeavor to arouse the people against the troops then marching to invade France; stopped at Nancy by the approach of the allied armies, he was obliged to return. In 1814 he was named councillor of state by Napoleon, which honor was continued to him by Louis XVIII., as also that of royal commissary, which enabled him to

introduce many improvements in criminal and civil law; he was also made chancellor to the university, which office he retained during life, notwithstanding the prejudices and resistance which as a Protestant he was constantly obliged to encounter. In 1818 he visited England with his family for the purpose of observing its political and scientific institutions; while there he was elected a member of the French academy. In 1819 he was made grand master to the university, and president of the *comité de l'intérieur;* in this year Louis XVIII. created him baron, as a mark of personal esteem. In 1822 he was appointed grand master of the faculties of Protestant theology, which gave him the superintendence of the religious, civil, and political rights of his creed; and in 1827 was added to this the management of the religious affairs of all the creeds in France except the Roman Catholic. In 1824 he acted as one of the presidents of the council of state at the coronation of Charles X.; and in 1826 was made grand officer of the legion of honor by that king. In 1827 he was offered the appointment of censor of the press, which he instantly refused. In 1830 he recommenced his lectures at the college of France, on the "History and Progress of Science in all Ages," which were continued until his death; in this year he made a second visit to England, where he happened to be when the revolution took place which placed Louis Philippe on the throne of France. He continued to enjoy all his honors, dignities, and important offices under the citizen king; in 1832 he was created peer of France, and the appointment of president to the entire council of state only wanted the king's signature, when Cuvier expired. Cuvier lost his mother in 1793, and his father in 1795. In 1803 he married Madame du Vaucel, a widow with 4 children, 3 sons and a daughter, the latter of whom devoted herself to him in his last illness; by this marriage he had 4 children, of whom 3 died in early childhood; his only remaining child, Clémentine, died in 1828, at the age of 22, on the eve of marriage; his wife and two of her first children survived him. On May 8, 1832, he opened his course of lectures at the college of France; at the close of the first lecture he spoke these words, which seemed to indicate a presentiment of his approaching end: "Such, gentlemen, will be the objects of our investigation, if time, my own strength, and the state of my health, permit me to continue and finish them." After this lecture he felt slight pain and numbness in the right arm, and his throat became affected; on the 3d day both arms were seized, and the power of swallowing was lost, all his mental faculties and the power of speech remaining unaffected; conscious of his approaching death, he was perfectly calm and resigned. Four hours before he died he was carried, at his own request, into the memorable cabinet where the happiest and proudest hours of his life had been spent, and where he wished to draw his last breath. Baron Pasquier says: "His countenance was in a state of perfect repose, and never did his noble head appear to be more beautiful, or worthy of admiration." The paralysis of the voluntary muscles spread rapidly, fever set in, the lungs became unable to perform their functions, and he gradually sank away without a struggle. Feeble in his youth, by the time he arrived in Paris his health was seriously deranged, and his symptoms were those of incipient consumption; but the excitement of new studies, the change in his habits, and the exertion of lecturing, worked such an alteration in him that he enjoyed good health until his final illness. He was below the middle stature, with very fair skin, and reddish hair up to the age of 30; as his health improved, his hair became darker; at 45 he grew stout, but was always well; at 60 he scarcely seemed more than 50; according to Duvernoy, he never used spectacles when reading or writing. The size of Cuvier's brain was remarkably large, weighing nearly a pound more than the average brain of man; and the excess of weight depended almost entirely on the great development of the cerebral hemispheres, the seat of the intellectual faculties.—A history of the labors of Cuvier in the domain of natural history would be nothing less than the history of natural science in the first half of the 19th century. Linnæus in 1735 published his *Systema Naturæ*, a mere sketch of the animal kingdom, but still a simple and valuable classification; he did not always select the best characters for the foundation of his divisions, but he accomplished a great deal, and by his generic and specific names contributed much to a knowledge of animals and their affinities. When Cuvier brought his great mind to the work, and formed a system based on the invariable characters of anatomical structure instead of external resemblances, he discovered the true basis of a natural classification of the animal kingdom. The system of Cuvier, which is now generally adopted in its main features, is already given in the article Animal. Various modifications have been adopted, and numerous errors have been corrected since its publication, more especially by Prof. Agassiz, upon whom the mantle of Cuvier seems to have fallen. Cuvier first introduced into zoology the fourfold division, founded on different plans of structure, of *radiata*, *mollusca*, *articulata*, and *vertebrata;* and this has been the basis of all modern improvements in the science. The first improvement on Cuvier's system was the removal of the helminths from the radiata, and placing them among articulata; then the infusoria were removed from radiata, and divided among plants, mollusca, and articulata; the only important change in mollusca is the removal of the cirripeds from them and placing them under articulata; in articulata, the arachnida have since been united with the insects proper; these 3 branches include all invertebrates. The division of vertebrates into fishes, reptiles, birds, and mammals, has been modified by making amphibia a class between fishes and

reptiles; by separating the selachians, ganoids, and myzonts from fishes proper; and by reducing the number of orders among birds from 6 to 4, and among mammals from 9 to 3. The classification of Prof. Agassiz, founded on that of Cuvier, and published in the first volume of his "Natural History of the United States," is here given as the best at present known, though its author does not consider it as by any means a perfect one; his present investigations will doubtless modify it considerably, especially in the orders, and in the class of fishes:

Branch I. Radiata.

Class 1. *Polypi:* including the 2 orders, actinoids and halcyonoids.
" 2. *Acalephæ:* 3 orders—hydroids (including siphonophoræ), discophoræ, and ctenophoræ.
" 3. *Echinoderms:* 4 orders—crinoids, asteroids, echinoids, and holothurioids.

Branch II. Mollusca.

Class 1. *Acephala:* 4 orders—bryozoa (including the vorticellæ), brachiopods, tunicata, and lamellibranchiata.
" 2. *Gasteropoda:* 3 orders—pteropoda, heteropoda, and gasteropoda proper.
" 3. *Cephalopoda:* 2 orders—tetrabranchiata and dibranchiata.

Branch III. Articulata.

Class 1. *Worms:* 3 orders—trematods (including cestods, planariæ, and leeches), nematoids (including acanthocephala and gordiacei), and annelides.
" 2. *Crustacea:* 4 orders—rotifera, entromostraca (including cirripeds), tetradecapods, and decapods.
" 3. *Insects:* 3 orders—myriapods, arachnids, and insects proper.

Branch IV. Vertebrata.

Class 1. *Myzontes:* 2 orders—myxinoids and cyclostomes.
" 2. *Fishes proper:* 2 orders—ctenoids (as the perch) and cycloids (as the cod). [This division will probably be considerably modified by its author.]
" 3. *Ganoids:* 3 orders—cælacanths, acipenseroids, and sauroids; and doubtful, the siluroids, plectognathi, and lophobranches.
" 4. *Selachians:* 3 orders—chimæræ, galeodes, and batides.
" 5. *Amphibians:* 3 orders—cæciliæ, ichthyodi, and anura.
" 6. *Reptiles:* 4 orders—serpents, saurii, rhizodontes, and testudinata.
" 7. *Birds:* 4 orders—natatores, grallæ, rasores, and insessores (including scansores and accipitres).
" 8. *Mammalia:* 3 orders—marsupialia, herbivora, and carnivora.

The general order in the classes and in the orders is from lowest to highest. By a glance at this classification, the reader will perceive to what extent it is founded on that of Cuvier; the system of 1812 differs from that of 1857 mainly in the points derived from embryological development in the latter. The grand idea of Cuvier, and his followers since, was to discover the plan of created beings by the study and comparison of the intimate structure of their organism—to establish the true philosophy of natural history on the laws of organization. With him comparative anatomy and zoology went hand in hand, assisting each other continually; and from their united facts he deduced the laws of a new science, that of fossil animal life, astonishing the world with the magnitude of his conceptions and the grandeur of his discoveries. Linnæus had confounded in his class of worms all animals which have not red blood, including more than half of the animal kingdom. Cuvier's first researches were on this class of animals, which he in 1795 divided into the classes of his invertebrate series. His very first observations in 1792 were on the anatomy of the common patella, certain dipterous insects, and crustaceans, in the 2d volume of the *Journal d'histoire naturelle.* Since the time of Aristotle, the invertebrata had always been neglected until Cuvier published his divisions in 1795, from which may be dated the reformation of natural history. Beside the memoir above mentioned, in the same year he took up the mollusca, studied their structure, divided them into orders, and commenced a series of observations which led to the publication of his memoir on the history and anatomy of mollusks, published in 1817.—Comparative anatomy was the basis of Cuvier's zoology, and we find mémoirs on this subject from 1795 to 1831; the *Leçons d'anatomie comparée*, already alluded to, was but the preface, as it were, to a more extended work, whose plan he had nearly completed when death overtook him; such as it is, a monument of vast labor, it has furnished materials for the development of this science by other hands, and has from its own stores enabled critics to point out unavoidable deficiencies; from a heap of dry, unconnected facts concerning the structure of animals, he obtained the general laws of organization, the limit of variation in each organ, the marked influence of some upon the general system, the subordination of many, and the coexistence or incompatibility of others. Among the prominent points are: the development of the teeth; the structure of the larynx of birds, of the nasal fossæ and organs of hearing in cetaceans, and of the respiratory organs in the perenni-branchiate amphibia; the comparison of the brain in the vertebrata, and the relation of its development to the intelligence; the respiration, animal heat, muscular force, sensory and digestive systems of these animals. For this treatise on comparative anatomy he received one of the decennial prizes instituted by Napoleon in 1810. Cuvier in his scientific labors stated positively only that which he knew from personal observation, and therefore early directed his attention to collecting objects of natural history; the great collection of comparative anatomy at the *jardin des plantes*, made chiefly through his own exertions, contributed the materials of which he made such a remarkable use; this collection was also necessary for the determination of fossil species, which he began to investigate while residing in Normandy. In 1796 appeared his memoir on the skeletons of the *megalonyx* and *megatherium*, and on the skulls of fossil bears from the caverns of Gaylenreuth; from this period until 1812 he contributed many papers on fossil bones, the most important of which were printed in the *Annales du muséum d'histoire naturelle*, and were afterward published under the title of *Recherches sur les ossemens fossiles;* the 1st edition, in 4 volumes 4to., appeared in 1812, a 2d in 1817, and a 3d in 1825, with a preliminary discourse on the "Revolutions of the

Surface of the Globe." Deposits of mollusks and other marine animals had long been known to exist at great distances from and heights above the sea, confirming the popular traditions of most nations regarding deluges of greater or less extent. Large bones, discovered in caverns or dug from the earth, had given rise to traditions, equally wide-spread and ancient, of the existence of giants in the early ages of the world; even philosophers regarded the fossil impressions in the rocks and the shells in the ground as accidental freaks of nature. It was reserved for Bernard Palissy, an unlettered potter, to discover the animal origin and former existence of the objects alluded to above; though he defied the learned men of the 16th century to disprove his statements, it was not until the end of the 17th that his ideas met with a scientific appreciation. Founded on these now acknowledged facts, many theories, all more or less fanciful, were successively adopted and abandoned until the middle of the 18th century, when more rational views began to prevail, and the study of fossils to excite that attention which, in the hands of Cuvier, resulted in establishing many of the positive laws of geology and palæontology. The bones of the giant Teutobochus had been long since recognized as those of elephants; the skeleton of the supposed *homme témoin du déluge* became, under the penetrating eye of Cuvier, that of a gigantic aquatic salamander. Daubenton first demolished the race of giants; Pallas showed the existence of the elephant, rhinoceros, and other tropical animals, in Asiatic Russia in former geological epochs, and an elephant of extinct species was found with its flesh preserved on the borders of the Arctic ocean. From such facts Buffon conceived the idea that the polar regions had gradually become colder, and that their animals had by degrees emigrated southward; this was rendered improbable by the condition of the animal remains, and the theory of a sudden refrigeration was substituted. The fact of ancient creations of animals, entirely distinct from the present species, and long since exterminated, was set at rest by the comparison of living and fossil animals by Cuvier; in his first memoir on fossil elephants in 1800 he announced his views on extinct animals, the commencement of a series of observations unparalleled in the annals of science for brilliancy, profound insight into natural laws, and importance of their results to succeeding ages. His knowledge of comparative anatomy was such, that a bone, or even a portion of one, was sufficient for the restoration of a fossil animal which he had never seen, simply from the principle of the unchangeable relations of organs. He made 3 epochs of creation: the 1st comprised the mollusks, fishes, and monstrous reptiles; the 2d, the *anaplotherium, palæotherium*, the singular pachyderms of the neighborhood of Paris; the 3d, the mammoth, mastodon, gigantic sloths, &c.; after all these came a 4th, the age of man and the present creation. Anterior to the 1st epoch was a period in which no organic life, either animal or vegetable, existed on the earth. To Cuvier was principally due the discovery and exploration of this *terra incognita* of remote ages. In 1817 was published the first edition of the *Règne animal* (4 vols.), which has served as the basis for subsequent zoological classifications.—The last great work of Cuvier, which he undertook in conjunction with Valenciennes, is the *Histoire naturelle des poissons;* this contains the application of his principles of classification to the class of fishes; 8 volumes of this work were published at the time of his death, the 1st having appeared in 1828, and the 8th in 1831; Valenciennes was intrusted with the task of completing it in 20 volumes, but several more than this number have been published. Linnæus had determined about 500 species, and Lacépède 1,500; the title of Cuvier's work implies the magnitude and successful prosecution of his own labors, viz.: "Natural History of Fishes, containing more than 5,000 Species of these Animals, described after Nature, and distributed according to their Affinities, with Observations on their Anatomy, and Critical Researches on their Nomenclature, ancient as well as modern." His orders of the bony fishes were founded chiefly on the structure of the fins, whether spiny or soft, and on their position on the lower surface; the cartilaginous fishes were divided into those with free and those with fixed gills. The minuteness of detail, the clearness of description, and the discrimination of his criticisms on the works of others, are eminently instructive; and the rapid advance of ichthyology is sufficient proof of the excellence of his method and the faithful performance of his task. Since his time the classification of Agassiz founded on the structure of the scales, and that of J. Müller based on internal anatomy, have exerted their influence on this science. The great defect in all these systems is that they place too great and almost exclusive stress on single characters; it is to be hoped that, from the combined excellences of these systems, and from the results of embryological researches now so extensively pursued both in Europe and the United States, a natural classification of fishes, the expression of their plan of creation, will soon be evolved.—Beside the "Report on the Progress of the Physical Sciences," undertaken at the request of Napoleon, Cuvier displayed the almost universality of his acquirements by his lucid reports before the institute on these sciences, embracing the large and varied subjects of meteorology and natural philosophy in general, chemistry and physics, mineralogy and geology, botany, anatomy and physiology, zoology, travels connected with natural science, medicine and surgery, the veterinary art, and agriculture. He contributed many articles on natural history to the *Dictionnaire des sciences naturelles;* prominent among these is the one on "Nature," in which he combats the meta-

physical systems of pantheism and the physio-philosophers, and refers every thing to the wisdom and goodness of an almighty Creator. He wrote many articles for a kindred work, the *Dictionnaire des sciences médicales*, the most important of which is that on "Animal;" in this, after tracing "animality" from the lowest to the highest, he concludes with a comparison between plants and animals. As secretary of the academy of sciences, it was his duty to read historical notices of deceased members at its public meetings; 3 volumes of these sketches by Cuvier have been published, containing 39 different articles. Beside these, he delivered several discourses at funerals of academicians, and reports to the academy. One of his discourses deserves special mention, that before the academy on the distribution of the Monthyon prizes for virtuous actions, in 1829; on this occasion a prize of 5,000 francs ($1,000) was awarded to Louise Scheppler, the faithful servant and friend of the pious Oberlin, who transformed a miserable and ignorant hamlet of the Vosges chain into an industrious, happy, and comfortable village; from her originated an institution for the children of the poor laborers, from which arose the infant schools of England and France; to this noble object this peasant girl consecrated her property, youth, and health, refusing all compensation; in this discourse Cuvier gives utterance to the noblest sentiments.—Cuvier was quite as eminent a legislator as naturalist, though less known in the former capacity; he was always an advocate for progress both in matters of government and of education; and, as royal commissary, councillor of the university, member of the state council, and president of the committee of the interior, he introduced beneficial changes in the municipal and provincial laws, and in public instruction. His language, both written and spoken, was clear, forcible, precise, animated, and frequently rising to the highest eloquence. The benignity and noble expression of his countenance was remarkable. In private, he was kind, affable, and ready to communicate information; his manners, though dignified and sometimes stately in company, were always courteous; he was very fond of the society of young persons and females. He had the greatest love for order and regularity, without which he never could have accomplished his manifold duties; he rarely allowed himself to be disturbed during the hours he invariably set aside for study, but during his hours of audience he was accessible to everybody. He generally rose at 7, and made his preparations for the day's work till 10, when he breakfasted; then came the routine of his daily occupation at the council, in the *jardin*, in his library, until dinner, at which occurred the happiest reunions of his family and intimate friends. Always busy himself, he never suffered any one about him to be idle; after the fatigue of a well-spent day, it was his delight to enter into conversation, or, throwing himself on a sofa, to hide his eyes from the light and listen to the readings of his wife and daughters. Very sensible to kindness, he was equally so to ingratitude; his benevolence was proverbial, and his social conduct perfectly free from conceit, resentment, and sarcasm; if, by his natural quickness and irritability of temper, he thought he had injured the feelings of any one, he was never happy until he had repaired the fault. With his other accomplishments, he was an expert draughtsman; many of his plates were drawn by himself, and he left a large collection of designs intended to illustrate his never finished great work on comparative anatomy. The disinterestedness of Cuvier's character is shown not only by the acts of his life, but by the small fortune he left at his death; having filled offices of the highest trust, which he might have turned to his pecuniary advantage, he left only the sum of about $20,000, and a library which cost him a similar sum. He desired to be buried without ceremony, but such a man could not die without the public manifestation of sorrow and respect, and his funeral was accordingly attended by the first men of the day. Cuvier was a member of the learned societies of all countries, for all held themselves as highly honored in enrolling his illustrious name among their number. His library was purchased by government, and given to various institutions, but principally to the *jardin des plantes*.—When we consider the number of offices which he held, and whose duties he conscientiously performed, any one of which, after his death, was considered sufficient for a man of great talent, and some of which could not be filled by as competent a person, we are able to form some idea of the varied acquirements, of the unceasing industry, of the wonderful memory, and of the transcendent ability of Cuvier. There never has been a man, before or since his day, who combined so many faculties of the highest order of development for the advancement of the natural sciences; his influence will be felt through all time, and in all lands where nature is studied either for pleasure or instruction; his example will be for ever looked up to as one of the most striking in the annals of history, of entire devotion to lofty principle, disinterested labor for the advancement of knowledge, and constant endeavor to promote the interests of his country. By universal consent, he is regarded as one of the best of men, most brilliant of writers, soundest of thinkers, most far-sighted of philosophers, purest of statesmen, and the greatest naturalist of modern times.—Frédéric, brother of the preceding, born at Montbéliard, June 28, 1773, died in Strasbourg, July 24, 1838. With a strong love for the science of mechanics, he abandoned his college studies, and became the apprentice of a clock-maker; and would doubtless have been an eminent mechanician, had not his invitation to Paris in 1797 by his brother, who then had become famous, opened his eyes to a new world of natural science. He was employed by his brother

in preparing the descriptive catalogue of the skeletons in the collection of comparative anatomy at the *jardin des plantes;* this was the beginning of his work on the teeth of mammals, published in 1825, which led to many important changes in the natural arrangement of this class, especially in the subdivision into genera, most of which are now adopted in zoology. In 1804 he assumed the direction of the menagerie at the *jardin des plantes*, a situation which enabled him to study the habits, instincts, and intelligence of animals; the results of his researches are given in his *Histoire naturelle des mammifères*, published in 1818–'37. Geoffroy St. Hilaire was associated with him in this work, of which 70 *livraisons* in folio appeared, describing in a simple, charming, and elegant style more than 500 animals under his charge, with anecdotes illustrating their habits and intelligence. Many of the separate papers were first printed in the *Annales du muséum d'histoire naturelle.* While Descartes and Buffon denied all intelligence to animals, not perceiving the limit between the human intellect and the lower intelligence of other mammals—while Condillac and George Leroy, on the contrary, accorded to animals even the highest intellectual operations, confounding instinct with intelligence—Frédéric Cuvier drew the line between the intelligence of different orders, tracing it from the lowest rodents through ruminants, pachyderms, and carnivora, to the quadrumana. He found the greatest intelligence in the orang outang, but this decreased as the animal grew older, the docility, intelligence, and cunning of the young being replaced in the adult by the intractability and stupidity of a disgusting brute. Taking the beaver and the dog for examples, he showed the difference between instinct and intelligence. The beaver, a rodent, of an order which manifests the least intelligence, builds its dam and habitation in a most remarkable manner; but young animals, removed from their parents and placed in comfortable houses, have yet shown the same disposition to build, impelled by a blind internal power, instinct, as distinguished from intelligence. Instinct acts of necessity, invariably in the same manner, without adaptation to circumstances, without education, and for a single limited purpose; thus the beaver builds his dam. Intelligence, on the contrary, chooses its means, modifies its acts at will, learns from experience, and follows no irresistible impulse; the dog and the horse understand and obey their master because it pleases them so to do, but they may disobey if they choose, and may apply their acquired knowledge to a great variety of purposes. With this understanding of the two forces, the actions of animals can never be placed above the intelligent acts of man. Animals receive impressions, remember them, associate them together, and draw from them conclusions which influence their conduct; but man alone, according to him, reflects upon his own sensations, experience, and thoughts. This power of reflection draws the line between the intelligence of man and that of animals. He first showed that domesticity in animals depends on their sociability, being not a change but a development of their natural condition. Man found animals living in society, and he made such domestic; we may tame the solitary and fierce bear, lion, and tiger, but we cannot domesticate them. This view is capable of useful application in increasing the number of domestic species for agricultural and industrial purposes. F. Cuvier, in 1810, was nominated inspector of the academy of Paris, and in 1831 inspector-general of the university. He devoted himself to these new duties with the same zeal and conscientiousness which characterized his former labors, and was a firm advocate for the introduction of the study of natural history into schools and colleges by text books shorn of learned technicalities, and graduated according to the educational standing of the classes. His character was amiable, his deportment unassuming, his speech and acts displaying a truthfulness and gentleness which won the love and confidence of all; he never thought of his own fame, but was keenly sensitive for that of his brother, for whom he ever felt the most devoted friendship. In 1827 he was elected professor of comparative physiology at the *jardin des plantes*, a chair created for him by the minister of public instruction. While on a tour, for the annual inspection of the colleges required by his office, and when about to deliver a course of lectures on natural history, he was seized with paralysis at Strasbourg, of which he died. There is a striking similarity between his death and that of his brother; both, so intimately united in life, died of the same disease, at the same age, under similar circumstances, with the same serenity of mind and intrepidity of soul. His last words were: "Let my son place upon my tomb this inscription: 'Frédéric Cuvier, brother of Georges Cuvier,'" showing that even in his last moments love and admiration for his deceased brother predominated in his mind. Beside the 2 great works above mentioned, and many memoirs in the *Annales du muséum d'histoire naturelle*, Frédéric Cuvier wrote numerous articles in the *Dictionnaire des sciences naturelles*, and *L'histoire des cétacés*, in the *Suites à Buffon*, in 1836. His name was Georges Frédéric, though the first name was never applied to him, that being always given to his more celebrated brother.

CUXHAVEN, a town with a fine harbor at the mouth of the river Elbe in Germany, on its left bank, belonging to the territory of Hamburg, district of Ritzebüttel, about 58 m. from the city of Hamburg; pop. 1,600. It contains sea baths, founded in 1815; a beacon tower of fine construction, and a well regulated pilot establishment, which has superseded the use of the Heligoland fishermen for the piloting of vessels into the Elbe river. It seems to be destined to become for Hamburg what Bremerhaven is for Bremen—a harbor for sea-going vessels of large

tonnage, of which 100 at present may be safely accommodated, but far more in case of emergency. Its use will increase if the Elbe should continue to lose its depth, as it has been doing for 30 years past. In 1849 and 1850 a portion of the German navy was stationed here, and had a contest with the Danish navy, resulting in the breaking up of the Danish blockade.

CUYABA, or CUIABA. I. The capital, since 1820, of the Brazilian province of Matto Grosso, lat. 15° 26′ S., long. 56° W., near Cuyaba river; pop. about 15,000. It is irregularly built, and the houses are mostly constructed of earth or clay. It contains several churches, an imperial hospital, a lazaretto, and various educational institutions, is the seat of the bishop of the diocese of Matto Grosso, and the centre of an important gold-mining district. II. A river of Brazil, which rises in the district of Diamantino, among the Parecis mountains, in lat. 13° 12′ S., and flows with a circuitous course, but in a general southerly direction, until it joins the Porrudos, or San Lourenço, on its right bank, in lat. 17° 20′ S., long. 56° 40′ W. It forms an important channel of communication, and is of especial advantage to the town of Cuyaba, although for 60 miles below that place its current is extremely rapid and headlong. Above the town it is navigated by canoes, but the course of the river is here much broken by rapids.

CUYAHOGA, a N. E. co. of Ohio, bordering on Lake Erie, and intersected by Cuyahoga river, from which it is named; area, 426 sq. m.; pop. in 1850, 48,099. The surface is level, and the soil fertile. In 1850 the productions amounted to 222,915 lbs. of wool, 841,943 of butter, 37,560 tons of hay, 362,102 bushels of corn, and 193,132 of oats. Sandstone is abundant in this county, and is much used for grindstones and for building. The principal internal improvements are a canal and 6 railroads, connecting Cleveland, the capital, with Erie, Cincinnati, Toledo, Columbus, Zanesville, Youngstown, and Pittsburg.

CUYAHOGA, a river of Ohio, rising in the N. E. part of the state, and emptying into Lake Erie at Cleveland. At a place called Cuyahoga Falls, in Summit co., it descends 200 feet in about 2½ miles. Its course is very circuitous, and it affords good water power.

CUYP, or KUYP, ALBERT, a Dutch painter, born at Dort in 1606, died after 1672. His father, Jacob Gerritse Cuyp, a painter of landscapes and animals, and one of the founders of the academy of St. Luke in Dort, was his first and probably his only master. A strict Calvinist and devoted to his art, he passed the greater part of his time at a small country seat near Dort, where his room, the walls of which are covered with designs for which he rarely received orders, is still shown to visitors. There is even no record of his death, although, as appears from a list of the burghers of Dort, he was living in 1672. His pictures were singularly neglected for many years after his death, and it is said that down to the year 1750 there is no example of any one of them selling for more than 30 florins, or about $12. England seems to have been the first to appreciate their merits, for shortly after this time the demands of English collectors caused a considerable rise in their value; and Horace Walpole, in a letter written in 1774, mentions with astonishment that a picture by Cuyp had just been sold for £290. Within the last 30 years they have frequently brought from 1,000 to 1,500 guineas, and are to be found in great numbers in private and public galleries in England. The range of subjects which Cuyp attempted was extensive. He painted scenes on the Maas river, in the neighborhood of Dort, with herds of cattle and horsemen, cavalry skirmishes, horse fairs, sea pieces, moonlights, winter scenes, and interiors, all of which show a high degree of excellence. Some of his drawings, heightened by water colors, are gems of art. His best pictures are his landscapes, to attain perfection in which he was accustomed to make studies in the open air at all hours of the day. Dr. Waagen has summed up his artistic qualities as follows: "In loftiness of conception, knowledge of aërial perspective, with the greatest glow and warmth of serene atmosphere, Cuyp stands unrivalled, and may justly be called the Dutch Claude. In the *impasto*, the breadth and freedom of execution, he greatly resembles Rembrandt." Unlike most other Dutch painters, he did not finish his pictures very elaborately, but strove to impress them with the stamp of intellectual rather than of manual labor.

CUZCO, a central department of Peru, lying chiefly between lat. 13° and 15° S., and long. 70° and 73° W., comprehending all the region drained by the affluents of the Pilcomayó and the upper course of the Apurimac, and divided into 11 provinces; area, about 45,000 sq. m.; pop. about 350,000, the majority of whom are Indians. The department abounds in mines, which, however, are not efficiently worked. The principal objects of trade are woollen and other goods, and leather manufactured by the inhabitants.—The capital, Cuzco, is situated in a valley about 11,000 feet above the level of the sea, between the rivers Apurimac and Urubamba, lat. 13° 30′ 55″ S., long. 72° 4′ 10″ W.; pop. 50,000, of whom about 15,000 are Indians, distinguished for their industry. It is the seat of the provincial authorities and of a bishop, contains a fine cathedral, several convents, a university, 2 colleges, a mint, and trades in ivory, iron, timber, and in the local manufactures, consisting of cotton and woollen goods, leather, ingenious embroideries and carved furniture, &c. According to the national tradition it is the most ancient city of Peru, and the source of Peruvian civilization is traced to the valley of Cuzco. In ancient times it was the royal residence, adorned with spacious dwellings of the great nobility; it was called the holy city; the festivals of religion were celebrated there, and it contained a temple of the sun (parts of which are still to be seen), richly adorned with gold and silver, to which pilgrims resorted from the

furthest borders of the empire, and which was the most magnificent structure in the new world. Beside the temple, there were from 300 to 400 inferior places of worship, and the pilgrimage to this Peruvian Mecca was as binding upon the Indian noble as that in the East upon the Moslem. Toward the N. it was defended by a spur of the great Cordillera, on which rose a strong fortress, a stupendous specimen of Cyclopean architecture, the ruins of which are still visible. Twenty thousand men are said to have been employed on this structure, and 50 years consumed in building it. In 1532 Atahuallpa's generals took possession of the famous city, and in the following year (probably on Nov. 15) Pizarro made his entrance into the Peruvian capital. The population of the city was computed at that time by one of the Spanish conquerors at 200,000, and that of the suburbs at as many more; but although this estimate is probably exaggerated, all accounts agree in the remarkable prosperity and beauty of the city, which surpassed all that the Spaniards had yet seen in the new world. Subsequently the neighborhood of Cuzco frequently became the theatre of chivalrous combats between the Spaniards and the incas, which, according to Prescott, "wanted only the song of the minstrel to throw around it a glory like that which rested on the last days of the Moslems of Spain." The rapacity of the Spanish conquerors soon stripped Cuzco of its ancient splendor; but the appearance of the city and the structure of the houses still recall the glorious era of the incas, and the remarkable highway which led over the mountains from Cuzco to the northern part of Peru is still in existence, and is called the incas' road. Cuzco, along with the rest of Peru, proclaimed its independence of Spain in 1821. On Aug. 9, 1835, a victory was achieved there by the Bolivian Gen. Santa Cruz over Gamarra, the commander of the Peruvian forces.—See Rivero and Tschudi, *Antigueda des Peruanes* (Vienna, 1852); P. de Carmoy, *D'Aréquipa à Cuzco, souvenirs de voyage dans l'Amérique du Sud* (Paris, *Revue contemporaine*, 1857); Prescott's "History of the Conquest of Peru" (Boston, 1847); and Markham's "Cuzco and Lima," with plates (London, 1856).

CYANOGEN (Gr. κυανος, blue, and γενναω, to produce), a principal ingredient in Prussian blue, is a compound gas consisting of 2 atoms of carbon and one of nitrogen, and is properly designated as a bicarburet of nitrogen, the chemical equivalent of which is 26. It is of particular interest, being the first instance known of a compound body performing the part of an element in its combinations. It was discovered by Gay-Lussac in 1815, and may be obtained by decomposing the cyanide mercury in a small glass retort by the heat of a spirit lamp. The mercury sublimes, and the gas passes over; a dark colored substance like charcoal remains in the retort, which appears to have the same composition as the gas. It may also be obtained by heating nitrogenous bodies, as woollen rags, in a close vessel together with potash or carbonate of potash. The gas as it is produced combines with the potassium to form a cyanide. Cyanogen is a colorless gas of specific gravity 1.86, possessing a strong pungent odor similar to that of the kernels of peach stones or of prussic (hydrocyanic) acid. It is inflammable, burning with a blue and purple colored flame, and passing into carbonic acid gas and nitrogen. By the cold of —22° F. or the pressure of 3.6 atmospheres it may be liquefied, forming a thin colorless fluid. It is absorbed by water, but is soon decomposed in this condition, and forms compounds with the water possessing acid reaction, beside many others of the different elements variously combined. Exposed to a high temperature, the gas is not decomposed; but mixed with 2 volumes of oxygen, it explodes violently at a red heat, or by the electric spark, separating into carbonic acid and nitrogen. The properties of cyanogen in relation to other bodies are analogous to those of chlorine, bromine, and iodine. It forms an acid with hydrogen (hydrocyanic acid), and binary compounds with the metals, cyanides, or cyanurets, which readily combine among themselves or with the chlorides and sulphurets, forming double cyanurets, chlorocyanurets, and sulphocyanurets. With oxygen cyanogen unites to form several acids, as cyanic acid, CyO,HO; fulminic acid, $Cy_2\ O_2\ 2HO$; and cyanuric acid, $Cy_3\ O_3\ 3HO$. The first is a volatile colorless fluid, with the odor of acetic acid. Its salts are cyanates.

CYANOMETER, an instrument invented by Saussure for measuring the intensity of the tint of the atmosphere. (See Meteorology.)

CYAXARES I. and II. See Media.

CYBELE, or Rhea, a Greek and Roman divinity, who is said to have been the daughter of Cœlus and Terra, the wife of Saturn, and the mother of all the other gods and goddesses. Saturn insisting on devouring his children, the goddess mother, when she found herself pregnant with Jupiter, proceeded, according to the advice of her parents, to Lyctus in Crete, where she gave birth to her son. The moment the infant was born, certain pious youths of the neighborhood assembled round him with clashing arms and loud sounding instruments of music, and drowned the child's cries, while his crafty mother hied away to offer a stone wrapped up like a child to her husband as a substitute for the babe. The stratagem was successful, and Saturn swallowed the stone. The infant in the meanwhile was nursed by beautiful shepherd youths, whom Cybele rewarded for their devotion by initiating them into the mysteries of her worship, and appointing them to be priests and ministers at her altars. According to this myth, then, Crete was the original seat of Cybele's worship. That worship, wherever established, was of the same Bacchanalian character. Her priests in Phrygia were called corybantes; in Crete, curetes; at Rome, galli; but everywhere they must be both youths and eunuchs; everywhere they must cease to be

men ere they could be ministers of Cybele. Though the worship of this goddess had prevailed from very early times in Greece and Asia, where it may be traced under various names, in various countries, yet it was not introduced at Rome till the period of the second Punic war. Then it was that the image of Cybele or Rhea was brought from Pessinus, in Galatia, that a temple was raised to her on the Palatine hill, and that the festival of the Megalesia was instituted in her honor by the Roman matrons. In works of art Cybele is usually represented seated on a throne with a mural crown on her head, from which a veil is suspended. Lions are frequently seen crouching on the right and left of the throne, and occasionally she appears riding in a chariot drawn by lions.

CYCLADES (Gr. κυκλος, a circle), a group of nearly 60 small islands in the Grecian archipelago or Ægæan sea, N. of Candia, forming one of the 10 nomes or districts of modern Greece; area, 1,216 sq. m.; pop. in 1855, 139,337. The ancient Greeks gave this name to these islands in the belief that they formed a circle around the holy island of Delos, while all the other islands within the same sea were called Sporades, or scattered islands, from their being scattered in every direction. In fact, these islands form 3 distinct, nearly straight and parallel lines running from N. W. to S. E., of which the first, comprising Zea (anc. Ceos), Thermia (Cythnus), Serpho (Seriphus), Siphanto (Siphnus), and Polycandro (Pholegandros), seem to have in antediluvian times formed one mountain chain, connected with the mountains of Attica on the N., and by the island Melos with the western mountains of Candia on the S.; the 2d, comprising Andro (Andros), Tino (Tenos), Mycono (Myconus), Naxia (Naxos), Amorgo (Amorgus), and Stampalia (Astypalæa), another mountain chain connected with that of Eubœa and the S. W. promontory of Asia Mior; the 3d, lying between the 1st and 2d, and comprising Chiura (Gyarus), Syra (Syros), Paro (Paros), Antiparo (Antiparos), Nio (Ios), and Santorin (Thera), may have had a connection with the E. end of Candia. However this may be, they have the same formation, climate, and products, and even the same history, with the regions of these continental chains. Santorin is still, what several of the other islands once may have been, a volcanic island of very remarkable phenomena. Paro and Antiparo are renowned for their stalactite caves. These islands, once subject to Athens, and the basis of its maritime power, were among the first to shake off the Turkish yoke. The merchant navy of the Cyclades in 1855 consisted of 1,335 vessels, tonnage 156,148. Silk is raised in the islands of Andro and Tino, the former producing, in 1856, 250,000 lbs., and the latter 60,000 lbs. Syra, the capital, is a great emporium of the Levantine and Mediterranean trade.

CYCLE (Gr. κυκλος, a circle), any period of regularly recurring events. Thus 28 years is called a solar cycle, being a period at the end of which the same day of the week falls again upon the same day of the year. The lunar cycle is a period of 19 years, at the end of which the new moon occurs again on the same day of the month.

CYCLOID, the curve traced by a point in the circumference of a circle, rolling on a straight line. Next to the conic sections, the cycloid is one of the most interesting and valuable of curves. It is the curve in which a falling body will reach the bottom in the same time from whatever height it may start; it is the curve in which a body will descend from one point to another in the least time; and it possesses other remarkable properties.

CYCLOIDS, an order of bony fishes, established by Agassiz, comprising those with soft circular scales, like the salmon, cod, and herring.

CYCLONE, a storm of wind which moves in immense whirls, and at the same time sweeps onward over the surface. Cyclones are usually 200 to 300 m. in diameter, sometimes more than 1,000 m. Their central point is calm, and this moves forward from 2 to 40 m. per hour. These storms originate outside the equatorial belt between the tropics, and move toward the poles. In the southern hemisphere the rotation is in the same direction with the hands of a watch placed with the face upward; in the northern, the direction is reversed. (See Hurricane.)

CYCLOPÆDIA, or Encyclopædia (Gr. κυκλος, a circle, and παιδεια, education), originally the cycle of the 7 liberal arts and sciences which constituted, with the ancients, the course of education for the higher class of citizens, viz.: grammar, arithmetic, geometry, music, astronomy, dialectics, and rhetoric. Thus Quintilian mentions it as the orb or full circle of learning: *Orbis illa doctrinæ quam Græci* εγκυκλοπαιδειαν *vocant.* It commonly designates a summary of human knowledge, either in one or in all departments, arranged either systematically according to the logical connection of topics, or lexicographically according to the alphabetical succession of terms; and is therefore distinguished as either general or special, systematic or alphabetical. Speusippus, the nephew and disciple of Plato, is usually accounted to have written the first cyclopædic work, under the title of Διαλογοι των περι την Πραγματειαν Ὁμοιων, which has not been preserved. The work of Aristotle on the sciences (Περι Επιστημων), the lost books of Varro entitled *Rerum Humanarum et Divinarum Antiquitates*, and the *Historia Naturalis* of Pliny, approached to the character of cyclopædias. The last is a vast compilation, treating, as Pliny says in his preface, of 20,000 matters of importance, drawn from about 2,000 volumes. Astronomy, mathematics, natural philosophy, botany, mineralogy, medical science, arts, agriculture, all came within the compass of his researches. His work has the merit of showing the progress which science and the arts had made down to the time at which he wrote. The collections of Stobæus, Suidas, and especially of Marcianus Capel-

la (about A. D. 480), and of Isidorus Hispalensis (about A. D. 636), may also be regarded as works of the same character. The *Satyra* of Capella is a confused exposition of the 7 liberal arts, and the *Origines* of Isidorus furnishes a complete knowledge of the state of mental culture at the epoch of its publication. Cyclopædias were not uncommon in the middle ages, under the title of *Summæ* and *Specula*. One of the most celebrated of these is the *Speculum Historiale, Naturale, et Doctrinale*, by the indefatigable Dominican, Vincent of Beauvais (Vincentius Bellovacencis, died in 1264), to which a *Speculum Morale*, by an unknown author, was afterward added. This repository of scholastic science, consisting mostly of extracts from the works of writers of the time, is particularly valuable for the light which it sheds on the literary history of that period. The first edition was published at Strasbourg (7 vols. fol., 1473–'76), and the last at Douay (4 vols. fol., 1624). Of mediæval particular cyclopædias, or complete treatises on special subjects, the *Summa Theologiæ* of Thomas Aquinas is an eminent example. Alfarabius, one of the great lights of the Bagdad school, enriched the 10th century with a cyclopædia, which, on account of a systematic subdivision of the various branches of knowledge, might be justly compared to works of the same denomination belonging to the literary history of later centuries. Nothing, however, is known of this production except the notice Casiri gives of it in his *Bibliotheca Arabico-Hispana Escurialensis*, where it is described as a work *ubi scientiarum, artiumque liberalium, synopsis occurrit, una cum accurata et perspicua carum notitia, definitione, divisione, methodo.* In the 16th century several works of a cyclopædic character appeared, such as the *Margarita Philosophica* of Reisch (Freiburg, 1503, and Basel, 1583); the *Cyclopædia* of Ringelberg (Basel, 1541), a small thick volume, consisting of concise treatises on grammar, logic, and other branches; the *Encyclopædia seu Orbis Disciplinarum Epistemon* of Scalich (Basel, 1559); and the *Idea Methodicæ et Brevis Encyclopædiæ, seu Adumbratio Universitatis*, by Martini (Herborn, 1606). These were followed by Alsted's more elaborate work, *Cursus Philosophici Encyclopædia* (4 vols., Herborn, 1620; afterward published as *Scientiarum Omnium Encyclopædia*, at Herborn in 1630, and at Lyons in 1649), which is commonly referred to as the most celebrated of the early cyclopædias. Its author, Johann Heinrich Alsted, a professor of philosophy at Weissenburg in Transylvania, was one of the divines who attended the synod of Dort. The plan of his work is not unlike that of Ringelberg, but the subjects it embraces are more varied, and each is more elaborately treated. It consists of 35 books, of which the first 4 contain an explanation of the nature of the various subjects discussed in the rest. Then follow successively 6 on philology; 10 on speculative, and 4 on practical philosophy; 3 on theology, jurisprudence, and medicine; 3 on the mechanical arts; and 5 on history, chronology, and miscellaneous topics. This work was held in high estimation till the close of that century. Leibnitz mentions it, in the early part of the next, in respectful terms, accompanied with an earnest wish that some of the learned would either join in remodelling and improving it, or in composing an entirely new work of the same kind. The observations of this illustrious philosopher show that he had reflected much on the objects of such an undertaking, and that he considered a cyclopædia as a species of publication calculated to be eminently useful to mankind. In the early part of the 17th century appeared also the *De Dignitate et Augmentis Scientiarum* (1605), and the *Novum Organum Scientiarum* (1620), of Lord Bacon; works not, indeed, voluminous, but rich in deep and acute thinking, and in which he laid the foundation of a logical arrangement of the sciences. After his time appeared a multitude of cyclopædias, designed for the instruction of the young and uninformed. Such were the *Science des personnes de la cour, de l'épée, et de la robe*, by Chevigny (5th ed. by Limiers, 4 vols., Amsterdam, 1717); and the *Pera Librorum Juvenilium*, by Wagenseil (5 vols., Altdorf, 1695). Treatises, also, written with the object of bringing universal knowledge into systematic order became more numerous. This was the aim of the *Polyhistor* of Morhof (Lübeck, 1688), and of the *Cours d'études* of Condillac. In Germany, Sulzer endeavored to show the essential connection of all branches of learning in his *Kurzer Inbegriff aller Wissenschaften* (Berlin, 1756); and his classification was adopted and improved by many succeeding cyclopædists, as J. M. Gesner, in his *Primæ Lineæ Isagoges in Eruditionem Universam* (Göttingen, 1774), Reimarus (1775), Adelung (1778), Reuss (1783), Klügel (1788), Buhle (1790), and Büsch (1795). Eschenburg, in his *Lehrbuch der Wissenschaften* (Berlin, 1792), was the first who attempted to construct a cyclopædia of the sciences according to the principles of the Kantian philosophy. His ideas were elaborated by Habel, Rüf, Strass, Hefter, Burdach, and Krauss. Complete logical classifications were made also by Krug, in his *Versuch einer systematischen Encyklopädie der Wissenschaften* (Wittenberg, 1796–'98); by Schmid, in his *Allgemeine Encyklopädie und Methodologie der Wissenschaften* (Jena, 1811); by Jäsche, in his *Einleitung zu einer Architektonik der Wissenschaften* (Dorpat, 1816); by Kronburg, in his *Allgemeine Wissenschaftslehre* (Berlin, 1825); by Gruber, in the introduction to the second volume of Ersch and Gruber's *Encyklopädie;* and by Kirchner, in his *Akademische Propädeutik* (Leipsic, 1842).—Although the lexicographic arrangement had been anciently employed by Suidas, it was but slowly brought into use after the revival of learning. It was long before the idea occurred that it might be used as the basis of a universal repertory of human learning; and still longer before it was employed as the vehicle of general treatises similar to those of the early systematically arranged cyclopædic works. The first lex-

icographic cyclopædias contained notices only of celebrated persons and places, as the *Dictionarium Proprium Nominum Virorum, Mulierum, Populorum, Idolorum, Urbium, Fluviorum, Montium*, &c., by Robert Stephens (Paris, 1544); and the *Dictionarium Historicum et Poeticum*, by Charles Stephens (Paris, 1553; enlarged by R. Lloyd, Oxford, 1671, and London, 1686). The historical dictionary of Moreri (Lyons, 1673), and the historical and critical dictionary of Bayle (Rotterdam, 1697), were the most important of many biographical cyclopædias of this period, the latter treating also incidentally many scientific questions. Of larger compass and of less thorough execution were the *Lexicon Universale Historico-Geographico-Chronologico-Poctico-Philologicum*, by J. J. Hofmann (Basel, 1677; supplement added, 1683; new ed. Leyden, 1698); and the *Bibliotheca Universalis Sacro-Profana*, by Coronelli (Venice, 1701), which was intended to form 45 volumes, but was continued only into the letter C in 7 volumes.—The first English cyclopædia was the "Lexicon Technicum, or an Universal Dictionary of the Arts and Sciences," by John Harris (2 vols., London, 1706–'10). It explained both the terms of art and the arts themselves; but though professing to be universal, it was in fact limited almost exclusively to the mathematical and the physical sciences, and hence was far from fulfilling its intended purpose. The "Cyclopædia" of Ephraim Chambers (2 large fol. vols., London, 1728) was also termed a general dictionary of the arts and sciences, and was the first work in which knowledge was subdivided under appropriate heads, which were placed in alphabetical order, and treated so as to exhibit at the same time a complete account of the various branches and of their connections and dependencies. "His view," he says, "was to consider the several matters, not only in themselves, but relatively, or as they respect each other; both to treat them as so many wholes, and as so many parts of some greater whole, their connection with which to be pointed out by reference; so that by a course of references from generals to particulars, from premises to conclusions, from cause to effect, and *vice versa*, *i.e.*, from more to less complex, and from less to more, a communication might be opened between the several parts of the work; and the several articles be in some measure replaced in their natural order of science, out of which the alphabetical order had removed them." Yet Chambers remained far from attaining his object, for the ramifications are so varied and minute that one would seek in vain in his volumes for any thing like a substitute for separate treatises, or for more, under many heads, than short and unconnected elucidations, or mere definitions and incomplete explanations. On mathematical subjects, conclusions are given without demonstration or experimental details. But with all its defects, whether of plan or execution, this work of Chambers must be regarded as the production of a mind of superior compass and vigor, and as the fruit of remarkable research and diligence. Five editions of it were published within 18 years; while upon the continent of Europe it produced no less effect than in England. It was translated into French and Italian, and its plan was highly applauded in the preliminary discourse of the great French *Encyclopédie*. Its success gave rise to a number of similar works, mostly modelled after it. The first of these was the "New and Universal Dictionary of Arts and Sciences," by John Barrow (1 vol. fol., London, 1751; supplementary vol. added, 1754). Its only recommendation, as compared with its predecessor, consisted in an enlarged number of articles on mathematical subjects, on the mechanical arts, and on naval affairs; to make room for which, church history and all scholastic topics were excluded. This was followed, in 1754 (2d edition in 1764), by a "New and Complete Dictionary of Arts and Sciences," comprised in 4 large 8vo. vols., written, according to the title page, "by a society of gentlemen," and commonly called, from the name of its publisher, "Owen's Dictionary." It is distinguished by the general brevity of its articles, a quality which enabled its compilers to widen its range in the departments of geography, commerce, and natural history. In 1766 was published the "Complete Dictionary of Arts and Sciences," in 3 vols. fol., a work compiled under the joint direction of Henry Croker, Thomas Williams, and Samuel Clark; the theological, philosophical, and critical branches being edited by the first; those of anatomy, medicine, and chemistry, by the second; and the mathematical by the last. Notwithstanding this division of labor, the work was not marked either by excellence in the respective departments, or method in their arrangement. In 1745 Dr. De Coetlogon published in London a "Universal History of Arts and Sciences," which was largely composed of complete treatises on distinct arts and sciences, and may therefore have suggested the plan of the "Encyclopædia Britannica." The latter work made its first appearance in Edinburgh, in 1771, in 3 quarto volumes, and was distinguished from those previously published in England less by its execution than by its more philosophical method. Instead of attempting to elucidate the sciences by a number of separate articles corresponding to their technical titles or sections, introduced in the order prescribed by the alphabet, it treated each science completely in a systematic form under its proper denomination; the technical terms and subordinate heads being also explained alphabetically, when any thing more than a reference to the general treatise was required. This plan was prosecuted upon a wider scale, and with more maturity of execution, in the subsequent editions. The objects aimed at in the early cyclopædias were in this way reconciled with the lexicographic arrangement, while its adaptation to particular topics was in no respect impaired. The editor and principal compiler of this first edition was

William Smellie, a scholar particularly conversant with natural history, although by profession a printer. The 2d edition (extended to 10 vols., 1776–'83) was chiefly remarkable for the addition of the two popular departments, history and biography. The 3d edition (18 vols., 1786–'97; a supplement of 2 vols. was added afterward) contained valuable contributions in speculative philosophy, ancient erudition, and physical science, from the pens of Dr. Gleig, Dr. Doig, and Prof. Robison, which attracted general attention, and gave to the work a new and more dignified aspect. This edition of the "Encyclopædia Britannica" was republished in Philadelphia, by Thos. Dobson (21 vols. 4to., including the supplement, 1798–1803). A 4th edition, increased to 20 vols., was completed in 1810, under the able superintendence of Dr. James Millar. This was enriched with the contributions of Prof. Wallace on pure mathematics. A 5th and a 6th edition, which the increasing demand for the work required, soon followed; these, however, were little more than reprints of the former. While these were in progress, a supplement extending to 6 vols. made its appearance, edited by Macvey Napier, and published by Archibald Constable. The first half volume was produced in 1815, under the sanction of the name of Dugald Stewart, as the author of the first of those preliminary dissertations on the history of the sciences, which, in a more complete state, so greatly adorn and recommend the latest edition. Enriched as it was by contributions from the most eminent writers and scholars of the day, including the distinguished philosophers of France, Arago and Biot, the work rose rapidly in public favor. The copyrights of the previous editions having passed into the hands of A. and C. Black of Edinburgh, these enterprising proprietors immediately commenced the publication of a new and enlarged edition, under the editorial supervision of Prof. Napier (21 vols., including the late supplement, a general index, and numerous engravings, 1830–'42). The 8th and last edition, with extensive improvements and additions, and an introductory volume of dissertations, was commenced in 1853, and published jointly by A. and C. Black of Edinburgh, and Little and Brown of Boston. It is still in progress. For this, as for the preceding editions, articles have been furnished by the most distinguished contemporary authors.—The following is a summary notice of the principal English and American cyclopædias that have appeared since the commencement of the last quarter of the 18th century, arranged in the chronological order of their publication:

1. New Dictionary of Arts and Sciences, or an Universal System of Useful Knowledge. By E. Middleton and others. 2 vols. folio. London, 1778.
2. New Royal Encyclopædia. By W. H. Hall. 3 vols. folio. London, 1789. (A second edition of this work, enlarged by J. Lloyd, was published in 1796, in 3 vols. folio, with plates.)
3. The Encyclopædia Londinensis, or Universal Dictionary of Arts, Sciences, and Literature. Projected and arranged by John Wilkes. 24 vols. 4to. London, 1797–1829.
4. The English Encyclopædia, or a Dictionary of Arts and Sciences. 10 vols. 4to. London, 1801.
5. Rees's Cyclopædia, or Universal Dictionary of Arts, Sciences, and Literature. 39 vols. with 6 vols. of plates. London, 1802–'19. (This work, comprising the various articles in Chambers's Cyclopædia, with additions and improvements, was far more extensive than any similar work that had preceded it in England, being particularly complete in the technical department. An American edition was published at Philadelphia, 47 vols. 1810–'24, which, proving unsuccessful from the magnitude and difficulty of the enterprise, was at last disposed of by lottery.)
6. Gregory's Dictionary of Arts and Sciences. 2 vols. 4to. London, 1806. (A compilation formerly in high repute, of which an American edition was published, 3 vols. 4to., Philadelphia, 1815–'16.)
7. Nicholson's British Encyclopædia, illustrated with engravings by Lowry and Scott. 6 vols. 8vo. London, 1809. (The third American edition of this popular work was published at Philadelphia, 12 vols. 8vo., 1819.)
8. The Imperial Encyclopædia. By W. M. Johnson and T. Exley. 4 vols. 4to. London, 1809–'14.
9. The Edinburgh Encyclopædia. Conducted by Sir David Brewster. 18 vols. 4to. Edinburgh, 1809–'30. (This important work was especially rich in its scientific department, and an American edition of it, improved by the addition of numerous articles relative to the American continent, was published at Philadelphia in 1832.)
10. The Encyclopædia Metropolitana, or Universal Dictionary of Knowledge, on an Original Plan, comprising the twofold Advantage of a Philosophical and an Alphabetical Arrangement, with appropriate Engravings. Edited by Edward Smedley, Hugh James Rose, and Henry John Rose. 25 thick vols. with 3 additional vols. of plates and one of index. London, 1815–'45. (The divisions of this work, which follow a system of universal knowledge projected by S. T. Coleridge, are as follows: Vols. 1, 2, pure sciences; vols. 3–8, mixed and applied sciences; vols. 9–13, history and biography; vols. 14–25, a miscellaneous lexicon. A cabinet edition is in process of publication in small octavo volumes. In this large collection are contained many complete treatises of great value, as the "Science of Method" of Coleridge, the "Logic" and "Rhetoric" of Archbishop Whately, portions of Roman history by Dr. Arnold, and works on the history of moral and metaphysical philosophy by F. D. Maurice.)
11. The Encyclopædia Edinensis. By James Millar. 6 vols. 4to. Edinburgh, 1816.
12. The Encyclopædia Perthensis, with Plates. Attributed to Miller. 23 vols. 8vo. London, 1816.
13. The London Encyclopædia, or Universal Dictionary of Sciences and Arts, Literature, and Practical Mechanics. By Thomas Curtis. 22 vols. 4to. with 1 additional vol. of maps. London, 1829.
14. The Encyclopædia Americana, a Popular Dictionary of Arts, Sciences, Literature, History, Politics, and Biography; on the basis of the 7th edition of the German *Conversations-Lexikon*. Edited by Francis Lieber, assisted by E. Wigglesworth and T. G. Bradford. 13 vols. 8vo. Philadelphia, 1829–'38. (A supplementary volume, edited by H. Vethake, was added in 1847.)
15. Lardner's Cabinet Cyclopædia, comprising a series of original works on History, Biography, Literature, the Sciences, Arts, and Manufactures. 132 vols. small 8vo. London, 1830–'46. (Among the numerous valuable treatises in this series are works of Herschel on astronomy, of Brewster on optics, Mackintosh's "History of England," Sismondi's "Italian Republics," Scott's "History of Scotland," and Thirlwall's "History of Greece.")
16. Partington's British Cyclopædia. 12 vols. 8vo. London, 1832.
17. The Penny Cyclopædia of the Society for the Diffusion of Useful Knowledge. Edited by George Long. 27 vols. small folio. London, 1833–'43, with 2 supplementary vols. in 1846–'51; 2d supplement, 1 vol. 1856.
18. The Popular Encyclopædia, or Conversations Lexicon; being a General Dictionary of Useful Knowledge, with Dissertations by Eminent Writers. 7 vols. royal 8vo. Glasgow, 1841.
19. Brande's Dictionary of Science, Literature, and Art. Royal 8vo. London, 1842; 2d ed., 1852–'53; an American ed., New York, 1843.
20. The National Cyclopædia of Useful Knowledge. 12 vols. small 8vo. London, 1847–'51; and Boston, 1853. (This is an abridgment of the "Penny Cyclopædia.")
21. The Iconographic Encyclopædia of Science, Literature, and Art. Translated from the German of J. G. Heck, with additions, and edited by Spencer F. Baird. 4 vols. royal 8vo. of text, and 2 vols. of plates. New York, 1851.
22. The English Cyclopædia, a New Dictionary of Universal Knowledge. Conducted by Charles Knight. To be completed in 20 vols. London, 1854 *et seq.* (This work is based upon the "Penny Cyclopædia," and is divided into the 4 departments of Geography, Natural History, Biography, and Arts and Sciences. The 2 first departments are

now completed in 4 vols. each, the 3d in 6 vols., and the remaining 6 vols. are announced to be issued in 1859–'60.)

Beside these larger works, a multitude of cyclopædias have been published, intended to impart information in special branches of knowlege, as Loudon's "Encyclopædias of Agriculture, Gardening, Architecture, Plants, Trees," &c.; Todd's "Cyclopædia of Anatomy and Physiology;" Nichol's "Cyclopædia of Physical Science;" Nicholson's "Encyclopædia of Architecture;" Chambers's "Cyclopædia of English Literature;" Duyckinck's "Cyclopædia of American Literature;" Homans's "Cyclopædia of Commerce;" and Allibone's "Critical Dictionary of English Literature."—On the continent, as well as in England, the "Cyclopædia" of Ephraim Chambers gave an impulse to the desire for such publications. A second edition of the French translation having been proposed, it was resolved, upon the suggestion of the abbé Gua de Malves, to divide the manuscript among several literati, in order to elaborate the respective articles on a more extensive scale, that they might be combined into a cyclopædia at once more original and more comprehensive than the English model and groundwork. The abbé having disagreed with the bookseller in the outset of this undertaking, Diderot and D'Alembert became its principal managers. Thus originated the great French *Encyclopédie*, which, at first intended to consist of 10, was enlarged to 28 folio volumes. Its title is *Encyclopédie ou dictionnaire raisonné des sciences, des arts, et des métiers, par une société de gens de lettres, mis en ordre et publié par M. Diderot, et quant à la partie mathématique par M. d'Alembert.* The first 7 vols. appeared in Paris (1751–'57); the remaining 10 vols. of text were published, according to the title page, at Neufchâtel (1765); and there were 11 additional vols. of plates. A supplement of 4 vols., with 1 additional vol. of plates, was issued at Amsterdam (1776–'77). A *Table analytique et raisonnée des matières* was added in 2 vols. (1780). The work, though several times interrupted by the government while in progress, was everywhere received with enthusiasm, and gave to the editors and principal collaborators a place in European history, and in the history of philosophy, under the name of the "Encyclopædists." Around Diderot and D'Alembert were grouped Voltaire, Rousseau, Turgot, Helvetius, Duclos, Condillac, Mably, Buffon, La Harpe, Marmontel, Raynal, Morellet, Grimm, Saint Lambert, and many others. Four new editions of it were rapidly issued, at Leghorn (33 vols., 1770), at Lucca (28 vols., 1771), at Geneva (39 vols., incorporating the supplements, 1777), and at Lausanne and Bern (36 vols., 1778). It was the basis also of the cyclopædia of Felice (Yverdun, 1770–'80, 48 vols., with 10 additional vols. of plates), among the collaborators of which were Euler, Lalande, and Haller. The *Discours préliminaire*, which is ranked among the *chefs d'œuvre* of the age, was written by D'Alembert. In it the author traces the genealogical order of the various branches of human knowledge, marks out the limits of each, its connection with the rest, and the characters which distinguish them in our minds. Bacon had made his celebrated partition of human learning into history, poetry, and philosophy, according to the powers of the mind respectively concerned in them, the memory, imagination, and reason. This psychological division is neither rigorous nor exact, and D'Alembert attempted to complete the classification by adding a distinction between the historic and the rational order of the sciences, between the order in which they are produced in society and that in which they logically stand related to each other. He therefore first reviewed the origin and progress of the arts and sciences, detailing the history of intellectual culture in Europe from the revival of learning, and finally raised the cyclopædic tree, following in general the classification of Bacon, and developing all the branches of learning according to their metaphysical dependences. The style of this discourse is severe and simple, adhering closely to the language proper to philosophy, yet rendering clear and palpable the most abstract ideas. The work itself exerted an immense influence in hastening the greatest political revolution of modern times. It was designed at once to reveal to the human mind the extent of its power by unfolding the picture of its riches, and to emancipate human thought by treating freely every science and doctrine; and it was conceived in a spirit indifferent, if not antagonistic, to the institutions, usages, and faith of the time. It is the most complete expression of the philosophical, critical, irreligious, and reformatory tendencies of the 18th century. Its generally polished and correct style, and its blending of philosophy, elegance, and gayety, made it fashionable in courtly society, and contributed much to its authority and influence. To counteract the disorganizing tendencies of the *Encyclopédie*, and to apply a more methodical system, was the design of the projectors of the *Encyclopédie méthodique*, the most elaborate work of the kind extant in France, published by Panckoucke and Agasse (201 vols., including 47 vols. of plates, Paris, 1781–1832). Its method consists in assigning to each science a special alphabetical dictionary, and the whole book is therefore a collection of 48 distinct cyclopædias or dictionaries of science, literature, and art, with dissertations interspersed throughout. Among the editors were Quatremère de Quincy for architecture, Bergier for theology, Mongez for antiquities, Ginguené for music, De Lamarck for natural history, and Vicq d'Azyr, Cassini, Latreille, Tessier, Naigeon, Condorcet, and Lacretelle for other departments. A Spanish translation of it (Madrid, 1780–1806, vols. i.–xi.) was commenced, but not completed. During the period which has elapsed since the commencement of this work science has made astonishing progress, and consequently several of the earlier parts are now of comparatively little value. The following are the most

important of recent French encyclopædias: 1. The *Encyclopédie moderne: Dictionnaire abrégé des sciences, des lettres, des arts, de l'industrie, de l'agriculture, et du commerce;* conducted by M. Courtin (26 vols. 8vo., Paris, 1823–'32; 2d ed. 1843; 3d ed., completely revised, under the direction of M. Léon Renier, 27 vols., with 3 additional vols. of plates, 1853–'55). A supplement to this work has reached the 7th volume, and the letter L (1859). 2. *Dictionnaire de la conversation et de la lecture*, directed by M. W. Duckett (52 vols., Paris, 1832–'39; 2d ed., revised and enlarged, 16 large 8vo. vols., 1853–'58). This cyclopædia is very unequally executed, but many of its articles are unusually complete and entertaining. 3. The *Encyclopédie des gens du monde: Répertoire universel des sciences, des lettres, et des arts; par une société de savans, de littérateurs, et d'artistes* (44 vols. 8vo., Paris, 1833–'44). 4. The *Encyclopédie du XIX siècle*, a Roman Catholic work, published by M. Saint Priest (28 vols., Paris, 1839–'52). 5. *Encyclopédie catholique: Répertoire universel et raisonné des sciences, des lettres, des arts, et des métiers, avec la biographie des hommes célèbres;* directed by the abbé Glaire and viscount Walsh (18 vols. 4to., Paris, 1840–'48; 3 vols of a supplement have already been added, 1859). 6. The *Encyclopédie nouvelle, ou dictionnaire philosophique, scientifique, littéraire, et industriel*, edited by P. Leroux and J. Reynaud (8 vols., Paris, 1834 *et seq.*). This work contains many remarkable articles, and is less a dictionary of general knowledge than a series of dissertations on various subjects. Its editors were distinguished philosophers of the Saint Simonian school, the collaborators few in number, and the elaborate articles present throughout a unity of view and doctrine. 7. The *Dictionnaire des sciences philosophiques, par une société de professeurs de philosophie*, directed by M. Franck (5 vols., Paris, 1844–'52). 8. The *Dictionnaire général de biographie, d'histoire, de géographie, des antiquités, et des institutions*, &c., by Dezobry and Bachelet (2 thick 8vo. vols., Paris, 1857). 9. The *Dictionnaire universel des sciences, des lettres, et des arts*, by M. Bouillet (1 vol. 8vo., Paris, 3d ed. 1857). 10. The *Dictionnaire universel d'histoire et de géographie*, by M. Bouillet (1 vol. 8vo., Paris, 14th ed. 1858). 11. The *Grand dictionnaire de géographie universelle*, by M. Bescherelle (4 vols. 4to., Paris, 1856–'57). The chief French cyclopædic periodicals, reviewing the whole field of knowledge, have been the *Revue encyclopédique* of Jullien (Paris, 1819–'33), and the *Bulletin des sciences* of Ferussac (Paris, 1823–'31).—Among the early German cyclopædias the most celebrated is the *Oekonomisch-Technologische Encyklopädie*, commenced at Berlin in 1773, by J. G. Krünitz, and continued successively by F. J. Flörke, H. G. Flörke, J. W. D. Korth, and C. D. Hoffmann. There have already (1859) been published 220 vols. 4to., and it is nearly concluded. Though originally limited to economy and technology, it has become almost a general cyclopædia. A new, unchanged edition of the first 97 volumes appeared at Berlin (1782–1814), and another edition (32 vols., Berlin, 1785–1812) includes 116 volumes of the original work. The *Deutsche Encyklopädie*, begun at Frankfort-on-the-Main, by H. M. G. Köster (1778), and continued by J. F. Roos to the 23d volume as far as the letter K (1804), remains unfinished. It excludes biography, geography, history, and ancient literature. The *Allgemeines Lexikon der Künste und Wissenschaften*, by J. T. Jablonski, appeared in Leipsic (1721; new ed. at Königsberg, 1748–'67, in 2 vols.). Theology, history, and geography were excluded from it. The *Grosses Vollständiges Universal-Lexikon aller Wissenschaften und Künste*, edited successively by Ludewig, Frankenstein, Longolius, and others, and commonly called Zedler's Lexicon, after the publisher (64 vols., Halle and Leipsic, 1732–'52; 4 supplementary vols. added, 1751–'54), is still useful on account of the citations, and of its carefully prepared genealogical articles. The most comprehensive German work of this character is the celebrated *Allgemeine Encyklopädie der Wissenschaften und Künste* of J. S. Ersch and J. G. Gruber, late professors at Halle (Leipsic, 1818 *et seq.*; not yet concluded). In 1831 the undertaking passed from the hands of Enoch Richter, who began it, to the Brockhaus firm, its present enterprising publishers. The work is divided into 3 sections, the 1st including A–G, the 2d H–N, and the 3d the remaining letters of the alphabet. The sections are prosecuted contemporaneously, the 1st since the death of Ersch being edited by Gruber and M. H. E. Meier; the 2d, by A. G. Hoffmann in Jena; and the 3d, by M. H. E. Meier in Halle. More than 125 large 4to. vols. have (1859) been issued. This cyclopædia is esteemed the most learned and thorough that has appeared in any literature. Biographies of the living are excluded from it. A new epoch in the literature of cyclopædias began with the publication of the *Conversations-Lexikon* (6 vols., Leipsic and Amsterdam, 1796–1810); a work of unequalled popularity, which has passed through 10 successive editions at home, and been translated into numerous languages abroad. The idea of the work originated with Dr. Löbel; it was, however, completed under the inspection of F. A. Brockhaus, who conducted the second edition (10 vols. 1812–'19). It was originally designed for the use of persons who might desire to take a part in the conversation and society of well-informed circles. This distinctive feature of the work has, however, been to a certain degree changed by numerous improvements in successive editions, so that its present title, *Allgemeine Deutsche Real-Encyklopädie für die gebildeten Stände* (*Conversations-Lexikon*), conveys a clearer idea of its general character. The latest edition was published at Leipsic (15 vols. in 16, 1851–'55). Several important cyclopædic works have been issued by Brockhaus, in connection with the *Conversa-*

tions-Lexikon, as the *Conversations-Lexikon der neuesten Zeit und Literatur* (4 vols., Leipsic, 1832–'34); the *Conversations-Lexikon der Gegenwart* (4 vols., 1838–'41); the *Gegenwart*, a periodical, in which the alphabetical order was abandoned, but which consisted of essays giving a cyclopædic exhibition of the present time (12 vols., 1848–'56); and *Unsere Zeit*, a monthly periodical of a similar character now in progress (1857 *et seq.*). The *Universal-Lexikon der Vergangenheit und Gegenwart* of Pierer (26 vols., Altenburg, 1824–'36; 6 supplementary vols., 1840–'47; 2d ed., 34 vols., 1840–'46; 3d ed., 17 vols., 1849–'53; supplement of 6 vols. added, 1851–'54, and of 2 vols., 1855; 4th ed., Altenburg and New York, 1857 *et seq.*). This cyclopædia is admirable for its universality and for the brevity and completeness of its statements. The other principal German cyclopædias are: *Encyklopädisches Sachwörterbuch* (21 vols., Zeitz, 1792–1806; 2d ed., 3 vols., 1822–'23), which excludes biographies and natural history; the *Conversations-Lexikon für alle Stände* (8 vols., Leipsic and Halberstadt, 1823–'28), often called from its publisher the "Brüggeman Cyclopædia;" the *Damen-Conversations-Lexikon* (10 vols., Leipsic, 1834–'38; 2d unchanged ed., Adorf, 1846); Meyer's *Conversations-Lexikon* (50 vols., Hildburghausen, 1839–'55), which is more comprehensive than any other Conversations-Lexicon; a new *Conversations-Lexikon* begun by Meyer (Hildburghausen, 1856 *et seq.*); the *Conversations-Lexikon für alle Stände*, published by Wigand (15 vols., Leipsic, 1846–'52); the *Allgemeine Real-Encyklopädie, oder Conversations-Lexikon für das Katholische Deutschland*, by W. Binder and others (12 vols., Ratisbon, 1846–'51); and the *Real-Encyklopädie für Protestantische Theologie und Kirche*, by Dr. Herzog (Stuttgart and Hamburg, 1854 *et seq.*); the last work reached in 1858 the letter M and the 9th vol.; an English condensed translation of it is in progress by J. H. A. Bomberger (Philadelphia, 1858 *et seq.*, designed to be in 3 vols.).—The most important Italian cyclopædias are the *Nuovo dizionario scientifico e curioso sacro-profano*, by Pivati (12 vols. folio, 1746–'51); and the *Enciclopedia Italiana* (Venice, 1854 *et seq.*). Cyclopædias exist also in most other European languages, as, in Danish, the *Almennyttigt Dansk Konversations-Lexicon*, by P. Larsen (Copenhagen, 1849 *et seq.*); in Swedish, the *Svenskt Konversations-Lexicon* (Stockholm, 1845 *et seq.*); and in Spanish, the *Pan-Lexicon*, by Juan Peñalver (Madrid, 1842), the *Biblioteca universal de instruccion* (Barcelona, 1842 *et seq.*), and the *Enciclopedia Española del siglo XIX.* (Madrid, 1842 *et seq.*).—The oriental nations have general and special, systematic and alphabetic cyclopædias. The most complete of them is in Arabic, systematically arranged, and entitled *Miftah es-seâdet ve missbah es-siyâdet fi mevzuat elooloom* (the key of happiness and the guiding beacon in the objects of the sciences), by Mola Ahmed ben Mustapha, commonly called Tash Köprisade. It was translated into Turkish by the son of the author, Kemal eddin Mohammed (died in the year of the Hegira 1032, A. D. 1622). It divides the sciences into 7 classes, rhetoric, eloquence, dialectics, theoretical philosophy, practical philosophy, theoretical positive science, and practical positive science. Tash Köpri-sade reckoned in all 307 sciences, which his son extended in the Turkish version to 500. A general alphabetically arranged cyclopædia was prepared by Hadji Khalfa, whose proper name was Mustapha ebn Abdallah Kalib Tshlebi (died A. D. 1657). This voluminous writer on the bibliography, geography, and history of the Moslems collected many separate and rare treatises into one body under the title of *Keshf es soonoon an Esmail Kootoob velfoonoon* (the knowledge of books and sciences). In his introduction he treated of the nature, object, and classification of the sciences; of the history and literature of the sciences in oriental countries; of several special questions concerning the history of learning; and of the Arabic language and literature. The whole of this introduction is translated in Von Hammer's *Encyklopädische Uebersicht der Wissenschaften des Orients* (Leipsic, 1804). These two immense collections were preceded by several cyclopædias more or less complete. The first who among the Arabians made a cyclopædic scheme of the sciences was the celebrated physician Abu Ali ebn Abdallah ebn Sina, known among Europeans by the name of Avicenna (died A. D. 1037). Of his treatise on the nature of the sciences and the method of teaching we are able to judge only from the high commendations of Tash Köpri-sade, the greatest oriental cyclopædist, who acknowledges obligations to no other of his predecessors. The oldest proper cyclopædia among the Arabians was the *Hadaikol-envar fi hakaik il-esrar* (garden flowers or true mysteries), by Takhr eddin Mohammed ben Omar Er-rasi (died A. D. 1209), which embraces 60 sciences. About a century later appeared the cyclopædia *Miftahol-ooloom* (key of sciences), by Serad-sheddin ebn Yakub Yussuf ben Ebi Mohammed ben Ali es-Sakaki (died A. D. 1280). This work enjoyed an unrivalled reputation for a century and a half, and more than 100 commentaries were written on it, and even a larger number of epitomes of it were made. Among the latter was an excellent elaboration of the rhetorical division by Shems eddin Mohammed, celebrated as the "preacher of Damascus" (died A. D. 1338). Under Mohammed II., the conqueror of Constantinople, several cyclopædias of large compass were produced. One of these was a learned work on 14 sciences, by an Egyptian named Dshelaleddin Abderrahman ben Ebibekr Essoyuti (died A. D. 1505), parts of which were reduced to verse by several scholars. A great cyclopædia in the Persian language is the *Nefais olfoonoom fi arais il ooyoon* (treasures of knowledge to adorn the eyes), which embraces 120 sciences. It is in 2 parts; the 1st

treating of the pre-Islamitic sciences in 5 books, the 2d of the Islamitic sciences in 9 books. The *Elfevaid elkhakanïe el-Ahmed khanie* (useful results, &c.), by Mohammed Emin ben Sadr esh-Shirvani, is a famous cyclopædia, prepared for the sultan Ahmet I. It treats of 53 sciences in 5 parts, which, like the parts of an army, are entitled: the van (sciences and their order), the right wing (philological sciences), the left wing (philosophical sciences), the rear (the ethics of monarchs), and the centre (the sciences of law). The Chinese and Japanese also have great cyclopædias. Almost the whole contemporary learning is contained in the *Ku-kin-ssé-wen-lui-tsiu* (ancient-modern 4 collections), by Chu-ho-fu (1246). Similar Chinese works in the 17th century attained to immense magnitude. The *San-tsai-tu*, in 130 vols., treating of the 3 great powers, heaven, earth, and man, was published in Japanese near the beginning of the present century, and there is a copy of it, both in Japanese and Chinese, in the royal library of Paris.

CYCLOPISM (Gr. κυκλος, a circle, and ωψ, eye), a form of monstrosity, in which a single eye is developed in the middle of the forehead. Such monsters belong to the family of cyclocephalians of Isidore Geoffroy St. Hilaire, in which, with a more or less complete atrophy of the nasal apparatus, the organs of vision are imperfectly formed, with a tendency to approach the median line, and sometimes with a complete fusion of the two; the jaws also present more or less deformity, but the ears are generally normal. These monsters have attracted special attention from their resemblance to the fabulous Cyclops, particularly Polyphemus, rendered celebrated by the verses of Homer, Virgil, and Ovid; no doubt, these poetic creations were founded on actual observation of some of these not uncommon deformities. Some of the divisions of this family have two eyes, placed either in a single or a double orbit; in the latter case the nose is atrophied, with or without a kind of trunk above the eyes; these cannot strictly be called cases of cyclopism, though belonging to the same order of deformities, and are comparatively rare. The most common form is the *rhinocephalus*, in which the nose is atrophied, being represented only by a proboscis on the lower part of the forehead, and the eyes either close together or fused into one in a single orbit; in extreme cases there is only a single cavity without eyes. The single eye of the true cyclops is in the median line of the forehead, symmetrical, with a central pupil and an upper lid; it is generally larger than a common eye, and more elliptical in shape, with a single cornea and lens; this modification may be traced in the series of such anomalies from two contiguous eyes to a single apparently normal organ. The artistic representations of Polyphemus have always been erroneous, in that they have made his single eye either a right or a left one; every organ on the median line must be symmetrical, but neither a right nor a left eye is so; the cyclopean eye, however, is symmetrical, and formed by the union of parts corresponding to two eyes, the outer or the inner halves, either of which would make a symmetrical organ. The accessory organs, as the lids, the lachrymal apparatus, vessels, nerves, and muscles, are double or single according to the condition of the globe of the eye; the bones forming the orbit are modified in a similar manner, the frontal being narrowed, the orbital processes of the upper maxillary joined together and very small, and the malar bones almost meeting on the median line; according to Meckel and Geoffroy St. Hilaire, the anterior portions of the cerebral hemispheres are united, with a fusion of the lateral ventricles, diminution of the corpus callosum, a less number of convolutions, small size of the entire organ, and increase of serous fluid. Of course the eyes could not come together without atrophy of the nose, which is displaced upward, forming the proboscis seen in such cases on the forehead; and all the component parts of this organ show the same tendency to fusion on the median line; the same condition of partial fusion is found in the upper and in the lower jaw, the intermaxillary often disappearing, or a median incisor representing the union of two teeth. This form of monstrosity occurs in man, the dog, cat, rabbit, calf, sheep, horse, and birds, but especially in the pig, which furnishes more than half of the cases of this, as of most other anomalous conditions. In the true *cyclocephalus* the proboscis is wanting, indicating a still greater degree of monstrosity; the genus *stomocephalus* differs from *rhinocephalus* in the deformity of the lower jaw or the entire absence of the opening of the mouth; these two forms are comparatively rare. Certain very small crustaceans have the eyes quite close together, and even confounded in a single mass, and are hence called cyclops. These monsters, both human and animal, are generally born living and in good condition, and are most frequently females; they perish soon, probably from the inability of their imperfectly developed brain to answer the requirements of extra-uterine life. Many authors explain this form of monstrosity by an arrest of development, maintaining that every eye is cyclopean at a certain stage of growth, being developed from a central cerebral vesicle; but, from the fact of similar conditions occurring in the ears, the teeth, the legs, the arms, all of which may exist singly and symmetrical on the median line, Prof. J. Wyman ("Proceedings of the Boston Society of Natural History," vol. vi. p. 380) is of opinion that a single vesicle is primarily formed on the median line in such cases, instead of one on each side as in the normal state.—See *Histoire des anomalies de l'organisation*, by Isidore Geoffroy St. Hilaire, vol. ii. pp. 375–420.

CYCLOPS (Gr. κυκλωψ; κυκλος, a circle, and ωψ, an eye), in the Grecian mythology, a race of giants, with but one circular eye in the middle of the forehead, of whom there are various traditions. Those of the Odyssey are a gross race

of cannibal shepherds in Sicily, whose chief is Polyphemus. The Cyclops of Hesiod are sons of Uranus and Gæa, 3 in number, called Brontes, Steropes, and Arges, who were hurled into Tartarus by their father, released and reimprisoned by Saturn, and finally freed by Jupiter. For the latter, they made the thunderbolts, his invincible artillery; for Pluto, his helmet; for Neptune, his trident. They were killed by Apollo, in revenge for the death of his son Æsculapius, who was destroyed by Jupiter with the thunderbolts they had furnished him. A later tradition makes them the assistants of Vulcan, forging metallic armor and ornaments for gods and heroes in the volcanoes of Lemnos and Lipari, and under Mt. Etna. According to K. O. Müller, the Cyclops of Hesiod denote the transient disturbances of the order of nature by storms; Grote finds this opinion unsupported by the "Theogony" of the poet.—The name of Cyclopean walls has been given to those uncemented walls of unhewn stones, of which remains abound in several regions of Greece, and in Etruria, and which were probably erected by Pelasgians. Their huge size and uncouth form were the reason of their being attributed to the fabulous giants.—In English the word Cyclops is both singular and plural.

CYDNUS, a river of Cilicia, rising in the Taurus, and flowing through Tarsus into the Mediterranean sea a little below that city, was celebrated for the clearness and coldness of its waters, which in the opinion of the ancient physicians possessed medicinal virtues. The mouth of the Cydnus is now choked with sand and other alluvial deposits.

CYDONIA, an ancient city of Crete, rival and enemy of Cnossus and Gortyna, stood on the N. W. coast of the island, and derived its name from the Cydones, an aboriginal race who founded it. Afterward a colony of Zacynthians settled there. Next came the Samians in the 6th century, and ultimately appeared the Æginetans, who seized on the city. It was famous for quinces.

CYGNUS, a northern constellation, made memorable by containing the first star whose distance from the sun was approximately determined.

CYLINDER, a solid figure enclosed by parallel straight lines passing through every point of a curve. If the curve be a circle, and the lines at right angles to it, the cylinder is called a right cylinder.

CYMA, or CYMATIUM (Gr. κυμα, a wave), in architecture, the name of a moulding of a wave-like form, of which there are two kinds, the *cyma recta*, hollow in its upper part and swelling below, and the *cyma reversa*, which swells above and is hollow below.

CYMBALS (Gr. κυμβαλον, from κυμβος, hollow), brass musical instruments of percussion, consisting of 2 hollowed plates, circular in shape, and from 6 to 8 inches in diameter, which are attached to the hands by leather bands, and played by being struck together. The instrument is of great antiquity, having been used in the worship of Cybele, Bacchus, Juno, and all the earlier deities of the Grecian and Roman mythology, and probably by the Jews and most of the eastern nations. It was usually made in the form of 2 half globes.

CYME, the largest of the Æolian cities of Asia Minor, with a good harbor. It was founded by Locrians, and was the mother city of Cumæ in Campania.

CYNÆGIRUS, an Athenian warrior, who greatly distinguished himself at the battle of Marathon, 490 B. C. He was the son of Euphorion, and brother of the poet Æschylus. When the vanquished Persians were endeavoring to escape from the fatal field to their ships, he seized one of their triremes with his right hand, and when that was severed he grasped the vessel with his left; and when the left too was gone, he held on to the hostile galley with his teeth.

CYNICS, a school of Greek philosophers, founded by Antisthenes, a pupil of Socrates, in Athens, in the gymnasium Cynosarges, about 380 B. C. The most renowned among them were Diogenes, Crates of Thebes, his wife Hipparchia, and Menippus. They taught that all speculative philosophy led to no real knowledge of truth, but only to sophistry and the destruction of virtue and human society, and that the only task of philosophy was to show how men might best live morally and peaceably. In this they harmonized with the Stoics, but they differed from them in defining virtue to be the highest possible simplicity in living, and independence of external or sensual goods, and in carrying this so far that they despised decency, cleanliness, civilization, and labor. Hence their name became a by-word, and was sneeringly derived from κυων (dog); they were called a doggish set, and the name Cynic is still applied to men who disregard the proprieties of life under the pretence of independence of character.

CYNOSCEPHALÆ (Gr. κυων, a dog, κεφαλαι, heads), the name of a range of mountains in Thessaly, famous in history for two battles which were fought on it. The first was in 364 B. C., when the Thebans, though victorious over the Pheræans, lost their general Pelopidas. The other was in 197 B. C., when the Roman consul Flaminius defeated and took prisoner Philip II., king of Macedon.

CYNOSURE (Gr. κυων, a dog, ουρα, a tail), the name formerly given to the constellation Ursa Minor. This constellation contains the pole star, and was on this account an object of much attention to mariners and travellers.

CYNURIA, in ancient times, a district of the Peloponnesus, inhabited by a rude tribe of Ionians. They were a plundering race, and when attacked would retire to their mountain fastnesses. They were, however, subdued by the Argives at an early period, and about the middle of the 6th century B. C. their country passed into the possession of Sparta. The city of Thyrea (now Astro), with the country around, formed part of this ancient district.

CYPRÆA, the name of a genus of marine shells of the class *gasteropoda*. The shells are of oval or oblong form, more or less rounded or cylindrical, with a small and imbedded spire. The longitudinal aperture is nearly straight, and toothed or plaited on each side, with a channel or groove at each end. The genus is remarkable for the differences between the shells of the young and adult individuals, the outer lip in the early stages of growth being thin and the aperture wide. By the gradual inflection and thickening of this lip the aperture becomes narrower, and the shell assumes the nearly symmetrical form of the adult individual. About 150 living species are known, and 78 fossil. The genus first appeared in the chalk formation. (See Cowry.)

CYPRESS (*cupressus*, Linn.), the name of a tree remarkable for the durability of its timber, and belonging to the coniferæ; distinct from the pines and firs, by its leaves being reduced to mere scales, and by its cones consisting of a few woody bracts, each of which bears several small angular seeds. The common evergreen or upright cypress (*C. sempervirens*, Willd.) is a tapering, cone-like tree, with upright branches growing close to the trunk, resembling in general appearance the Lombardy poplar, and attaining in its native condition an altitude of 50 or 60 feet, though sometimes it is found much higher. According to Duhamel, a substance resembling gum tragacanth exudes in small particles from the bark of the young trees, and is collected by the bees for some purpose in constructing their combs. It is this species which, found wild in the islands of the archipelago, particularly Candia, and in Cyprus, Greece, Turkey, Persia, and Asia Minor, has been for a long time transferred to gardens for the sake of its deep evergreen branches and leaves, and for the gloomy air it imparts to the localities which it occupies. Among the Turks it is much esteemed for planting in cemeteries, and is used to such extent that these grounds resemble forests of cypresses. It is the kind mentioned in the Scriptures, and was famous among the ancients. Instances are related of doors and posts made of its wood, which had lasted 1,100 years. The odor of the cypress was considered so balsamic, that the eastern physicians used to send their patients troubled with lung complaints to the isle of Crete for a residence. The most renowned cypress tree is that of Somma, in Lombardy, said to have been planted the year of the birth of Jesus Christ, but records in existence declare it to have been a considerable tree 42 years B. C. When measured a few years ago, it was found to be 121 feet high, and 23 feet in circumference one foot from the ground. Some cypress trees planted by Michel Angelo in the garden of the Carthusian convent, situated on the site of the baths of Diocletian at Rome, are regarded with interest. The largest of these, when visited by M. Simond in 1817, measured about 13 feet in circumference. There are also some fine specimens in France and in England, of great size and considerable age. Any garden soil suits the cypress, but a deep and rather dry and sheltered soil suits it best. It can be raised from the seeds, sown in shallow pans, and the young plants on reaching 3 or 4 inches in height need to be potted off and kept for a few years with some care to render them fit for transplanting into open grounds. Cuttings taken from the younger branches, if planted during the autumn, will grow and succeed. Little training is necessary, on account of its natural tendency to grow upright. We are not aware of the cultivation of the cypress in this country, but it would doubtless succeed in any latitude similar to that of England, or warmer. The *C. horizontalis* (Duhamel) has spreading branches, which, when loaded, as they usually are, with large round cones, render the tree a beautiful object. It is considered to be only a fine variety of the common cypress. The Portuguese cypress (*C. Lusitanica*, Tournefort), a native of Goa, in the East Indies, has flexuous, spreading branches, and imbricated, acute, keeled, glaucous, adpressed leaves in 4 rows. It has been long naturalized in Portugal, where it acquires a large size. The weeping cypress (*C. pendula*, Thunberg) is a native of China; it has a large, expanded head, and dichotomous branches, which are much divided; its leaves are imbricated in 4 rows, are rather stem-clasping and triquetrous, keeled, and adpressed. According to Loudon, some uncertainty is attached to this species. Mention is made of it in Lambert's "Pines," and in Staunton's "Embassy," and it is the *fimoro* of Kämpfer. In the United States, the cypress is represented in the white cedar. (See Cedar.)—The deciduous cypress (*taxodium distichum*, Richard.) is a stately tree of the pine family, much admired for its foliage of a most delicate light green, which falls in the autumn after turning to a bright tawny color. Its leaves are linear and spreading, awl-shaped, and imbricated on the branches which produce the flowers; its seed vessels or strobiles are small, subglobose, and formed of angular woody scales. This lofty tree is a native of the middle and southern states of North America, extending from Delaware to the extreme south. Its trunk is very thick, often from 25 to 40 feet in circumference at the base, and attaining to 120 feet in height. The branchlets are very slender, elegantly pinnate; the leaves pectinate and distichous, spreading horizontally from being twisted at the base, linear, mucronulate, flat, one-nerved, glabrous on both sides, light green, margins acute, exterior somewhat convex, ½ an inch or more in length, and about a line broad. The tree, as it grows old, according to Michaux, has a spreading, broad head. It assumes, however, a great variety of forms, when raised artificially from the seeds. Loudon, in his *Arboretum Britannicum*, enumerates 4 principal forms, viz.: 1, the species having the branches horizontal, or somewhat inclined upward; 2, with the branches pendulous; 3, with the branches horizontal,

and the young shoots of the year pendulous, the leaves being twisted and compressed round them in the early part of the season, but fully expanded, like those of the species, toward the autumn; 4, with the leaves on the young shoots tortuous, and the branches pendulous. It is in the southern states, particularly in Florida, that the deciduous cypress attains its largest size, when it grows on the deep, miry soil of the swamps. The base of its trunk is usually hollow for ¼ of its bulk, and its surface is longitudinally furrowed with deep tortuous channels. The roots of the large trees, particularly in situations exposed to inundations, have strange-looking conical protuberances, called cypress knees, which rise above the soil, about 2 feet in height, and sometimes from 4 to 5 feet in thickness; these are hollow, smooth on the surface, and covered with a reddish bark like the roots, which they resemble also in the softness of the wood. The wood of the trunk is esteemed for timber, and is applied to various uses. Under cultivation at the north, this is one of the most beautiful and ornamental of trees. One in the Bartram garden, says Dr. Darlington in his *Flora Cestrica*, is the noblest specimen in Pennsylvania, and was planted by its venerable founder more than a century ago. Some good specimens are also to be seen in the gardens of Salem, Mass., which seem to thrive, and prove themselves capable of resisting the climate of the north. In one instance, the curious knobs from the root above described have begun to appear above the soil.

CYPRIAN, Thascius Cæcilius, a saint, bishop, and martyr of the early church, born at Carthage about the beginning of the 3d century, died Sept. 14, 258. His parentage was noble, his father being one of the senators of Carthage, and we infer from his letters that he was carefully trained, and that his morals and acquirements were those of most heathen youths in his station. His authentic history begins with the year 246, when he was baptized. At this time he was a man of mature years, of great popularity, of large fortune, lived in splendid style, and when he walked in the streets was followed by a crowd of admiring clients. His profession seems to have been that of a teacher of law. The immediate instrument of Cyprian's conversion was an old priest of Carthage, by name Cæcilius. Against the remonstrances of his pagan friends, who could not understand how a wise man should be beguiled by those foolish Christian fables, he openly declared his renunciation of idolatry, sold his gods and gave the price to the poor, went into retirement, and devoted himself to the study of the Scriptures and the Fathers. The first fruit of his conversion was his letter to Donatus, on the "Contempt of the World," in which he somewhat turgidly contrasts the pleasures of sense and of indulgence with the pleasures of inward musing and the joy of spiritual renewal, and describes in exuberant rhetoric the effect of regeneration. This letter was speedily followed by a treatise on the "Vanity of Idols," in which the crimes of the heathen gods are exposed and their demonic rather than divine nature illustrated. These books, added to the high social position of their author, led to his ordination as priest; and hardly had this occurred, when on the death of the bishop, Donatus, he was chosen by the prompt and enthusiastic voices of the Christians of Carthage, and the neighboring bishops, to the vacant episcopal chair. Five priests only dissented from the choice, objecting that he had not fulfilled a sufficient novitiate to test his fidelity. According to Pontius, his biographer, he submitted with great reluctance to this choice, and attempted to escape by a window, when they besieged his house, pressing his acceptance. The first years of his episcopal life, though not free from annoyances caused by the discontented priests, whom all his attentions could not quite pacify, were yet comparatively quiet. Affairs of discipline called for his decision, and he was ready for every call. A priest had been appointed by one of his friends, contrary to the canon of the church, to be executor of his will and guardian of his children; Cyprian not only deprived of his office this offending priest, who had dared thus to join secular to spiritual duty, but visited with posthumous excommunication the man who had made such a will. A converted actor continued to teach his art, pleading that his livelihood depended upon it; the bishop would not allow that a man might teach others what it was unlawful for himself to continue, and refused him the communion. An aged bishop complained that his deacons insulted him, and Cyprian must write and tell him how to treat them. The dress and bearing of virgins, which so much exercised Tertullian's mind, called for a new word from his admirer, and in his treatise on the "Habit" of this class, Cyprian inveighs against show and immodesty with hardly less severity than the ascetic Montanist. He magnified his office also by assuming a general supervision in the surrounding churches, and sustained by his care of ecclesiastical affairs throughout the province the recognized rank of a Carthaginian primate. In the year 250 the Decian persecution broke out, and raged at Carthage with especial fury. From motives of prudence, Cyprian preferred to withdraw to a place of safety, rather than expose himself to the hatred which was peculiarly bitter against him. Some seemed to see cowardice in this course, and it was made a reproach by his enemies; but his subsequent conduct in time of pestilence, and in the persecution of Valerian, proved that he was not afraid to meet the gravest dangers. From his retirement he still continued to direct the affairs of the church, to restrain abuses, to encourage the timid, and to console those whose friends had been martyred. In the extremity of peril, great numbers were driven to renounce their faith; others hypocritically pretended to adore the idols; and still others purchased certificates that they had re-

nounced the Christian faith, and so saved themselves from arrest, while they were spared the shame of a public apostasy. This class, called *libellatici*, were eager, when the persecution subsided, to regain their places as true believers; and some of them, in token of their fitness, brought recommendations which they had procured from those who had died martyrs. These *libelli pacis* seemed to release their holders from the necessity of preliminary penance, and to atone for the evasion by which life and safety had been bought. Cyprian would not allow this claim. He required as full an atonement from these compromisers as from other apostates, nor would he admit the authority of the martyrs in such a case, procured as it was by improper soliciting. He not only rejected these certificates, but he rebuked those who courted martyrdom for lending themselves to such schemes. This apparent irreverence and harshness aided the enemies who had before opposed him, and Novatus, one of the 5 dissenting priests, with Felicissimus, an influential demagogue, organized a separate church in the neighborhood, to which they admitted the apostates without any question. Cyprian declared them and their party schismatics, and excommunicated them. But Novatus was not yet ready to yield; he fled to Rome, where he intrigued against the bishop whom he hated, and also organized a party against the new Roman bishop Cornelius. Cyprian became by his pen a party in this Roman controversy, and his influence tended to secure Cornelius in his position, and to defeat the schemes of their mutual enemies. The controversy is significant in Cyprian's life, as it produced his book on the "Unity of the Church," in which he develops his theory concerning discipline and penance, schisms and heresies. The work is characteristic of his legal mind and his firm temper. Cyprian argues that it is not only an injury to the church, but an injury to the *lapsi* themselves, to readmit them without due penance. The persecution of Decius was not of long duration, and in the next year (251) Cyprian quietly returned to Carthage. His first care was to summon a council of the neighboring bishops to decide upon the affair of the penitent apostates, and to condemn the schism. The results of this council, which corresponded to Cyprian's wishes, were sent to the principal churches of the province, and to the Roman bishop. The condemnation did not at once silence the schismatics; they chose another bishop, Fortunatus by name, and succeeded in winning from Cornelius a partial assent to their conduct, and a remonstrance against the course of Cyprian. Sharp letters passed between Cornelius and his friend, in which Cyprian stoutly defends his episcopal right, insisting that a case once so clearly decided needs no revision, that it is enough that the schismatics have been judged guilty by their peers. A second council had already confirmed what the first had decided, and there seemed no ground for the charge that the action of the orthodox party had been hasty or arbitrary. Under the lead of Cyprian, the African bishops became the foes of schism abroad as much as of schism at home. Scarcely had the persecution subsided, when the plague, which had already appeared in Africa, broke out with renewed violence. In one of his letters Cyprian gives a graphic account of the symptoms and progress of this distemper. Hardly a house in Carthage was left by it unvisited. The panic was almost universal. The natural affections of families were forgotten; parents forsook their children, and men turned their fainting friends into the streets to die. Robbers took advantage of the distress to ply their trade, plundered the corpses on the highways, and ravaged the deserted houses. In this crisis Cyprian took control. From house to house he went with his followers, soliciting alms for the destitute, counselling the timid to stay and not flee, and gathering all who would dare such a service to tend the sick and bury the dead. He made no distinctions, but forgetting that only a few months before the pagans of Carthage had cried, "Cyprian to the lions," distributed his succor impartially to heathen and Christian. In this self-devotion he was joined by numbers of his brethren, and hundreds of Christian lives were lost in the work of mercy. But the pagans affirmed that the gods had sent that chastisement to punish the denial of their worship by these blasphemers; the crimes of the Christians were the cause of the wide disease. And when the Christian villages of Numidia were ravaged by the barbarians from the mountains, no Roman forces went to their rescue; it was reserved for the bishop to rescue them by the gifts of the Christians. Impoverished as the faithful of Carthage already were by their sacrifices in the season of pestilence, they answered promptly to Cyprian's call, and he could transmit to the provinces, as ransom for their imprisoned brethren, 100,000 sesterces, a sum amounting to near $4,000 of our money. This act of charity only gave occasion for scandal to the pagans, and Cyprian had to conduct a vexatious controversy with the magistrate Demetrian, in which he maintained that the disasters of plague and battle had come upon them in consequence, not of the Christian faith, but of heathen iniquities. Questions of dispute were constantly presented to Cyprian, and repeated councils were called by him to settle points of discipline and faith. But the most serious question, and one which brought him into conflict with the Roman bishop, was that of rebaptizing heretics. Cyprian, in this matter, favored a strict construction of the canon, and holding that no baptism except that of the church was valid, maintained that heretics must be treated as if they had never received the rite. The opposite party maintained that the conversion of heretics consecrated the original rite, even if it were not in the first instance canonically administered, and that repetition was superfluous. Cyprian's opinion had long prevailed in the church at Carthage, and had been confirmed by a synod held by one

of his predecessors; but to satisfy some doubters, he summoned a new synod of 32 bishops, who ratified the existing custom. Their verdict and the letters of Cyprian not quieting the objectors, a still more numerous synod of 87 bishops reiterated the sentence. The bishop of Rome, nevertheless, did not admit the justice of their conclusion. He wrote to Cyprian that it was of no moment to ask who administered the baptism, provided that it was received in good faith, and the proper form was observed. He renounced fellowship with Cyprian unless the church of Carthage should reconsider its opinion. Cyprian summoned, at the close of 256, a 3d synod, in which were deputies from Mauritania and Numidia, as well as from the province of Carthage, and procured an authoritative declaration of his opinion concerning the baptism of heretics as the orthodox doctrine of the church of Africa. This course seemed to make that church heretical, and the Roman bishop declined to receive the African messengers, and forbade his people to commune with them.—The martyrdom of Cyprian is one of the most touching traditions of the African church. For a few years the church had enjoyed rest from pagan persecutions; but in the year 257 an edict of Valerian authorized prefects and proconsuls to bring Christians to trial, and punish them if they confessed their faith. The proconsul of Africa was not slow to use this permission. Summoning Cyprian, he bade him renounce his false worship and sacrifice to the gods. "I am a Christian and a bishop," said Cyprian; "I know no God but the one true God, who created heaven and earth, and all therein. I serve him, and all Christians serve him, and pray to him for the emperor." No information concerning the residence of his priests could be got from the sturdy prelate. Banished for his contumacy to Curubis, a small city on the sea-coast, about 50 miles from Carthage, he lived for nearly a year in retirement, visited by his friends, and supplied with every convenience. His time was spent in sacred studies, and in writing letters of encouragement to his afflicted brethren. Recalled by the successor of this proconsul, Cyprian assumed the active duties of his station; but a new edict, more severe, led to a second arrest. Cyprian had been just before notified by the bishop of Rome of the impending fate, and already that bishop was a martyr. The proconsul Maximus sent a guard to conduct him to Utica, where the court was at that time sojourning, but the bishop preferred to suffer among his own people, and secreted himself for a time from the guard. When the proconsul returned, Cyprian walked abroad again, and was ready for the soldiers when they came to take him. The delay of a day in the trial caused the rumor of his arrest to be spread through Carthage, and the excitement and grief were unbounded. His prison was closely guarded by night for fear of rescue, and on the morrow he was conducted to the prætorium. It was noticed as a providential chance that the seat in which he sat was covered with a linen cloth, as if to symbolize his episcopal dignity. A few edifying words passed between him and the proconsul, the expected sentence was read, and, as a ringleader of the impious sect to whom so many crimes were charged, Thascius Cyprian was condemned to be beheaded. "God be thanked," said the martyr, "who delivereth me at last from the chains of the body." The place of execution was an open space at a little distance outside the city, around which were tall trees. These the crowd of friends who had followed him from the court climbed that they might view the spectacle. Many cried out that they wished to die with their bishop. Having reached the place, Cyprian folded his cloak, knelt upon it, prayed, took off his remaining garments, one by one, till only a linen tunic was left, and awaited so the fatal stroke. In token of forgiveness to his executioner, he ordered 25 denarii of gold (about $30) to be given him. With his own hand he bound the bandage around his eyes, and as the head fell, the crowd caught on handkerchiefs and napkins the drops of blood, which they preserved as sacred relics. His body was interred the following night in the Mappalian way, where a church for many ages marked the spot of his burial. In this church the high festivals of the city were celebrated; and the first care of the general Belisarius, when, 3 centuries later, he entered Carthage on the eve of St. Cyprian, as a deliverer from the Vandals, was to restore this sacred edifice. Another church, called *mensa Cypriani*, was built upon the spot of his martyrdom. The date of his death was Sept. 14, 258; but since the 5th century the day set apart for his festival has been Sept. 16. After the Saracen conquest of Africa, his relics were transported to Arles in France, and subsequently they were distributed in various abbey churches. His festival is kept with much ceremony in the church of St. Maria in Trastevere at Rome, where they show the body of his friend St. Cornelius.—Cyprian's works have been very often published and edited by eminent scholars, almost from the invention of printing. Fell's Oxford edition appeared in 1682; another with notes of Pearson and Dodwell in Holland in 1700. The standard edition is that of Paris, 1726, folio, with the notes of Baluze and the life of the saint by D. Mavan. Cyprian's works have been translated into English by Marshall (London, 1717). Of biographies there are those of Gervaise (1717, 4to.); F. W. Rettberg (Göttingen, 1831, 8vo.); Poole (London, 1840, 8vo.); F. X. Collombet (Paris, 1843); Böhringer (Zurich, 1842, 8vo.).

CYPRUS (Gr. Κυπρος; Turk. *Kebris*), a Turkish island, the most eastern of the Mediterranean, lying at nearly equal distances from the shores of Syria and Asia Minor, extending from Cape Gatto, lat. 34° 29′ 18″, to Cape St. Andrea, lat. 35° 41′ 42″; length about 148 m.; width for 100 m. W. to E. about 40 m., thence to the N. E. extremity about 15 m.; area about 4,500 sq. m.; pop., which under the Venetians amounted

to 1,000,000, now only about 110,000, of whom about 70,000 are Greeks, and the rest Turks, Maronites, Armenians, Roman Catholics, and Jews. It is intersected from E. to W. by a range of mountains, called Olympus by the ancients, whose highest peaks exceed 7,000 feet. The natural productions are of the richest character; aromatic herbs of all kinds grow spontaneously. Cotton, wine, and tobacco, silk and fruit, all of fine quality, are produced. Several dyewoods and drugs are also grown on the island. The minerals are numerous, including the precious metals, and copper and many precious stones, but the mines are neglected. The wines of Cyprus, especially those from the vineyard called the Commanderie, from having belonged to the knights of Malta, enjoyed great celebrity in former times, and the production exceeded 2,000,000 gallons, but has now dwindled down to less than 200,000 gallons. There are 5 qualities of Cyprus wines, viz.: 2 black and red, common wines with a strong taste of tar, from being kept in tarred casks, exported to Egypt, but never to Europe; 2 excellent Muscat and Morocaneller wines, and the Commanderie referred to above. Larnica, where the European consuls and the principal merchants of various nations reside, and Limasol, are the chief commercial emporiums of the island. Famagosta, so famous under the Venetians, possesses an excellent spacious port, which is sheltered from all winds, and which could easily be deepened, when it would accommodate hundreds of large ships; but at present it is choked up with filth to such a degree, that it can only hold about a dozen small craft. The great scourge of the island is locusts, which commit great ravages; but in spite of this evil, and of the abuses in fixing and collecting the taxes, the prosperity of Cyprus is, on the whole, increasing. Many of the oppressions formerly practised upon the peasants have been removed. They are freely permitted to sell their produce, and agricultural employment is abundant. The wheat and oats grown are of an inferior quality, and the annual grain crop does not exceed 120,000 quarters. During the late Russian war, the demand for and high prices of grain led the peasants to neglect the cultivation of cotton, sesamum, and colocynth, but they have since resumed the latter, as the most adapted to the soil. The cotton crop in 1857 amounted to about 11,000 cwt. The olive and wool crop had failed in that year, the latter from a disease among the sheep. Madder root forms a principal production, the greater part being exported to France, and the rest retained for home consumption. The abolition in 1835 of the monopoly on caroulis rapidly increased the production from 4,000 cantars in that year to 40,000 in 1857, 6 cargoes being for the first time exported to England in the latter year. British and American manufactures are imported from Syria, Smyrna, and Constantinople; hides, coffee, sugar, cloth, fowling pieces, fine powder, small shot, salt fish, and Swedish iron, from France; glass, steel, German iron, nails, paper, &c., from Trieste and other Austrian ports. Total annual imports valued at about $150,000; exports at $350,000. The island forms an eyalet, and is governed by a vali or viceroy, and 12 lieutenants preside over the 12 districts into which it is divided. Capital, Nicosia (or Lefkosha), where the Greek archbishop and the provincial authorities reside.—The island of Cyprus occupies a distinguished place both in sacred and profane history. It early belonged to the Phœnicians of the neighboring coast. It was afterward colonized by Greeks, who founded there several independent kingdoms, and passed successively under the power of the Pharaohs, Persians, Ptolemies, and Romans, excepting a short period of independence under Evagoras, in the 4th century B. C. It was one of the chief seats of the worship of Venus, hence called Cypria. Salamis, Citium (whence the biblical name of the island, Kittim), Amathus, Paphos, Soli, &c., were the most remarkable ancient cities. At the time of the crusades it was detached from the Greek empire, and made a kingdom for Guy of Lusignan. (It is in consequence of the claim made by the house of Savoy to the heirship of the Lusignan family that the king of Sardinia still assumes the title of king of Cyprus.) From his descendants it fell to the Venetians, and in 1570–'71 was subdued by the Turks after a brave defence. In 1832 it was occupied by the viceroy of Egypt, but retaken in 1840 by the Turks, under whose rule the island has greatly declined from the splendor and prosperity which gave it world-wide celebrity while held by the Venetians.

CYPSELUS, son of Æëtion, a tyrant of Corinth. His mother was one of the Bacchiadæ, but so ill-favored that none of her own order could be induced to accept her in marriage, whereon she wedded Æëtion. The Delphian pythoness having foretold that her child would prove formidable to the aristocratic party, the Bacchiadæ attempted to murder him; but his mother concealed him in a chest (Gr. κυψελη) till the danger had blown over. Cypselus became a leader of the democracy, with whose assistance he overthrew the power of the oligarchs, and expelled them from the city; but ultimately he became the oppressor alike of nobles and people. He reigned at Corinth 30 years (655–625 B.C.), and was succeeded by his son Periander.

CYRENÆA, or Cyrenaica, an ancient country of Africa, in the N. E. part of modern Tripoli, bounded N. by the Mediterranean, E. by Marmarica, S. by the desert (of Barca), and W. by the Great Syrtis, now gulf of Sidra, in its widest limits including Marmarica on the E., and extending to the Aræ Philenorum on the W., and thus corresponding with modern Barca. The centre of this country is a moderately elevated table-land, gradually and in terraces sloping down to the hilly coast land, which, from its position, climate, and soil, is one of the most delightful regions of the earth. It

abounds in excellent fruits, vegetables, flowers, and rare plants, of which the *silphium*, the *laserpitium* of the Romans, was famous in antiquity both as food and for its medicinal virtues. Cyrenæa was one of the most flourishing colonies of the Greeks, having been settled by Dorians from the island of Thera, the southernmost of the Cyclades, who, under the influence of the climate, soon threw off the rigidity of their race, though continuing in friendship with their kindred of Crete, and became a luxurious people, renowned for skill in chariot driving and games. Battus, the leader of the original colony, founded Cyrene, the chief city, 631 B. C., and a royal dynasty, which numbered 4 princes of his name, including himself, and 4 of the name of Arcesilaus. The comparative independence of Barca, one of the early colonies of Cyrene, and the invasion of the Persians under Cambyses, weakened the last Battiads; a republican form of government was established, but internal dissensions soon led to the restoration of tyranny. When Alexander the Great invaded Egypt, the Cyrenæans were his allies. After his death the first of the Ptolemies annexed their country to Egypt, and his successors possessed it till 95 B. C., when Apion, the last governor, an illegitimate son of Ptolemy Physcon, made it over to the Romans. Under the Ptolemies the country was also known by the name of Pentapolis, being so called from the 5 principal cities: Cyrene; Apollonia, the port town of the preceding; Ptolemais (perhaps identical with Barca), now Tolmeta; Arsinoë, more anciently Teuchira, now Taukra; and Berenice, more anciently Hesperides, now Benghazi, at the mouth of the Lathon. The Romans, who first proclaimed the freedom of the country, soon annexed it as a province, together with Crete, under the name of Cyrenaica. Under Constantine the Great it became a separate province, and was called Upper Libya. The bloody struggles with the revolted Jewish inhabitants under Trajan, repeated incursions of the nomadic tribes of the interior, earthquakes and locusts, gradually destroyed the wealth of the province; its invasion by the Persians, and soon after by the Saracens, in the 7th century, completed its ruin. Cyrenaica was the chief seat of the disciples of Aristippus, and in a later period of the African Gnostics. The whole region abounds in curious remnants of antiquity, which have attracted the attention and scrutiny of modern travellers and critics.—Compare Della Cella, *Viaggio da Tripoli alle frontieri occidentali dell' Egitto* (Genoa, 1819); Pacho, *Voyage dans la Marmarique, la Cyrénaïque*, &c. (Paris, 1825–'29); Beechey, "Proceedings of the Expedition to Explore the Northern Coast of Africa" (London, 1828); Trighe, *Res Cyrenensium* (Copenhagen, 1828); Hamilton, "Wanderings in North Africa;" and Rawlinson's notes to the 4th book of Herodotus.

CYRENAICS, a school of philosophers founded by Aristippus of Cyrenaica, a pupil of Socrates, about 380 B. C., who taught that enjoyment was the highest object, and that virtue consisted in the art of producing the highest possible amount of agreeable feelings, by living in moderate activity, in the enjoyment of art and literature, with the careful shunning of pain. They despised, like the Cynics, all speculative philosophy, but were as a rule not immoral, limiting their practice to a gay, moderate, and amiable enjoyment of life. Among these philosophers, Arete, the daughter of Aristippus, his grandson Aristippus Metrodidactus, and Hegesias, were the most renowned. This school was succeeded, a century later, by the kindred philosophy of Epicurus.

CYRENE, chief city of Cyrenæa or Cyrenaica, founded in 631 B. C. by Theræans under Battus, around a fountain (κρηνη) consecrated to Apollo, which supplied the city with water, was built on a high terrace of the Cyrenæan tableland, about 9 m. from the coast at Apollonia, which became its port. The road which connected the city with the harbor, a vast necropolis, and ruins of streets, temples, theatres, tombs, and remnants of art, are still visible, the site of the ancient city having been identified with the modern Grennah. The British traveller Hamilton speaks of the neighborhood of this place as "abounding with beautiful scenes, some of which exceed in richness of vegetation, and equal in grandeur, any thing that is to be found in the Apennines, . . . some offering perhaps the most lovely sylvan scenery in the world." In the time of Herodotus Cyrene covered an area equal to the entire neighboring island of Platea (now Bomba). Aristippus, the founder of the Cyrenaic school of philosophy, Carneades, the founder of the New Academy, the poet Callimachus, the astronomer Eratosthenes, and the eloquent Christian bishop Synesius (in the 5th century), were natives of Cyrene.

CYRIL OF ALEXANDRIA, saint and patriarch of the church, born about A. D. 376, died in 444. Theophilus, bishop of Alexandria, was his uncle and teacher; and after the death of the latter in 412, the succession in the bishopric was given to Cyril. Alexandria at this time was one of the 4 principal seats of ecclesiastical power. Its bishops bore the title of patriarch. Cyril at once undertook to suppress heresy and drive out from the city all unbelievers. He attacked the Novatians, shut up their churches, seized their sacred vessels, and compelled them to silence. A popular outbreak gave him pretext for banishing the Jews, who had lived there unmolested for many centuries, and were wealthy, cultivated, and important to the prosperity of the city. Though the governor Orestes opposed him in this act of zeal, he was sustained by the emperor and by the Christian populace. The famous Hypatia, the female Platonist of Alexandria, was torn in pieces in the street by the people, from the report or suspicion that she encouraged the governor in his opposition to the bishop. The progress of the Nestorian heresy next attracted

Cyril's attention. This heresy, which denied the orthodox theory of the incarnation, had gained influence among the cenobites of Egypt, not only from its subtle reasonings, but from the ascetic virtues of its author, the bishop of Constantinople. Cyril sent severe letters to Nestorius, calling upon him to retract his falsehoods; which proved, as might be expected, ineffectual. An appeal to the bishop of Rome, though it resulted in a justification of the course of the Alexandrine bishop, forced no retraction from the Byzantine. Nestorius would not pronounce his former propositions to be accursed. A council was called at Ephesus, in which Cyril as legate and prosecutor took the lead, and the recusant Nestorius was deposed and condemned. A subsequent *ex parte* council of 42 bishops, headed by John, patriarch of Antioch, judged the case differently, and, favoring Nestorius, excommunicated and deposed his opponent and the Alexandrine party. The emperor, appealed to in this strait, condemned both sides and ordered the rival champions to be imprisoned. The powerful intercession of Rome, however, soon caused this sentence against Cyril to be abrogated, and the patriarch returned home. Nestorius was sent to a convent near Antioch, and finally to Upper Egypt, and Cyril could spend the last 12 years of his episcopate in the faith that he had vanquished the heretics of his province and exterminated infidelity. After the banishment of Nestorius, his word as expounder of the faith remained undisputed.—His writings are mostly controversial. They are marked by a rugged earnestness of style, with little grace or beauty, and by positiveness of statement rather than by cogency of argument. His expository works consist of 17 books on "Worship in Spirit and Truth;" 13 books of "Glaphyrs," which are commentaries on various passages in the Pentateuch; a series of commentaries on Isaiah; and 12 books of notes upon John's Gospel, some of which are imperfect. The method of these is thoroughly allegorical. His ethical and ritual works are contained in 29 discourses for Easter week, in which he uses language that seems not only to teach transubstantiation, but to prophesy the worship of the Virgin Mary. His polemical works are: a work against the Arians, called the "Treasure," in 35 sections; 7 dialogues on the "Trinity," 2 on the "Incarnation;" 3 treatises on the "Right Faith;" 5 books against Nestorius, in which the heresies of that teacher are discussed without mentioning his name; 12 "Anathematisms," sent directly to Nestorius, and 3 "Apologies" for these "Anathematisms," defending them from the charges of heresy and of ambiguity, which had been brought against them. All these works were brought out by the Nestorian controversy. Beside these, Cyril wrote a book against the "Anthropomorphite" monks, who held that God had a physical body, in answer to 27 dogmatical questions which they had put to him; 2 letters against Theodore of Mopsuestia; and 10 books against Julian the emperor, in answer to the 3 books which that sovereign had published against the Christians. This last work is one of the most curious monuments of Christian polemic literature. It vindicates the Mosaic cosmogony against the Grecian theories, the theogony of the Bible against that of Hesiod, monotheism against polytheism, the unity of the Deity against the charge of duality, exalts the Christian prophets and martyrs above all the heathen philosophers, gives as a reason for the downfall of the heathen oracles that "the devil was restrained by Christ's coming," explains the Christian reverence for the wood of the true cross and for the tombs of martyrs, and discriminates this from the pagan idolatry. Many letters, too, of his large correspondence have survived, and some treatises upon "The Faith," dedicated to the sisters of the emperor.—Parts of the works of Cyril have been frequently translated into Latin. The best edition is that of John Aubert, canon of Laon (6 vols. folio, Paris, 1638), printed both in Greek and Latin. Beside this, there is the Cologne folio (2 vols. 1546), and another Paris edition (2 vols. folio, 1692), the Greek text with notes. The character of Cyril is drawn in the historical romance of "Hypatia," by Charles Kingsley (London, 1853).

CYRIL OF JERUSALEM, saint and archbishop of the church, born at or near Jerusalem, about A. D. 315, died in 386. He was about 30 years old when he was ordained priest by Maximus, bishop of Jerusalem, and was intrusted with the charge of the catechumens, and sometimes with the duty of preaching in the place of the bishop. When, in 350, the see of Jerusalem became vacant, Cyril was promoted to that place, and consecrated by Acacius of Cæsarea, the metropolitan of Palestine. Acacius was an Arian, and it has been affirmed that Cyril, in keeping fellowship with him and the Arian party, while he himself professed orthodox sentiments, was guilty of duplicity. He was never, however, considered to be Arian by the Arians themselves, or in any way favorable to that party in the matter of theology, although in his banishment and misfortune he accepted the hospitality of friends who were semi-Arian. Acacius was for many years his bitter enemy and persecutor. In the year 357, taking advantage of a technical violation of the canon law, Acacius procured a sentence of deposition against the orthodox bishop. Cyril was accused of having sold the furniture and ornaments of his church, gifts of the emperor Constantine; but his plea was that he did this to save the poor from starving in a time of famine. The sentence, palpably unjust, was reversed at the council of Seleucia in 359, but was the next year repronounced, with an additional imperial decree of banishment. On the accession of Julian, in 361, Cyril was enabled to return to Jerusalem. The favor of the tolerant pagan did not, nevertheless, prevent the Christian zeal of the bishop; and he did not hesitate to condemn, on grounds of Scripture

and prophecy, the emperor's attempt to rebuild in the holy city the Jewish temple. The edict of the emperor Valens in the year 367, repealing Julian's act of amnesty, again sent Cyril into exile, and only after 11 years was he able to regain his seat and to stay unmolested. He had the satisfaction in the last years of his life of seeing the orthodox faith fully established, and of taking part in the council of Constantinople, which decreed the condemnation of the Arian, semi-Arian, and Macedonian heretics.—The writings of Cyril which remain are: a course of 23 "Catechetical Lectures;" a single sermon, suggested by the Scripture narrative of the healing of the paralytic, and treating sin as the origin of all misery and suffering; and a letter to the emperor Constantine relating the prodigy of the luminous cross at Jerusalem. His works have been frequently printed both in Greek and in Latin. The editions of Cologne (1564) and Paris (1589) are in a single octavo volume. The fine edition of the Benedictine Touttée (Paris, folio, 1720) is in both languages. A French translation of the "Catechetical Lectures," with notes and commentaries, was made by Grandcolas. An English translation of the same work, very faithful and spirited, edited by John Henry Newman, was published in Oxford in 1838.

CYRUS, the ancient name of a river in Asia. See Koor.

CYRUS. I. The Elder, the Koresh of the Hebrew Scriptures (supposed to be from the Persian *kohr*, the sun), the founder of the Persian empire, reigned from 559 to 529 B. C. He was grandson of Astyages, king of Media. This is one of the few particulars of his life about which the various testimonies of antiquity agree, most others being differently related in the histories of Ctesias and Herodotus, and in the Cyropædia of Xenophon. But as Ctesias is in general little trustworthy, and as Xenophon seems to have written his book, a kind of philosophical romance, for moral or political purposes, and without much regard for history, the story of Herodotus, in spite of its legendary character, has been generally adopted by modern historians down to Grote. According to this narrative, Cyrus was the son of Cambyses, a Persian noble, and of Mandane, the daughter of Astyages. This king commanded him to be put to death immediately after his birth, in consequence of some dreams which were explained by the magi as presages of the future royal greatness of the child. Saved by the humanity of Harpagus, an officer of the court, and of a herdsman, who was to expose him to death in the wilderness, he was brought up by the latter, as his son, in a secluded mountain region, where he soon became the leader of his playfellows, who chose him as their king. Having in this capacity ordered the son of a distinguished Median to be scourged for disobedience, he was brought before Astyages, to whom his bold answers and his features soon betrayed his origin. The herdsman was pardoned, Harpagus cruelly punished in the person of his son, and Cyrus, whom the magi declared to have already attained the threatening greatness predicted by the dreams, was sent to Persia to his parents. When he grew up, following the secret advice of Harpagus, he prepared to dethrone his grandfather. The Persians, a poor, hardy, and warlike people, were easily induced to shake off the yoke of Media; Harpagus betrayed the first army, sent under his command against the rebels; and with a second, the king himself was defeated near Pasargada, and made prisoner (559). Cyrus was acknowledged by the Medes as ruler of the new empire of Persia and Media, of which they became the second nation. He now marched against Crœsus, the rich and mighty king of Lydia, who crossed the Halys to revenge his fallen ally and brother-in-law Astyages. A bloody battle was fought in Cappadocia, but with an indecisive result. Crœsus, however, thought it wiser to return to his own country, hoping to recommence the campaign with reënforcements from his allies, the kings of Egypt and Babylonia, and the Lacedæmonians. But before these arrived, Cyrus had in his turn crossed the Halys, vanquished the celebrated Lydian cavalry on the plain before Sardis, taken that city, and made Crœsus his prisoner. The Greeks of Asia Minor, who had rejected the previous invitations of Cyrus to revolt against the Lydians, were now conquered by an army under Harpagus. A part of the Phocæans, however, preferred the dangers of an emigration to the distant regions of the west to a peaceful subjection. The Carians, Caunians, Lycians, and others were next subdued by the same general, while Cyrus himself was preparing and partly executing his more important eastern conquests. For the reduction of Babylonia, the 2d great empire of western Asia, by Cyrus, we have the concurring testimony of the 3 above mentioned Greek historians, as well as of the Scriptures, though, according to Xenophon, he acted only as general of his uncle Cyaxares II., son of Astyages, king of Media. Herodotus describes in his way how, on his march from the north-east against Babylon, Cyrus chastised the river Gyndes, an affluent of the Tigris, for drowning one of his sacred white horses, by digging 360 channels "so that women in future should cross it without wetting their knees;" how he turned the Euphrates by a canal into the artificial lake made by the Babylonian queen Nitocris, "on which the river sank to such an extent, that the natural bed of the stream became fordable;" how through this bed the Persians entered the city and took it by surprise; and how, "owing to the vast size of the place, the inhabitants of the central parts (as the residents at Babylon declare), long after the outer portions of the town were taken, knew nothing of what had chanced, but as they were engaged in a festival, continued dancing and revelling until they learned the capture but too certainly." Confirming these statements, the Hebrews dwell with pleasure

on the exploits of their deliverer from the Babylonish captivity; on the "one from the north" and "from the rising of the sun," who comes "upon princes as upon mortar, and as the potter treadeth clay," who executes "on Babylon the vengeance of the Lord," "that saith to the deep, Be dry, and I will dry up thy rivers; that saith of Cyrus, He is my shepherd and shall perform all my pleasure; even saying to Jerusalem, Thou shalt be built; and to the temple, Thy foundation shall be laid" (Isaiah). They delight to relate how "the mighty men of Babylon have forborne to fight, they have remained in their holds, their might hath failed; they became as women;" how one post runs "to meet another, and one messenger to meet another, to show the king of Babylon that his city is taken at one end" (Jeremiah). After the fall of the capital (538), which seems to have been greeted by many oppressed nations of Asia as the commencement of an era of justice and freedom, all the provinces of the Babylonian empire speedily surrendered to the conqueror, who was now master of nearly all the countries between the Indus and the Ægæan, the Oxus and the Red sea. Satisfied with this vast dominion, which he ruled wisely and justly, Xenophon makes him die in peace and in his bed with a Socratic speech on his lips; but Arrian attributes to him afterward an invasion of India across the desert of Arachosia; Ctesias, an expedition against the Derbices, a people in the Caucasian regions, in which he is slain; and Herodotus, an attack upon the Massagetæ, northern nomades ruled by a queen, Tomyris, and greatly resembling the Scythians, in whose country he was defeated and slain in a bloody battle. Tomyris, who revenged the death of her son, filled a skin with human blood, Herodotus adds, into which she dipped the head of Cyrus, thus giving the insatiable conqueror, as she said, his fill of blood. There is, however, some testimony to the allegation that he was buried in Pasargada in his native province, "where his tomb was honored and watched until the breaking up of the empire, while his memory was held in profound veneration among the Persians." "There is much reason to believe," says Rawlinson, "that the tomb of Cyrus still exists at Murgab, the ancient Pasargada. On a square base, composed of immense blocks of white marble, rising in steps, stands a structure so closely resembling the description of Arrian, that it seems scarcely possible to doubt that it is the tomb which in Alexander's time contained the body of Cyrus. It is a quadrangular edifice or chamber, built of blocks 5 feet thick, which are shaped at the top into a sloping roof. Internally the chamber is 10 feet long, 7 wide, and 8 high. There are holes in the marble floor, which seem to have admitted the fastenings of a sarcophagus. The tomb stands in an area marked out by pillars, where occurs repeatedly the inscription (written both in Persian and the so-called Median): 'I am Cyrus the king, the Achæmenian.' It is called by the natives the tomb of the mother of Solomon." II. Cyrus the Younger, 2d son of Darius Nothus, king of Persia, received from his father at an early age the satrapy of Lydia, Phrygia, and other parts of Asia Minor (407 B. C.). When his elder brother, Artaxerxes II., ascended the throne (404), he formed a plot against his life, which was discovered by Tissaphernes, and pardoned on the intercession of Parysatis, the widow of Darius. Reinstated in his satrapy, Cyrus succeeded in collecting a powerful army, including 13,000 Greek mercenaries, and marched from Sardis in the spring of 401 toward Babylonia, with the secret purpose of dethroning his brother. Having crossed the Euphrates at Thapsacus, he met the king at the head of an immense army, near Cunaxa. The battle was nearly won, especially by the valor of the Greeks on the right wing, when, perceiving Artaxerxes in the centre, the ambitious prince furiously rushed to assail him, and fell pierced by a javelin, after having wounded his brother. The character and accomplishments of this prince are painted in the brightest colors by Xenophon, in the 1st book of the Anabasis.

CYTHERA. See Cerigo.

CYZICUS, one of the oldest and most powerful of the Greek cities of Asia, situated on a small island in the Propontis, near the Mysian shore, is said to have been founded by a Pelasgic tribe, expelled from their homes by the Æolians. It was afterward subject alternately to Athens, Sparta, and Persia, and obtained its independence after the time of Alexander. In the wars which determined the fate of the kingdom of Syria it took part with Pergamus and the Romans against Antiochus. The heroism with which the Cyzicenes defended their city when it was besieged by Mithridates obtained for it the rank of a *libera civitas*. When Constantine created the new province of Hellespontus, he made Cyzicus the capital. It was partially destroyed by an earthquake in A. D. 443, and was captured and completely ruined by the Arabians in 675. The place is now overgrown with neglected orchards and vineyards, and a low sandy isthmus has been formed, converting the island into a peninsula.

CZACKI, Tadeusz, a Polish financier and author, born in 1765, at Poryck, in Volhynia, died at Dubno, Feb. 8, 1813. At an early age King Stanislas Augustus appointed him to an office in the royal tribunal of Warsaw, where the regulation of the secret archives of the Polish sovereigns was intrusted to him. From 1788 to 1795 he was a member of the Polish board of the treasury. He was also employed by the committee which discussed the constitution of May 3, 1791, of which he was a staunch supporter. When the second division of Poland took place, his property was confiscated, but afterward restored by Paul I. In the latter part of his life he devoted himself to the interests of education. His views met with the approbation of Alexander, and the gymnasium of

Kremenetz, in Volhynia, of which he was the founder, was opened in 1805. The instruction in this school gave umbrage to the government; but on being, in 1807, summoned to St. Petersburg, he succeeded not only in making his vindication acceptable to the czar, but was appointed curator of the public schools of western Poland. His complete works, which are mostly historical, were published in 3 vols., in Posen, in 1843–'45; the most important being his book "Of the Laws of Poland and Lithuania."

CZAJKOWSKI, Michał, a Polish novelist (now Sadik Pasha, a general in the Turkish army), born in 1808 in the Ukraine. His enthusiasm was kindled by the writings of Adam Mickiewicz, with whose romantic spirit his novels, which chiefly treat of Cossack and of Ukrainian life, are deeply imbued. After the Polish revolution of 1830, in which he had taken a part, he betook himself to Paris. In 1840 he was sent by Prince Czartoryski on a mission to Turkey, but at the instigation of Russia he was compelled to relinquish this office, and would have been banished from the Turkish territory if, at the beginning of 1851, he had not become a convert to Islamism under the name of Mohammed Sadik Effendi. In the war with Russia he organized and commanded a body of troops under the name of Cossacks of the sultan. After the expulsion of the Russians from the Danubian principalities he was made military governor of Bucharest, and commander of the Turkish army under Omar Pasha in Bessarabia. His novels, of which *Wernyhora* is the most esteemed, have been translated into several languages, and a French translation appeared in Paris in 1857, under the title of *Contes Cosaques*.

CZAR, or Tzar, a title of the sovereigns of Russia, meaning king or lord. It has been supposed by some to be an imitation or corruption of the Latin Cæsar, in the sense of the German *Kaiser*, but the ancient Slavic translation of the Bible has *kesar* for Καισαρ, and *tzar* for king. Karamsin therefore, and others after him, compare the term with the syllable *sar* found in the names of the Assyrian and Babylonian monarchs Phalassar (Pileser), Nabonassar, and Nabopolassar, and with the Hebrew *sar* (commander, chief). The Mongols used the same appellation, and it is probably from them that the Russians adopted it. It is used by Russian annalists as early as the 12th century; but as the official title of the monarchs of Russia it dates from the 16th. Before this period they styled themselves grand princes (*velikoi kniazh*) of Kiev, Novgorod, Vladimir, Moscow, &c. Basil Ivanovitch assumed in 1505 the title of *samoderzhetz*, or autocrat; his son Ivan the Terrible was crowned in 1547 as czar. After the annexation of Smolensk and the Ukraine, the title of czar of Moscow was changed into that of czar of Great, White, and Little Russia (of all the Russias). Though the word czar was used by the Russians also to designate the emperors of the West, as well as of the East (hence the name Tzargorod, city of the emperor for Constantinople), Peter the Great, in order to be without contradiction ranked among the monarchs of the highest category, assumed in 1721 in addition the title of *imperator*, or emperor. In the long negotiations for the acknowledgment of this dignity, which was contested by many states of Europe, it was proved that Maximilian I., who in 1514 concluded a treaty of alliance with Russia against Poland, had used the term emperor (*Kaiser*) for czar, and that the same was done by other powers in the 16th and 17th centuries. It was not, however, till the reign of Catharine II. that Poland, Spain, and Turkey acknowledged the imperial dignity of Russia. The wife of the czar was anciently called *tzaritza;* his sons had the title of *tzarevitch*, his daughters that of *tzarevna*. Since the death of the unhappy Alexei, however, the latter appellations have been replaced by those of grand prince and grand princess. Constantine, the 2d son of Paul I., received in 1799 the title of *tzesarevitch*, which was bestowed after his death in 1831, by the emperor Nicholas, upon his own son Alexander (now the reigning emperor). The wife of the latter received the title of *tzesarevna*. The crown prince Nicholas Alexandrovitch, born in 1843, now bears the former title. The empress is styled in Russian *imperatritza*. The popular Russian appellation of the sovereign is still czar, or *hossoodar* (*hospodar*, lord). Czar was also the ancient title of the princes of Grusia, or Georgia, and Imeritia, now Russian provinces.

CZARNIECKI, or Czarnecki, Stefan, a Polish general, born at Czarnca, in the palatinate of Sandomierz, in 1599, died at Sokolówka in Volhynia, in 1665. Of a noble but poor family, he studied at the university of Cracow, entered the army, and met with little advancement before the outbreak of the great Cossack rebellion in 1648. Having been made captive in the battle at the Yellow Waters (May 25, 1648), he was delivered by Chmielnicki, the leader of the Cossacks, to the Tartars, but set free after the pacification of Zborów, in the following year. He fought in the long and bloody battle at Beresteczko, June, 1651, in which the Cossacks and their allies, the Tartars, were defeated. The period of reverses which followed the defeat of the Poles under Kalinowski, at Batów, by the Cossacks, the incursions of these rebels, the invasion of the Muscovites from the east, of Charles Gustavus of Sweden from the north, and of Rákóczy, prince of Transylvania, from the south, called Czarniecki to greater activity. In 1655 he defended the castle of Cracow with the utmost bravery against the king of Sweden, but was compelled by want of food to surrender. After the repulse of the Swedes from Czenstochowa he collected the scattered remains of the Polish troops, formed the confederation of Tyszowce with John Sobieski and others, and commenced a brilliant and successful course of guerrilla warfare against the Swedes, who had conquered the greatest part of the country, and before whom the patriotic but feeble king, John Casimir, had fled to Silesia. In the early part

of 1656, with the assistance of 5,000 Tartars, he defeated them in 4 battles, brought back the king in triumph, and turned his arms with similar success against the Transylvanians. The dignity of palatine of Red Russia, and the title of "Liberator of Poland," were his reward. In 1658 he marched to the assistance of Frederic III. king of Denmark, who had invaded the German possessions of Sweden; he conquered the island of Alsen, took the command against the Russians, hastened to Lithuania, and won 2 great victories at Polonka, near Slonim, June 26, 1660, and on the banks of the Dnieper, over Chavanskoi and Dolgorouki. Peace was now conquered with Sweden (1660), and Moscow (1661). Having been made *starosta* of Tykocin, he undertook to chastise the Cossacks, who, incited and supported by the Russians, had again commenced their devastations (1663); and in order to procure the assistance of the Tartar khan he set out with only 13 horsemen, following the course of the Dniester, hastened through Bessarabia and the Ukraine to the Crimea, and defeated the Cossacks at Czehryn (1664), and Stawiszcze (1665). But these exertions exhausted him; returning to Tykocin, he could not be carried beyond the village of Sokolówka, where he died in a peasant's hut, having received a few days before the staff of hetman of the crown. In 1760 John Clement Branicki, his descendant, caused a statue to be erected to his memory.

CZARTORYSKI, the name of a Polish princely family, whose origin is traced back to Korygiello or Constantine of Tchernigov, son of Olgierd, duke of Lithuania, and half brother of Jagiello, the founder of the dynasty of that name in Poland (1386). The name is derived from the dominion of Czartorya, and the place Czartorysk near Luck in Volhynia. Of the 2 branches of the family, which belongs to the highest rank of nobility in their country, and boasts of a number of statesmen equally remarkable for wealth, talents, and patriotism, the male line of the younger branch, that of Korzek, became extinct in 1810, while the elder, that of Zukow, is still flourishing in a number of conspicuous persons of both sexes. To this elder branch belong the following historical persons: I. Michał Fryderyk, born in 1695, died at Warsaw, Aug. 13, 1775. He was made castellan of Wilna in 1720, vice-chancellor of Lithuania in 1724, and great chancellor of that duchy in 1752. Together with his brother and other nobles, he formed an influential party, which strove to bring about a reform of the constitution of Poland, which would strengthen the influence of the king and the judiciary, and restrain the anarchical independence of the high dignitaries of the crown. Their chief object was to change Poland into a hereditary kingdom, if possible under a Czartoryski. To counterbalance the influence of the reigning house of Saxony, as well as that of Austria, they courted the assistance of Russia, which by means of gold and bayonets, however, finally decided the matter in its own favor. II. August Alexander, brother of the preceding, born in 1697, died at Warsaw in 1782. He was palatine of Red Russia, and lieutenant-general of the army of the crown. He was a zealous coöperator with his brother, but was deceived in the expectation of seating his son upon the throne of his country. By activity and happy speculations he added greatly to the wealth of the family. III. Adam Kazimierz, son of the preceding, born Dec. 1, 1731, at Dantzic, died March 19, 1823, at Sieniawa in Galicia. He was chosen by the party which was headed by his father and uncle as candidate for the royal dignity after the death of Augustus III. (1763). To gain the assistance of Russia, Stanislas Poniatowski, whose mother was a sister of the 2 elder Czartoryskis, was sent to the court of St. Petersburg. But the empress Catharine II. determined to put the crown of Poland upon the head of her favorite Poniatowski himself. This determination being known, Czartoryski yielded his pretensions to his happier rival, to whom from his early youth he had been attached as a friend. At the assembly of the nation preceding the election, the Czartoryskis and their adherents appeared in great numbers at Warsaw, and together with them an army of Russians, sent to support the claims of Poniatowski. Adam Kazimierz was chosen marshal or president of the diet in spite of patriotic opposition roused by the presence of the Russians, and Poniatowski was elected king. After the first partition of Poland in 1772, Czartoryski, who possessed large estates in Galicia, accepted the commission of a general of artillery in the Austrian army, but still adhered to the party which worked for the restoration of the power of Poland through a constitutional reform, and distinguished himself by his zeal and activity at the long diet, which proclaimed the liberal constitution of May 3, 1791. He was also active in persuading the elector of Saxony to accept the hereditary succession to the crown of Poland, and Austria to engage in an alliance against Russia. But all these attempts failed; the confederation of Targovitza against the new constitution was assisted by the arms of Russia, Poniatowski deserted the cause of the reform, and in 1793 a new partition of Poland ensued. Czartoryski now retired and lived at Vienna during the great rising under Kosciuszko (1794), whom he persuaded not to extend the insurrection over the frontiers of Austria; which, however, did not prevent that power from taking its share at the final dismemberment of Poland in 1795. He took no part in the events which followed the treaty of Tilsit, and the creation of the duchy of Warsaw by Napoleon (1807); but in 1812 he accepted the marshalship of the confederation, preceding the invasion of Russia, which promised the restoration of ancient Poland. This illusion, however, soon vanished; Napoleon wanted the Poles, but no Poland, and the fatal issue of the great campaign foiled every hope. Czartoryski retired to Pulawy, but in 1815 headed a depu-

tation to the congress of Vienna, and presented to the emperor Alexander the outlines of a new constitution for the kingdom of Poland, now reorganized under his sceptre. Alexander made him senator palatine. IV. Elzbieta, wife of the preceding, born countess of Flemming in 1743, died in Galicia, June 17, 1835. She was distinguished by beauty, spirit, and patriotism, but also inclined to romantic extravagance. Having spent several years at court, and in travels in western Europe, which brought her into contact with the most remarkable personages of the age, she retired to Pulawy, where she constructed the admirable gardens of which Delille sings in the didactic poem *Les jardins*, and the temple of the sibyl, containing a collection of relics of Polish history. She was also active in promoting industry and education. She published "Ideas on the Construction of Gardens" (Breslau, 1807), and the "Pilgrim in Dobromil" (Warsaw, 1818), a popular book on national history, for the instruction of the agricultural class. Having survived the 3 partitions and 2 restorations of Poland, she proved her patriotism in the revolution of 1830–'31, but had the mortification to see her seat at Pulawy bombarded by her own grandson, the prince of Würtemberg, who served in the Russian army. She passed her last years with her daughter in Galicia. The collections of Pulawy were in part dispersed, and in part transported to St. Petersburg. V. Marya Anna, daughter of the preceding, born March 15, 1768, died at Paris, Oct. 24, 1854. In 1784 she was married to Louis Frederic Alexandre, prince of Würtemberg, but as he betrayed the cause of Poland in 1792, she left him and was divorced. Her mother in one of her letters characterizes her in these words: "A heavenly soul, an angelic character, a charming figure, talents, virtues, and many misfortunes—this is her history." In 1816 she published a romance, *Malwina*, which was translated into several languages. After the revolution of 1830–'31 she retired to Galicia. The estates of the Czartoryskis in the kingdom of Poland having been confiscated, her only son Adam, prince of Würtemberg, who had served against the Poles, offered her a pension, which she rejected in the following words: "Sir, I have not the honor of knowing you; I have no longer a son, and care little for fortune." VI. Adam Jerzy, brother of the preceding, born Jan. 14, 1770, completed his education in France and at the university of Edinburgh, fought bravely in 1792 against the Russians, in the Lithuanian army under Zabiello, and was sent in 1795 to the court of St. Petersburg, as a hostage for the fidelity of his family. There, being attached to the person of the grand duke Alexander, the future emperor, he became his intimate friend. In 1792 he was sent by the emperor Paul as ambassador to the court of Sardinia, whence he was recalled in 1802 by his successor Alexander, to assist him in the department of foreign affairs. This situation, which he accepted, and used for the benefit of his country, drew upon him a great deal of envy and patriotic censure on the part of some of his countrymen, which, however, his conduct gradually overcame. On April 11, 1805, he signed for Russia the alliance with England, and accompanied Alexander in the campaign in Austria, where he was present at the battle of Austerlitz. He also followed him to the campaign in Prussia, and after its termination to the conferences of Tilsit in 1807. The duchy of Warsaw having been created by the treaty then concluded, he left the service of the emperor and lived retired from public affairs till 1813, when he again accompanied Alexander to Germany, France, and the congress of Vienna. Made senator palatine of the new kingdom of Poland by Alexander, he appeared at its first diet, acting in behalf of liberal ideas. In 1821 he resigned the curatorship of the university of Wilna, which he had held since its organization in 1803, in consequence of the extraordinary persecutions to which a number of students, accused of conspiracy, had been subjected. The report of his successor Novosiltzoff, who accused him of having delayed for a century, through his management, the amalgamation of Lithuania with Russia, was an honorable testimony to his patriotism. He now more and more won the confidence and esteem of the nation, and after the outbreak of the revolution of Nov. 29, 1830, he was called to preside over the provisional government. He convoked for Dec. 18 the diet which proclaimed the independence of Poland, Jan. 25, 1831, when Czartoryski became president of the national government. This dignity, in which he sacrificed immense riches on the altar of the revolution, he laid down after the terroristic scenes of Aug. 15, to serve as a private soldier in the ranks of the army under Ramorino. After the surrender of that general in Galicia, and the fall of Warsaw (Sept. 1831), he shared the fate of the Polish emigration in France. He was excluded from the amnesty of 1831; his estates in the Russian Polish provinces were confiscated; those in Austria were sequestered in 1846 in consequence of a declaration in favor of the revolutionary movement which drove the Austrians from Cracow, but were restored in 1848. In March, 1848, he issued a proclamation calling upon the representatives of Germany and France to unite for the restoration of Poland. In April of the same year he abolished serfdom on his estates of Sieniawa. Being the choice of the monarchical party in the Polish emigration, and as such distinguished by some too zealous adherents with honors not convenient for an exile, Czartoryski was often the object of violent attacks on the part of the democrats, but together with his wife, Anna, princess of Sapieha (born in 1796), sustained his dignified position by a nearly regal munificence, which made his hotel in Paris a place of refuge for his suffering compatriots. He has 2 sons, Witold, born in 1824, and Wladyslaw, born in 1828, and a

daughter Izabella, born in 1832. VII. Konstanty, brother of the preceding, born Oct. 28, 1773, was sent in 1795 together with his brother as hostage to St. Petersburg, where he was attached to the person of the grand duke Constantine Paulovitch. Having returned to Poland, he was made colonel in the army of the duchy of Warsaw in 1809, and followed the army of Napoleon to Russia in 1812. After the retreat from Moscow he retired to Austria, and has since taken no part in public affairs. He has 4 sons.

CZASLAU. I. A circle or administrative province of Bohemia; area 1,260 sq. m.; pop. 247,087. It is traversed by the Moravian mountains, in which rise several tributaries of the Moldau and the Elbe. The high lands are well wooded, and the plains and valleys are extremely fertile. Gold, silver, iron, saltpetre, and precious stones, particularly garnets, are found in some districts. There are manufactories of cotton, woollen, and paper. II. Capital of the above circle, pop. 3,500, memorable for a victory over the Austrians gained by Frederic the Great, May 17, 1742. It has a church noted for its lofty spire, and containing the tomb of Ziska, the Hussite leader.

CZECZ, János, a Hungarian general, born at Zsidófalva, in Transylvania, in 1822, was attached in 1846 to the Austrian general staff, and in June, 1848, to the newly created Hungarian ministry of war, served successively under Mészáros in southern Hungary, as reporter of the revolutionary committee of defence headed by Kossuth, and under Bem in Transylvania, where he contributed to the reorganization of the army, as well as to the victories of that general. After the catastrophe of Világos, he succeeded in escaping to Hamburg and London. His "Transylvanian Campaign of Bem" (Hamburg, 1850) is a valuable contribution to the history of that eventful war.

CZEGLÉD, a large market town in the co. of Pesth, in Hungary, on the Pesth-Szolnok railroad, pop. about 15,000, situated in a fertile district which produces much grain, and some red wine. It has a Roman Catholic and a Calvinist church. The inhabitants are mostly Magyars, and agriculturists. The proximity of Kecskemét, Szolnok, and the Theiss, made Czegléd conspicuous during the Hungarian war of 1848–'49, particularly in Jan. 1849, when the offensive against the Austrians was recommenced under Perczel.

CZENSTOCHOWA, or Czenstochau, a town of Russian Poland, in the government of Kalisz, near the Prussian frontier, is situated on the Warta, and on the Cracow and Warsaw railroad line, and consists of the old and new town, and the suburb St. Barbara; pop. about 8,000, of whom about the 8th part are Jews. Its chief manufacture consists in chaplets and images made for the numerous hosts of pilgrims from all parts of Poland and other Slavic countries, who annually visit the shrine of the monastery of St. Paul, situated on the Klarenberg (Pol. *Jasna Góra*), between the old and new towns, and containing a dark brown image of the Virgin, the miraculous power of which is a matter of general belief among the Slavic people. The monastery, having been pillaged by the Hussites in the 15th century, was fortified, and afterward withstood in 1655 a siege of the Swedes of Charles Gustavus, who had occupied the whole country, and were here repulsed by a few friars; was bravely defended by the confederates of Bar under Pulaski in 1771, when the old town was reduced to ashes; was taken by the French in 1806, newly fortified by them in 1812, and finally given up to the Russians, who destroyed the fortifications.

CZERNIGOW. See Tchernigov.

CZERNOWITZ, Tchernowitz, or more properly Czernowice. I. A circle of Austrian Galicia, also called the Bukovina; pop. about 300,000. It is a mountainous but fertile region, comprising an area of 3,097 sq. m., covered with ridges of the Carpathian system, and everywhere broken into hills and valleys. It is watered by the Pruth and the Sereth. The chief productions are grain, cattle, swine, honey, wax, copper, and lead. There are vast forests of oak, beech, and other timber. The majority of the inhabitants are of Wallachian origin; the remainder are Germans, Russians, and Armenians. II. Capital of the above circle, pop. about 12,000, pleasantly situated on a hill overhanging the Pruth, contains a Greek cathedral, a gymnasium, and high schools. It is neatly built, with wide, clean streets, and gardens and vineyards attached to each house. The principal manufactures are of clocks, silver ware, hardware, and carriages.

CZERNY GEORGE, or Kara George (literally Black George, *czerny* in Slavic, and *kara* in Turkish, signifying black), the leader of the Servians in their insurrection against the Turks, and their chief during the first period of their national restoration, born about 1770, strangled and beheaded in July, 1817. Brought up as a peasant in one of the wild mountain regions of Servia, stern and robust, he evinced while a youth, according to the rather legendary relations of his early life, the courage and fanaticism of his race by the murder of a Mussulman. He served in the Austrian army in the war against Turkey, undertaken by Joseph II., together with Catharine II. of Russia, but soon left the service in consequence of insubordination, and fled into his native mountains, where he became the chieftain of a band of outlaws, who sought to satisfy their thirst for rapine and revenge by pillaging and murdering the Mohammedan oppressors of their country. Tired of this roving life, he reconciled himself with his colonel and followed him to Austria. Under the humane administration of Hadji Mustapha Pasha he returned to his home, where he acquired some property as a grazier, and great popularity by his energy. But the pasha was soon murdered by the janizaries, who now deposed the Turkish authorities and pillaged the Christian natives.

Threatened with the vengeance of the sultan, they resolved to obviate it by the massacre of all the leading Servians, which they executed in part in February, 1804. George and many others escaped and found refuge in the mountains, where they were soon joined by hosts of outlaws, ready to revenge the blood of the Christians. A general insurrection was prepared. George was urged by his companions to become its leader, but, conscious of his ignorance, for he could neither write nor read, he refused, declaring himself incapable of government. "We'll assist you with our advice," was their reply. "But I am of a violent spirit," said he; "instead of judging, I shall order men to death." "Well, in our circumstances we want rigor." George yielded, and did his best. He laid siege to Belgrade; his lieutenants took several strongholds of the janizaries. Sultan Selim, who was pleased with these victories over the seditious janizaries, ordered Bekir Pasha of Bosnia to aid the Servians. The janizaries were unable to resist the double attack; their chiefs took to flight, but were overtaken and beheaded. But instead of returning to their peaceful occupations, the Servians, emboldened by their success, continued in arms, sent a deputation to Alexander, the emperor of Russia, and, on his promise to support their claims, another deputation to Constantinople, asking that all the strongholds of the country should be surrendered to them, and a compensation paid for the losses they had suffered. George in the meanwhile attacked and took the last strongholds of the janizaries in the southern part of the country. These proceedings irritated the sultan; he ordered Hafiz, the pasha of Nissa, to march to Servia and disarm the insurgents; but being resisted by George, at the head of 10,000 men, the pasha speedily retired. In the spring of 1806 Servia was invaded by Bekir Pasha from the west, and by Ibrahim, pasha of Scutari, from the south. Thus pressed, George first strengthened his precarious position by the massacre of suspected national leaders, marched against the Bosnians, routed them, and then turned against Ibrahim, who had been checked in his course by one of his lieutenants, and was now ready for a cessation of hostilities. This was approved of by the sultan, who terminated the negotiations of peace by granting the Servians the national independence of their country under the suzerainty of the Porte, with the obligation to pay an annual tribute. But the execution of the stipulations still had to be enforced; Belgrade, Szabacz, and other places, were to be taken by assault, and these conquests were stained by wanton massacres of Mohammedans. In the summer of 1807 the Servians became masters of the whole of their country. George was elected its chief, and as such acknowledged by the Porte; but he had to struggle against the independent spirit of the military chiefs, and the opposition of the senate, many members of which leaned toward Russia, while he disliked that power. He overcame the difficulties by energy and rigor, which had the merit of being impartial. His only brother, having committed an outrage on a girl, was hanged, and his mother forbidden to mourn for him. This illustrates the character of this barbarous hero, of whom a tradition relates that in his youth, when he first determined to leave the country of his oppressors, he shot down his father, who refused to follow him. Generally he was gloomy and taciturn, but wine made him talk and even dance. He was simple in his habits; his dress was like that of other peasants; he himself performed the hardest labors of a husbandman, and his daughter, like other peasant girls, brought water from the well. But cruelty and avarice stained both his life and administration. In 1809 the war of Alexander against Turkey seemed to George a favorable opportunity for extending the limits of his country and reconquering its ancient possessions and power. Crossing the south-western mountains to unite with the Montenegrins, he laid siege to Novibazar, and then made an attempt to conquer the Herzegovina, when he was surprised by the rout of his lieutenants by an invading Turkish army. The intervention of a Russian corps alone saved Servia, but in the following year George was again successful, and repeated victories also secured for him an almost absolute power, which easily crushed every opposition. The divan now offered him propositions of peace, which he rejected, generously refusing to treat without his Russian allies; but Russia, threatened in its existence by Napoleon, hastened to conclude the treaty of Bucharest (1812), whose stipulations in behalf of Servia proved illusory. Thus suddenly deserted, George lost his wonted energy, sought for peace instead of preparing for a vigorous resistance, and made humiliating proposals. Even these were rejected, and the Turkish army entered Servia in June, 1813. Veliko, the Achilles of Servia, who tried to check their march, was killed by a cannon ball, and on Oct. 2 George allowed the Turks to cross the Morava before his eyes. Eager to save his life and treasures, he fled the next day beyond the Danube, and sought refuge in Semlin, and subsequently in Chocim in Bessarabia. The deserted Servian troops disbanded, and the Turks were again masters of Servia, which but slowly recovered a partial independence under the lead of Milosh Obrenovitch. In 1817, when the Greek Hetairia was secretly preparing a general insurrection in the northern provinces of the Ottoman empire, George was tempted to leave his retreat, and to return in secret to Servia. Having succeeded in reëntering it undetected, he repaired to the house of Vuitza, one of his ancient lieutenants, whence he besought Milosh to raise the banner of insurrection. But the new national ruler, cautious and afraid of a rival, informed the pasha of Belgrade of his presence, and that official demanded his head. The demand was complied with, Vuitza surrendered him, and the head of the man

who had so often made the Mussulmans tremble was sent to Constantinople, where it was exposed at the gate of the seraglio. But the memory of the deliverer remained dear to his nation, and after the revolution of 1842, which overthrew the house of Obrenovitch, his son Alexander, called Karageorgevitch, was elected prince of Servia. This prince, however, was deposed, after a reign of 16 years, by the Servian national convention in Dec. 1858, and Milosh Obrenovitch invited once more to undertake the government.

CZERNY, Karl, a German composer, born in Vienna, Feb. 21, 1791, died there, July 15, 1857. He received his musical instruction from his father, a teacher of the piano, appeared at the age of 9 in a concert, and became acquainted with Beethoven and afterward with Clementi. He pursued the profession of his father from 1805 to 1835, and visited London in 1836. Among his pupils are Liszt, Döhler, and other distinguished artists. He wrote an immense number of compositions, and several theoretical works, of which the "Practical School of Composition" (3 parts, London and Bonn, 1849), and the "Sketch of the History of Music" (Mentz, 1851), are the most remarkable.

CZUCZOR, Gergely, a Hungarian author, born Dec. 17, 1800, at Andód, in the county of Neutra. From 1825 to 1835 he was professor at the colleges of Raab and Comorn, an appointment conferred upon him by the Benedictine monks, of whose order he was a member; but after he had removed to Pesth, where in 1835 he was elected assistant librarian and keeper of the archives of the Hungarian academy, the monks found fault with the worldly character of some of his poetical writings, and he was compelled to relinquish his office and his public literary pursuits, and to become again an inmate of the monastery. In 1844 he became the editor of the academical dictionary, in which he had advanced to the letter I when the work was interrupted by the revolution of 1848. Czuczor embraced the popular movement with enthusiastic zeal, and became one of its martyrs, being sentenced in 1849 by the Austrians to 6 years' imprisonment, for his *Riadó*, a Hungarian Marseillaise. The president of the academy, Count Joseph Teleky, caused the irons with which he had been manacled to be taken off, and enabled him to resume his labors on the dictionary. After the capture of Buda, he was released from prison by the Hungarian army; but on the defeat of the revolution he preferred prison to exile, and gave himself up to the victors. He was transferred to the state prison of Kufstein, where he remained incarcerated until 1850, when he was pardoned. While at Kufstein, he devoted himself to his lexicographical labors and to a translation of Tacitus into Hungarian. His epical poems, the "Battle of Augsburg," the "Assembly of Arad," and "Hunyady," are among his most renowned productions. He has also published a translation of Sparks's "Life of Washington."

D

D, the 4th letter in the Phœnician system of writing, and in most of those derived from it, is the representative of the last of the 4 classes into which the sounds of human speech may be divided—A representing the 1st or faucal (vocal) class, B the 2d or labial, and C the 3d or guttural. The letters of this 4th, denti-lingual or lingui-dental class, viz., *d*, *t*, *s*, *z*, *l*, *r*, being visible signs of the articulated sounds produced by various movements of the tongue touching the teeth and gums, are, therefore, convertible into each other. And whereas, in consequence of the misunderstanding of the real character of human phonetism, and of its graphic representation, letters have been misapplied to sounds, the combination *th*, and even *g*, *j*, *ch*, have been and are used instead of the letters of the 4th class. D is the sonorous counterpart of T, and is produced by applying the tip of the tongue to the superior incisive teeth and to their gum, while the tongue, obliquely rising, obstructs the passage of the breath; then by suddenly withdrawing this obstruction, while the larynx resounds (oscillates) during the passage of the air through the glottis, the sound in question is exploded. When the larynx does not thus resound, we utter the harder T. The *l*, *r*, are strictly lingui-dental, and *d*, *t*, *s*, *z*, denti-lingual. The Hebrew name *daleth* (whence the Greek *delta*), signifying door, gate, has nothing to do either with the nature of the sound or with the figure of the letter, being merely used on account of its beginning with this sound. The figure of the letter is more or less triangular, and more or less rounded, while in many so-called alphabets it is a mere angle or crook. In Slavonic it occupies (erroneously) the 5th place, in Ethiopic the 19th, or counting the Amharic additions, the 24th. Its hieroglyphs are the segment of a circle, an open hand, a beetle, which designate both T and D. Moreau de Dammartin derives the figure from the northern triangle, and from the little triangle in the head of the ram in the zodiac. In Arabic there are 4 modifications of it, to wit: *dal* (4, as a numeral sign), the 8th letter; *dzal* (700), the 9th; *dhad* (800), the 15th; and *dha* (900), the 17th; but in Cufic writing only the first is used. The Dēvanāgari has two series of letters, each consisting of 5 (*t*, *th*, *d*, *dh*, *n*), one of which is named cerebral or lingual, and the other dental; most of the modes of writing employed in the middle and south of Asia follow this arrangement. In Mongolic and Man-

tchooric D is distinguished from T by a dot, as it is also in the runes. The Finns, Lapps, and other northern people, scarcely distinguish it from T. It is the only sonorous consonant with the Hurons, and was very prevalent among the natives of the Mexican plateau and in the Quichua of South America. It does not occur on Etruscan monuments, T being used in its place. Grimm exhibits the convertibility of the lingui-dentals as follows:

Greek.	Gothic.	Old High German.
Δ	T	Z
Θ	D	T
T	Th	D

This scheme is illustrated in some of the following examples:

Gr. θυγατηρ, Goth. *dauhtar*, old Ger. *Tochtar*, Eng. daughter. Gr. οδους, Goth. *tunthus*, old Ger. *Zant*, Eng. tooth, &c. Latin: quo*d*annis and quo*t*annis; tend*o*, tensum; prehend*o*, prehensum. Euphonic: pro*d*es, ανδρες, French gen*d*re, &c., instead of pro-es, ανρες, gen-re, &c. Wallachian, zece, Lat. *d*ecem; zi, *d*ies; orz, hor*d*eum. Ital. *T*rapani, Lat. *D*repana. D is ejected from the following: Ital. *a*ombrare, Lat. *a*dumbrare; *P*o, Lat. Pa*d*us, &c.; Span. *o*ir, *c*aer, *c*reer, Lat. au*d*ire, ca*d*ere, cre*d*ere; so in the French, *ou*ïr, *Juif*, *sueur*, Lat. au*d*ire, Ju*d*æus, su*d*or. L substituted for D: cica*l*a, Lat. cica*d*a; Span. co*l*a, Lat. cau*d*a; Portug. ju*l*gar, Lat. ju*d*icare; U*l*ysses, Οδυσσευς; *l*acryma, δακρυ, &c. R substituted for D: me*r*idies for me*d*idies; a*r*mesariu for a*d*missarius (stallion). D is lost in the following: Ital. *d*, *piè*, Lat. ad, pede, &c.; Span. *fé*, Lat. fides; *crú*, Lat. crudus. Ger. *Th*eil, *d*eal; gu*t*, goo*d*; Go*tt*, Go*d*; Blu*t*, blood, &c. Ital. dan*z*are, French dan*s*er, Ger. tan*z*en, Lat. ten*d*ere. Al*d*obrando, Ger. Al*t*-brandt; *T*ancredo, *D*ankrath, &c. Eng. *t*en, *t*ooth, *t*oken; Lat. *d*ecem, *d*ens, *d*ocumentum; Ger. *z*ehn, *z*ahn, *z*eichen, &c. Ger. *d*ick, *th*ick; *d*ünn, *th*in; *D*aum, *th*umb; *d*er, *d*ie, *d*as, *th*e. Lat. participle passive, *-a*tum, *-i*tum; Eng. *-ed*; Span. *-a*do, *-i*do, &c.

—D began to be used as a numeral sign for 500 about A. D. 1500, when the Dutch printers employed the IↃ in the ancient CIↃ (M), 1,000, combining those signs in the figure of D. D was used by the Romans in the following abbreviations: D. for Decius, Dominus, Divus, Deus, Dictator, Dacia, Digestum, &c.; D. D. for Decemvirorum decreto; D. D. D. for Decemvirorum decreto datum, also for Dat, donat, dedicat; d. for die, dabam (I wrote), &c.; D. M., Diis manibus; D. O. M., Deo optimo maximo. With the Catholics D is the dominical letter when the 1st Sunday in January falls on the 4th.—On the reverse of European coins D indicates Lyons in France, Aurich and Düsseldorf in Prussia, Grätz in Austria.—D in music denotes the 2d interval of the present German and English diatonic scale, or the 3d string of the chromatic scale; this was the *re* of Guido Aretino, and is the *la* of the French.

DA CAPO, in music (abbreviated by the letters D. C.), an Italian phrase signifying from the beginning, which is placed at the end of a piece to direct the performer to return to the beginning, and repeat the first strain.

DAA, Ludwig Kristensen, a Norwegian politician, born Aug. 19, 1809, filled an important position in the Norwegian parliament, became one of the leaders of the democratic party, founded in 1848 the *Christiania Posten*, and has published a Swedish-Norwegian dictionary, and various other works. He is an enthusiastic admirer of American institutions.

DACCA, a district of the presidency of Bengal, in British India, between lat. 23° 12′ and 24° 17′ N., and long. 90° 11′ and 90° 58′ E.; area, 1,960 sq. m.; pop. 600,000. It is an almost entirely level country, traversed by numerous rivers, which abound with fish. Of wild animals, the district possesses the elephant, buffalo, tiger, bear, and leopard; of wild birds, the fishing eagle, vulture, kite, adjutant bird, and crane. The porpoise is seen in the large rivers, where the sharp-beaked crocodile and the blunt-beaked crocodile are also found. Snakes are numerous. The domestic animals are kine and buffaloes. The grain crops are not sufficient for the local consumption. Sugar, betel-nut, hemp, indigo, and other dyestuffs, are produced to some extent. The cotton product has considerably declined since the closing of the fine muslin manufactories at Dacca, and the attempts to introduce American cotton have not been successful, owing to the myriads of insects which destroy the bolls. The British authority was established consequent upon the grant of the dewanny, in 1765, but a small allowance continues to be made to the female connections and dependants of the last of the nawaubs of Dacca. In the N. part of Dacca are 2 distinct tribes, the Kunch and Rajbansi, more vigorous and daring than the rest of the population, which is about equally divided between Brahmins and Mussulmans; the latter, however, being considered more numerous. The projected line of the eastern Bengal railway intersects this district.—Dacca, the capital of the above described district, is situated on the Burha Gunga, an arm of the Brahmapootra, 150 m. N. E. from Calcutta, and 116 m. E. S. E. from Moorshedabad; pop. estimated at less than 70,000, of whom more than half are Mussulmans. It was once a considerable and wealthy city, being the centre of the manufacture of the famous fine muslins exported hence to all parts of the world. The operation of spinning the almost impalpable threads for these goods was carried on entirely by hand, and could only be done in the morning before the dew was off the ground, or over running water. Young women spun with their fingers and a fine steel spindle. The muslins, named from their fineness *abrawan*, or "flowing water," and *shabnam*, or "evening dew," were never imitated elsewhere, and were sold alone to princes and the very wealthy. With the decay of the Indian courts, the chief customers, the demand has ceased, and the manufacture has entirely stopped. Dacca exhibits at the present day little more than a vast expanse of ruins, extending for several miles along the river bank, and in many places overgrown with dense jungle, infested with snakes and wild beasts. The streets of the inhabited part are narrow and winding; the houses of the wealthier classes are built of brick, but the bazaars and the cottages of the poor are only thatched. The extensive citadel, situated on the western side of the town, and the magnificent palace built by Aurungzebe's grandson, Azim Ushaun, toward the close of the 17th century, are both in ruins.

The city and suburbs are stated to possess 10 bridges, 13 landing places (ghats), 7 ferry stations, 12 bazaars, 3 public wells, a variety of buildings for fiscal and judicial purposes, a gaol and gaol hospital, a lunatic asylum, an Indian hospital, an elephant depot generally containing 200 to 300 elephants, 180 Mussulman mosques, 119 Brahminical temples, Anglican, Greek, Armenian, Catholic, and Baptist churches. The latter denomination maintains a missionary establishment and a number of schools. There is a college managed by a local committee, but under the control of the government. About $60,000 was paid over to the city in 1850, as a bequest of Mr. Robert Mitford, for the benefit of the poor native inhabitants. The climate here is not so hot as in other parts of India, owing to its being situated in a low, moist, and verdurous region of country. The unhealthy season is from Aug. 20 to Oct. 10. During the rest of the year the city and vicinity are salubrious. The military, however, stationed in the vicinity of the city, were removed in 1852, owing to the unhealthiness of the locality; but in 1857 there were 2 companies of the 73d regiment Bengal native infantry here, whom the authorities, on hearing of the rising at Chittagong, Nov. 18, resolved to disarm. This was not effected without bloodshed. The Sepoys held some pieces of artillery, and a sharp contest took place at the barracks, from which they were finally driven out with loss by a few volunteers and 100 English sailors. The mutineers, after plundering several villages, hastened to Jelpigoree, the head-quarters of their regiment, where they were routed by their own comrades, and driven off to perish miserably in Bhotan.

DACCA JELALPOOR. See Fureedpoor.

DACE, a name applied to several native and foreign cyprinoid fishes, belonging principally to the genus *leuciscus* (Klein), which, as far as the North American species are concerned, has been subdivided into the genera *argyreus* (Heckel), *leucosomus* (Heckel), *plargyrus* (Rafinesque), *Richardsonius* (Girard), *luxilus* (Raf.), *semotilus* (Raf.), *mylocheilus* (Agass.), *algansea* (Gir.), *hybognathus* (Agass.), *ptychocheilus* (Agass.), *Hudsonius* (Gir.), *hybopsis* (Agass.), *clinostomus* (Gir.), *ceratichthys* (Baird), and *chondrostoma* (Agass.). From this long array of new genera, it is evident that it will be impossible in this article to give any thing like a satisfactory account of the numerous species popularly called dace. For full particulars, the reader is referred to the "Proceedings of the Academy of Natural Sciences, Philadelphia," vol. viii. p. 165, Sept. 1856. The true *leucisci* are far more numerous in the old world than in the new. As a species of this genus may be mentioned the orange dace (*L. croceus*, Storer), about 3½ inches long, of a greenish color, with the throat flesh-colored, an indistinct brown band on the side running longitudinally with a small black blotch at the end, and the fins orange; from Alabama. These genera belong to the malacopterygian or soft-rayed fishes; the mouth is slightly cleft, the jaws weak and without teeth, and the pharyngeal bones toothed; the body scaly, one dorsal fin, and no adipose dorsal; sometimes with barbels on the head. The name of shiner is also given to many of the species called dace. The roach dace, or silvery dace (*leucosomus pulchellus*, Storer), is among the largest species, being sometimes 14 inches in length; the color is dark brown above, the upper portion of sides brassy green, lower portion and abdomen flesh color, with golden reflections; the head is black above, with the gill covers coppery, the upper jaw slightly the longer. It delights in eddies and pools, and is found from New York to Nova Scotia. It is synonymous with *cheilonemus* (Bd.), and has 5 described species; there is a small barbel upon the maxillary, near the angle of the mouth. The black-nosed dace (*argyreus atronasus*, Mitch.) rarely exceeds 3 inches in length, is found in the rivers of Massachusetts and New York, and is often called brook minnow. It is reddish brown above, abdomen silvery white, with minute brown blotches, a dark band passing from the nose to the tail. The natural characters of the genus are a snout more or less protruding beyond the lower jaw, with a small barbel at the angle of the mouth; it is synonymous with *rhinichthys* (Agass.). The long-nosed dace (*A. nasutus*, Ayres) is about 4 inches long, inhabiting rapid northern streams; it is dark brown above, white below, with the dorsal and caudal fins brownish. The smaller specimens of the last 2 species make excellent bait for large trout. Seven other species are described. The red dace (*plargyrus cornutus*, Mitch.), one of the prettiest of the American cyprinoids, is about 5 inches long, blackish brown above, with metallic reflections, sides brilliant and cupreous, all the fins and opercles margined with crimson; the jaws are equal, and there are no barbels on the head; the scales are very large and imbricated. This is a very active fish, is common in streams frequented by brook trout, and is frequently taken by fly-fishers for the latter species; it is often eaten in the British provinces, and is in the best condition in May. This genus is synonymous with *hypsolepis* (Bd.), and contains 6 other described species. The golden and flat dace belong to the genus *luxilus* (Raf.), and species *L. Americanus* (Lacép.), and *L. compressus* (Raf.); 5 other species are described; no barbels on the head. The lake dace is *semotilus atromaculatus* (Mitch.), about 10 inches long; 4 other species are described. The north-west dace is *mylocheilus caurinus* (Rich.), about a foot long, discovered in the Columbia river; it has a maxillary barbel; there are 2 other species. The Columbia river dace is *ptychocheilus Oregonensis* (Rich.); it is more than a foot long, brownish above, silvery white below; there are 4 other species. The shining dace of Lake Champlain is *hybognathus nitidus* (De Kay), only 2 inches long; there are 4 other species. Storer's dace, a western species, about 8 inches long, is *hybopsis Storerianus* (Kirtland); there is also a southern

species (*H. Winchelli*, Gir.). The common dace of Europe is the *leuciscus vulgaris* (Cuv.), inhabiting the deep and still water of the streams of Great Britain, France, Germany, and Italy; it rarely exceeds 10 inches in length; the prevailing color is dusky blue above, becoming paler on the sides, and white on the abdomen; cheeks silvery; dorsal and caudal fins pale brown; the other fins nearly white, tinged with pale red. They are gregarious, swimming in shoals, and spawning in June; they feed on worms and insects, but, like the trout, will rise at an artificial fly. The flesh is not much esteemed as food, and it is principally used as a bait for pike-trolling, on account of its silvery brightness. The shining scales of the roach and other dace are employed in the manufacture of artificial pearls, being attached to the inner surface of the transparent shell.

DACIA, a province of the Roman empire, bounded N. by the Carpathian mountains, which separated it from Sarmatia, S. by the Danube (Ister, Danubius), which separated it from Mœsia, E. by the Pruth (Hierasus) and the Euxine, and W. by the Theiss (Tibiscus, Tysia). It thus comprised a part of Hungary, with the banat of Temesvár, Transylvania, Wallachia, and Moldavia. According to some it included N. E. the Bukovina, and E. Bessarabia. Before the Roman conquest, which was the last aggrandizement of the empire in Europe, this country was the habitation of the Daci, a brave people, probably of Thracian race, called by historians the most warlike of men, and, according to some, identical with the Getæ, who at the time of Darius's Scythian expedition lived between the Balkan and the Danube. Strabo speaks of the Getæ as living in the E., and of the Daci as living in the W. part of the country. In the reign of Augustus they crossed the Danube, plundered the allies of the Romans, and spread terror even among the latter, but were finally driven back into their own country. Under their king Decebalus they compelled Domitian, after a protracted struggle, to purchase an ignominious peace by an annual tribute. The emperor, however, decorated himself with the title of Dacicus. Trajan refused to pay the tribute, and renewed the war. Decebalus proved himself a rival not unworthy of this emperor, and ended the struggle with his life (A. D. 106), only after having exhausted every resource both of valor and policy. The new province was colonized by inhabitants from all parts of the empire, with whom the Romanic language of the modern Wallachians, both in Transylvania and the Danubian principalities, originated. Notwithstanding the resolution of the successors of Trajan to contract the limits of the empire, Dacia still remained one of its provinces. In the 3d century it was invaded by the Goths, and resigned to them by the emperor Aurelian, who removed the Roman inhabitants to Mœsia, giving the name of Dacia to that part of the latter province in which they settled.

DACIER, Anne (Lefèvre), a learned French woman, born in Saumur in March, 1654, died Aug. 17, 1720. She was the daughter of the distinguished scholar Tanneguy Lefèvre, and acquired her first instruction from overhearing the lessons given by her father to his son. Lefèvre, amazed at the extent of the information she had thus acquired, devoted every care to her education, and at his death, in 1672, she was one of the most accomplished scholars in Europe. In that year she went to reside in Paris, where in 1674 she published an edition of Callimachus. The reputation acquired by this work procured her an invitation to assist in editing the celebrated classical series *Ad usum Delphini*, ordered by Louis XIV. for the use of the dauphin. In the discharge of this duty she prepared editions of Florus, Eutropius, Aurelius Victor, Dictys Cretensis, and Dares Phrygius. In 1683 she was married to André Dacier, a man of learning not inferior to her own, and a favorite scholar of her father, under whose instruction they had for many years been fellow pupils. This union was called "the marriage of Greek and Latin." Two years afterward they both abjured Protestantism, and received from the king a pension of 2,000 livres. Madame Dacier thenceforth devoted herself no less assiduously to literary pursuits, and during the remainder of her life produced translations of several plays of Plautus, the whole of Terence, the Iliad and Odyssey of Homer, the "Plutus" and "Clouds" of Aristophanes, and the whole of Anacreon and Sappho. The translations from Homer involved her in a literary war with M. de la Motte and others, concerning the comparative merits of ancient and modern literature, which she conducted with ability and enthusiasm, if occasionally with warmth. She also assisted her husband in the translation of Marcus Antoninus and Plutarch's "Lives." She was distinguished for modesty and amiability, and amid her engrossing literary avocations neglected no domestic or maternal duties.—M. Dacier, born at Castres in 1651, was equally industrious as an editor and translator of classical authors. Among the works translated by him, in addition to those mentioned, were Aristotle's "Poetics," the "Œdipus" and "Electra" of Sophocles, the works of Hippocrates and Horace, and some of Plato's dialogues. He was one of the scholars engaged in preparing the Delphin editions of the classics, and his only contribution to it was an edition of Pomponius Festus and Valerius Flaccus. He was keeper of the library of the Louvre, and a member of the French academy. He died 2 years after his wife, whose death left him almost inconsolable.

DACOTAH, or Dakota, a territory of the United States, lying between lat. 42° 30′ and 49° N., long. 96° 30′ and 103° W., bounded N. by British America, E. by the states of Minnesota and Iowa, S. and W. by Nebraska; length from N. to S. about 450 m., average breadth about 200 m.; area, 70,000 sq. m.; pop. in 1858 estimated at 10,000, exclusive of Indians, but including about 4,000 half-breed settlers, who live chiefly by the

chase. The latter occupy a number of trading stations along the Missouri river in the S. and S. W. parts of the territory, and in the valley of Red river, near the British frontier. The Indians belong to the Yankton, Sissiton, Dacotah or Medawakantwan (Sioux), and Wahpetonwan (Sioux) tribes, many of whom receive an annuity from the U. S. government, but the efforts made to improve their condition have thus far had little effect. In 1858 delegations from these tribes met in Washington, and ceded to the government valuable agricultural lands on the Sioux, Missouri, and Red rivers. The white settlements are almost exclusively in the south-east, on the Minnesota border. The surface of the territory is elevated, but not mountainous. A plateau called the *coteau des prairies*, or "prairie heights," with an average elevation of 1,450 feet above the sea and a breadth of 15 or 20 m., runs for 200 m. near its E. boundary, while a similar table-land, of less height, occupies the middle and N. portions. The basin of Red river, in the north-east, is covered with open grassy plains, and the south-west presents high rolling prairies. The face of the country is moreover pleasantly diversified with a vast number of lakes and ponds, affording a constant supply of good water. The largest of these are lakes Tchanchincanah, Poinsett, Abert, Preston, Traverse, and White Wood, beside Benton and Big Stone, which lie partly in Minnesota. In the N. part is a large expanse of salt water, 40 m. long and 12 m. in maximum breadth, called Minni Wakan, or Devil lake, of which no outlet has yet been discovered. More than half of the frontier of Dacotah is bounded by large rivers. The Missouri after receiving the White Earth separates it from Nebraska, and at the S. E. extremity of the territory is joined by the Big Sioux, dividing it from Iowa. The N. half of the Minnesota line is formed by the Bois des Sioux and the Red river of the North, the latter of which flows into British America. These streams receive innumerable smaller rivers, the chief affluents being, of the Missouri, the Yankton, East Medicine Knoll, Wananri, Tchan-sansan or Rivière à Jacques, Vermilion; and of the Red river, the Bois des Sioux, Wild Rice, Shayuen, Maple, Rush, Goose, Turtle, Buffalo, and Pembina. The Tchan-sansan (also called the James or Dacotah) rises near Devil lake and flows almost due S. through the middle of the territory, receiving numerous tributaries. The Mouse river enters from British America, and, after a long sweep through the N. W. part, recrosses the frontier. The climate of the south is mild and healthy, but that of the north is very severe. At Pembina, near the 49th parallel, the cold is sometimes so intense as to freeze quicksilver, and according to observations made there in 1847, the mean temperature of the month of January was 12½° below zero, the lowest 48° below, and the highest 30° above zero. The mean temperature of June and July was 69°, and the highest 96°. The soil of the S. and S. E. parts is said to be excellent, and the valleys of the Red, Missouri, and other rivers are highly productive, yielding Indian corn, oats, wheat, tobacco, the sugar cane, and nearly every kind of kitchen vegetable. Much of the land is well timbered. Coal is said to abound on Big Sioux river, fine building stone, limestone, and good clay for brick making are found in the south, and the north contains rich deposits of salt. There are good roads from Sioux City, at the mouth of the Big Sioux, as far N. as Medary, on the same stream, a distance of 180 miles, where they meet the great Pacific wagon road which crosses the territory, and from which other roads diverge in many directions. The unexplored parts of Dacotah are the hunting ground of the Indians, and are still ranged by vast herds of buffalo, elk, deer, and antelope; the black bear, wolverine, muskrat, otter, mink, marten, and wolf are found in large numbers; the grisly bear and moose are occasionally met with, and the fur trade is prosecuted by the half-breeds of the north more extensively than in almost any other part of the United States. Dacotah formed part of the territory of Minnesota, from which it was separated on the erection of the latter into a state, May 11, 1858. The inhabitants elected a legislative assembly, which met at Sioux Falls in Oct. 1858, adopted a code of laws, divided the territory into counties, and applied to congress for its formal organization.

DACOTAH, a S. E. co. of Minnesota, bounded N. by the Mississippi, N. W. by St. Peter's or Minnesota river, and S. E. by the Cannon; area, 550 sq. m.; pop. in 1857, 8,158. The surface is nearly level and the soil fertile. Indian corn, wheat, oats, and grass are the staples. Capital, Mendota.

DACTYL, in prosody, a metrical foot composed of one long and two short syllables; thus, *tĕmpŏrā*. It was esteemed by the Greeks the most ancient of all the poetical feet, and its origin was ascribed to Bacchus, who was said, anterior to Apollo, to have recited the oracles of Delphi in verses of this measure. It enters into the composition of the noblest verses, as hexameters, pentameters, and alcaics.

DACTYLOLOGY, the art of communicating with others by spelling words with the fingers. By whom or at what period this method of conversation was first devised is uncertain. The first manual alphabet of which we can find any account was published by J. P. Bonet in 1620, in his "Reduction of Letters and Arts, for the Purpose of Teaching the Dumb to Speak." Of this he claimed to be the inventor. It was the basis of the single-handed alphabet now in general use in this country and France, though it has been somewhat modified. The idea of this alphabet is the formation of figures resembling the several letters by the position of the fingers of the right hand. In 1680 George Dalgarno, of Oxford, Eng., published his *Didascalocophus*, in which he gave a drawing of a manual alphabet invented by himself requiring the use of both hands. The design of this was to

designate the different letters, not by their form, but by their position on the ends and joints of the fingers and the hand; thus, the vowels were designated by touching the ends of the thumb and fingers of the left hand with the fore finger of the right; B, C, D, F, and G, by touching the 1st joint of the thumb and fingers; H, K, L, M, N, the 2d joint; P, Q, R, S, the 3d joint of the fingers; T, V, W, the 3 prominences of the inside of the hand immediately below the fingers; and X and Z, the base of the thumb and hand. All the consonants were designated by touching their location with the thumb of the other hand. This, with some modifications, is the alphabet in use among deaf mutes in England. Numerals are also designated by the fingers. The 10 digits undoubtedly formed the first abacus, but for purposes of convenience it is preferable to be able to designate all the numbers by one hand only. Mr. Stansbury, the first principal of the New York institution for the deaf and dumb, invented a method of designating numbers, which is in general use in European institutions. It is as follows: the thumb free with the hand closed denotes 1, the thumb and forefinger 2, and so on to 5; 6 is designated by the little finger being extended with the remainder of the hand closed; 7, the little finger and ring finger; 8, the little, ring, and middle finger extended; 9, the 4 fingers extended and the thumb closed; 10, the whole hand closed. For tens, the position of the hand is changed from perpendicular to horizontal; for hundreds, the hand is pointed downward; for thousands, the left hand is placed across the body toward the right shoulder, and each sign has then the value of thousands; tens of thousands and hundreds of thousands are designated in the same way as tens and hundreds; by changing to the left shoulder millions, tens of millions, and hundreds of millions may be designated. This system has been modified in American institutions by designating 6 by touching the thumb to the little finger; 7, by touching it to the ring finger; 8, to the middle finger; 9, to the fore finger; and 10, by placing the closed hand horizontally with the thumb extended and making a slight backward motion of the hand. De Gerando, in his work on the education of deaf mutes, says with truth that dactylology is to alphabetical writing what the latter is to speech. Formed upon writing as its model, it represents it precisely as writing represents words. It is a valuable means of communication with deaf mutes, and although less rapid than speech and possessing none of those qualities of the voice by which we judge so much of the person speaking, it yet serves to convey the ideas of those who but for its aid might often be desolate even in the midst of a crowd. It affords the means of communication between the deaf and dumb and the blind, as well as between deaf and dumb persons in darkness. It should not be confounded with the natural language of signs used by the deaf and dumb. The latter is not, and, in the nature of the case, never can be used, except for expressing words or ideas; the manual alphabet only designates letters, or, at most, syllables. Syllabic dactylology has been used by several teachers, but is attended with many difficulties. Péreire invented a system which he used with great success, but it perished with his papers. Several attempts have been made to introduce it within a few years past, and plans have been presented for adoption; but at the meeting of the convention of teachers of the deaf and dumb at Staunton, Va., in 1856, the committee appointed to report upon them were unanimous in the opinion that they were impracticable.

DADE, the name of counties in several of the United States. I. A N. W. co. of Ga., bordering on Tenn. and Ala.; area, 160 sq. m.; pop. in 1852, 2,527, of whom 182 were slaves. It occupies Lookout valley, and is encompassed by mountains of considerable height. Iron, coal, and other minerals are found in various parts of the county. The productions in 1850 were 147,849 bushels of corn, 17,965 of wheat, and 15 bales of cotton. There were 15 churches, 2 flour mills, 2 saw mills, and 1 iron forge. Value of real estate in 1856, $375,510. Named in honor of Major Francis Langhorne Dade, who was killed in the Florida war, in December, 1835. Capital, Trenton. II. A S. co. of Florida, bordering on the Atlantic; area, about 1,000 sq. m.; pop. 150. The surface is low, level, and almost wholly occupied by the Everglades, a vast expanse of shallow water, dotted over with innumerable small islands. Proposals have been made to drain these portions of the county by means of canals. During the rainy season they are quite impassable. The county has one good harbor for vessels drawing 9 feet of water, and on Cape Florida, at the entrance to this harbor, is a lighthouse. Indian Key is the principal village. III. A S. W. co. of Mo., with a diversified surface and a productive soil; area, 498 sq. m.; pop. in 1856, 6,061, of whom 267 were slaves. In 1850 it yielded 325,958 bushels of corn, 11,371 of wheat, 105,545 of oats, and 588 tons of hay. Sac river, a tributary of the Osage, is the principal stream. There were 4 grist mills, 5 saw mills, and 223 pupils attending public schools. Capital, Greenfield.

DÆDALUS, a mythical personage, under whose name the ancient Greek writers are supposed to have personified an early period of the development of the arts of sculpture and architecture, or their introduction from Egypt. He is generally represented as an Athenian of the royal house of Erechtheus, though, from his long sojourn in Crete, he is also called a Cretan. Having become a great sculptor, he instructed in his art Calos, Talus, or Perdix, his sister's son, but afterward killed him through envy, when he saw the skill of his disciple surpassing his own. Condemned to death by the areopagus, he fled to Crete, where he gained the friendship of Minos, but having constructed the wooden cow for Pasiphaë, and the labyrinth of Cnossus, in which the Minotaur, the monster

to whom she gave birth, was kept, he attracted the revenge of the king, and was imprisoned. He was released by Pasiphaë, and finding no vessel to escape from the island, as Minos had seized all those which were on the coast, he procured wings for himself and his son Icarus, which were fastened on with wax. He took his flight over the Ægæan, and arrived safely in Sicily; but Icarus flying too near the sun caused the wax on his wings to be melted, dropped down, and perished in that part of the sea which, after him, is called the Icarian. According to some, Dædalus on his flight alighted at Cumæ in Italy, where he erected a temple to Apollo, dedicating to that divinity the wings which had saved him. When Minos knew his place of refuge, he sailed with a fleet to Sicily, where he was treacherously murdered by Cocalus, king of the Sicani, who protected the fugitive; or according to others, he was protected by the daughters of that king. Several works of art in Greece, Italy, Libya, and the islands were attributed to Dædalus, as well as the invention of several tools belonging to his art. The Greeks gave the name of *Dædala* to certain ornamented wooden statues or images of their gods.

DAENDELS, Herman Willem, a Dutch general, born at Hattem in 1762, died in Guinea, on the coast of Africa, in June, 1818. During the troubles which convulsed the United Provinces in 1787 he favored the party of the patriots, and was obliged by the momentary triumph of the Orangists to take refuge with many of his political friends in France. He devoted himself for a while to commercial enterprises in the city of Dunkirk, but became commander of a corps of volunteers in the wars of the French revolution, and rendered important services to Dumouriez in his expedition against the Netherlands. In 1794, having assisted Pichegru in taking possession of all Holland and in causing the flight of the Orange family, he entered into the service of the Batavian republic. In 1799 he commanded one of the divisions of the Batavian army, and, in conjunction with Gen. Brione, obliged the Anglo-Russian force, which had made a descent on the Dutch coast, to capitulate. In 1803 he resigned; but in 1806 he offered his services to the king of Holland, and was restored to his former rank. He was soon after made a marshal, and appointed governor-general of the Dutch possessions in the East Indies. He resided upon the island of Java for 3 years, devoted his attention particularly to the cultivation of coffee, and gave an account of his administration in a work full of valuable information as to the statistics and moral state of the island. After his return from the Indies he served in the Russian campaign of 1812, and as governor of Modlin in Poland. He was next appointed to take possession of the provinces of Guinea, which had been restored to Holland, and to organize their administration. He entered with energy upon this duty, conciliated the neighboring negro states, favored the establishment of new colonies, and mitigated as far as he was able the treatment of the slaves. He died in the midst of these labors.

DAFFODIL, the old English name given to the *narcissus pseudonarcissus* and its allies, popular garden flowers, commonly known as bulbous roots. The hardiest as well as earliest of the daffodils is the *N. pseudonarcissus* (*flore pleno*), whose double, yellow, and conspicuous blossoms visit us as soon as the snow leaves the ground. Later the poetic narcissus or white daffodil, both the single and double kinds, add to the charms of spring and breathe forth a pleasant and inviting odor. Several beautiful kinds are largely cultivated, some of which are styled polyanthuses, from the many-stalked blossoms, white or yellow, crowning the scape or flower stem. The bulbs are imported from Holland, and are generally hardy.

DAGGETT, David, LL.D., an American lawyer and judge, born at Attleborough, Mass., Dec. 31, 1764, died at New Haven, Conn., April 12, 1851. He was graduated at Yale college, with high honor, in 1783; was admitted to the bar in New Haven in 1786; was chosen representative to the legislature in 1791; speaker, in 1794; and was a member of the council, or upper house, from 1797 to 1804, and again from 1809 to 1813. In 1811 he was appointed state's attorney for New Haven county, and in 1813 was chosen to the U. S. senate, where he continued till 1819, when he returned to his extensive practice at the bar in his adopted state. In 1824 he became instructor in the law school in New Haven; in 1826 was appointed Kent professor of law in Yale college; and in the same year was chosen judge of the superior court, and received the degree of LL.D. from Yale college. In 1832 he was made chief justice of the supreme court of the state, retiring by limitation of age in 1834. Judge Daggett was a man of quick and thorough insight both into subjects and men; of well balanced judgment and strong common sense; of varied eloquence and great power as a speaker; thorough in his knowledge of law; of accurate and retentive memory; abounding in wit and humor; and commanding universal confidence by his abilities, judgment, and general character. As an advocate and counsellor, he has had few equals. In social life he was a model of dignified courtesy; and yet, by his sympathy alike with old and young, his cheerfulness, and his varied fund of anecdote and reminiscences of the past, was the life of every circle that he entered. A sketch of his life and character, by the Rev. Dr. Dutton, was published in 1851.

DAGGETT, Naphtali, D.D., an American clergyman, born at Attleborough, Mass., Sept. 8, 1727, died at New Haven, Conn., Nov. 25, 1780. He was graduated at Yale college in 1748; in 1751 was ordained pastor of a Presbyterian church in Smithtown, Long island; and in 1755 was chosen professor of divinity in Yale college, which office he held at his death. On

the resignation of President Clap, in 1766, he was chosen president *pro tempore*, and in this capacity officiated for more than a year. In 1774 he received the degree of D.D. from the college of New Jersey. He was a good classical scholar, well versed in moral philosophy, and a learned divine. He published several sermons; and also, in 1780, some account of the celebrated "dark day," which alarmed so many in New England with the fear that the day of judgment was at hand. In July, 1779, when the British attacked New Haven, Dr. Daggett, fowling piece in hand, went forth in gallant style to the fight, was taken prisoner, and compelled, in an intensely hot day, to act as guide to the advancing columns of the enemy, while they repeatedly pricked him with their bayonets when his strength failed. He never fully recovered from this treatment.

DAGH, a word in the Tartar languages signifying mountain; thus, Daghestan, land of mountains; Keshish-dagh, the modern name of Mt. Olympus.

DAGHESTAN, the country comprising all the E. slope of the Caucasus toward the Caspian sea, from the Terek river to the peninsula of Apsheron, between lat. 41° and 43° N.; area, 17,500 sq. m.; total pop. estimated at nearly 2,000,000. The Kasbek or Mquinvari mountain, 14,500 feet high, is about the western terminus, and also the highest point of the country. The mountains of original formation are extremely rugged, the climate in the higher regions severe, though the Kasbek is the only peak reaching to the line of eternal snow; the narrow valleys, deeply imbedded, are rather fertile, productive of grains, rice, millet, saffron, fruit, nuts, wine, and fine timber; the iron, lead, and sulphur mines are developed, but not beyond the purpose of supplying the necessities of war, and the weapons manufactured here are justly celebrated. Cattle are raised in large numbers, as well as excellent horses, asses, camels, and a species of fat-tailed sheep. Daghestan is the abode of the powerful tribe of the Lesghians (the Albani of antiquity), numbering about 400,000, chiefly Mohammedans of the Soofee sect. The Lesghians are still independent of Russia, to which their country nominally belongs. Further down in the hilly region live Tartar tribes of Mongol descent, called Kumyks, Nogaians, and Truchmenes (Turkomans), all of them Mohammedans, and more or less nomadic, living principally by the raising of cattle and horses. A few towns of some commercial importance are situated along the Caspian coast, which is flat, marshy, or sandy, and in many portions not well watered. The Kumyks are allies of the Lesghians against the Russians; the remainder are peaceable Russian subjects. The territory of Daghestan which constitutes the Russian province of that name comprises an area of only about 6,000 sq. m., and a population in 1851 of 479,042. It is divided into 4 districts. The great rising against the Russians in 1820 commenced with a campaign in Daghestan. (See CAUCASUS.)

DAGO, DAGÖE, or DAGDEN, an island belonging to Russia, in the Baltic sea, near the entrance of the gulf of Finland, opposite to the island of Oesel, from which it is separated by the Sele-Sund. Its greatest length is 37 m. and greatest breadth 15 m. It is comprehended in the province of Esthonia. The inhabitants are 10,000 in number, chiefly Swedes, and employed in husbandry, rearing cattle, and fishing. The soil is principally of sand or chalk, and unfertile, and the cattle are of an inferior stunted breed. Dago was held by the Danes prior to 1645, and by the Swedes from that time till 1791, when they ceded it to Russia.

DAGOBERT I., a Frankish king of the Merovingian line, born about 600, died at Épinay, Jan. 19, 638. The son of Clotaire II., he was, as early as 622, acknowledged king of Austrasia. On the death of his father in 628 he inherited Neustria and Burgundy, and 3 years later he reannexed to those kingdoms Aquitania, which had been inherited by his brother Charibert. He thus reigned over the whole of the Frankish dominion, and successfully opposed the encroachments of the Frankish lords, repelled an invasion of the Vascones, and forced the Bretons to acknowledge his supremacy. His court was renowned for a magnificence almost equal to that of Constantinople. He was liberal toward the church, and founded several monasteries which he richly endowed, including the abbey of St. Denis. The goldsmith Eligius, who was afterward canonized, was one of his ministers, and greatly contributed to the splendor of his reign. One of the king's most meritorious acts was the revision and publication of the old national statutes, known as the Salic and the Ripuarian laws. His fame is marred by an atrocious act of perfidy toward some Bulgarians who had sought refuge within the limits of his kingdom and who were slaughtered; and above all by his debauchery. "This Solomon of the Franks," an old chronicler says, "given up to extreme lewdness, entertained no less than 3 wives bearing the name of queens, and so many concubines that it would be too long to enumerate the same." He was buried at St. Denis.

DAGON (Heb. *dag*, fish), a Phœnician or Syrian divinity, who, according to the Bible, had richly adorned temples in several of the Philistine cities. The rulers of the Philistines offered to Dagon, at Gaza, a great sacrifice for having delivered Samson unto them; and the statue of Dagon at Ashdod fell to the ground, with its face downward, before the ark of the Lord. There is much uncertainty concerning the origin, attributes, and even the sex of this divinity, who has been identified by various commentators with Noah, Japheth, Saturn, Jupiter, Venus, Ceres, Isis, Oannes, Dirce, Astarte, and the whale Ceto. He was represented as a monster, whose upper part bore some resemblance to the human form, but terminated below in a fish. The different ancient traditions concerning him prove only that the origin of his worship was unknown; he seems, however,

to have been generally regarded as a symbol of fertility and reproduction.

DAGUERRE, Louis Jacques Mandé, inventor of the process, called after his name, by which images from the lens of a camera obscura are fixed upon metallic plates, born at Cormeille, department of Seine-et-Oise, France, in 1789, died at Petit-Brie-sur-Marne, July 12, 1851. He commenced his career in Paris as a scene painter, and rivalled the best of his contemporaries in the brilliancy and novelty of his effects. Having assisted M. Prévost in painting his panoramas of Rome, London, Naples, and other great cities, he conceived the idea of heightening the effect of such views by throwing colored lights and shadows upon them, so as to produce the various changes of the day and season. This invention, called the diorama, was perfected by Daguerre and Bouton in 1822, and for many years the former was busily employed in preparing pictures for exhibition in the buildings erected for that purpose in Paris and London. In 1839 he sustained a great loss by the burning of his establishment in Paris. Previous to this time he had been for many years experimenting, in connection with Niepce, on the method of obtaining permanent fac-simile copies of objects by the chemical action of the sun. After the death of the latter in 1833 he prosecuted his researches alone, and in 1838 succeeded in fixing upon prepared metallic plates distinct and indelible impressions of the images thrown upon them by the lens of the camera. The invention was announced at the session of the *académie des sciences*, in January, 1839, by Arago, and excited a profound interest, which was heightened by the exhibition soon after of a number of pictures taken by the new process, called by its inventor the *méthode Niepce perfectionnée*. He was subsequently made an officer of the legion of honor, and by a vote of the French chambers an annuity of 6,000 francs was bestowed upon him, on condition that his process should be made public. To the close of his life he continued to labor on the improvement of the daguerreotype, and has left 2 works on the theory and practice of the art. A monument has been erected to his memory by subscription. —The process invented by Daguerre, and its subsequent improvements, will be treated under the title Photography.

DAHL, Mikael, a Swedish portrait painter, born in Stockholm in 1656, died in London in 1743. In 1688 he repaired to London, where he was patronized by Queen Anne and the prince consort. At Hampton court are several of his portraits of admirals. His equestrian portrait of Charles IX. of Sweden is at Windsor, and some of his whole-length representations of ladies are at Petworth. He also painted a portrait of Lady Walpole, which is at Houghton.

DAHL, Vladimir Ivanovitch, a Russian author, of German origin, born in St. Petersburg about 1800, was educated there at the naval academy. In 1819 he joined the Russian fleet in the Black sea. Subsequently he practised as physician at Dorpat, and served in the expedition against Poland and against Khiva, in Turkestan. He collected more than 15,000 tales, fables, and proverbs, beside colloquial expressions current among the different tribes of the empire; and he was so much struck with the contrast between the language of the cultivated classes in the capital and that of the common people in the provinces, that he wrote a book for the purpose of pointing out this discrepancy and of advocating a reform. This work is entitled *Poltora slova o Ruskim yazikie* ("A Word or two about the Russian Language"). The result of his personal contact with the masses of the Russian people is palpable in his novels and tales. His heroes are not czars and grand duchesses, but serfs and common women. The style is simple, pure, and lively, and his novels, apart from the sentimental interest of the plot, abound with original descriptions of scenery, and of the manners of the people. He has published some of his volumes separately, and contributed others to periodicals under the *nom de plume* of Kosak Luganski. He is a homœopathic physician by profession.

DAHL, Johan Kristian Clausen, a Norwegian landscape painter, born Feb. 24, 1788, at Bergen, in Norway, died Oct. 14, 1857, in Dresden, in which city he had resided since 1818. In 1820–'21 he visited the Tyrol, Naples, and Rome, in company with Christian VIII. of Denmark, and in the latter city received many attentions from Thorwaldsen and other northern artists established there. From Italy he brought back the studies of his "View of Vietri—the Island of Capri," the "Eruption of Mount Vesuvius," and other striking pictures. But his most celebrated and characteristic works are those in which the grand and gloomy features of northern nature are portrayed. Of these the "Coast View," near Bergen, now in the possession of the king of Sweden, is considered the finest. The "Shipwreck," "Ancient Scandinavian Tombs and Monuments," the "Saxon Switzerland," the "Great Winter Landscape of Zealand, Prestöe, and Wordinborg," and others, also enjoy a great reputation. His works are to be found in all parts of Europe, and even in America.—His son, Siegwald Johannes, born in Dresden, Aug. 16, 1827, is devoted to genre painting and to the painting of portraits and animals.

DAHLBOM, Anders Gustaf, a Swedish entomologist, born in East Gothland, March 3, 1806. He was graduated at Lund in 1829, and officiated as teacher of natural history and as superintendent in the zoological museum of Lund from 1830 till 1842, when he was appointed assistant professor of entomology and keeper of the entomological museum of the university. Beside his contributions to the transactions of the Stockholm academy and to the scientific press, he published, from 1829 to 1852, 10 distinct works on insects in Latin and Swedish, of which his *Hymenoptera Europæa præcipue Borealia* is the most important.

DAHLGREN, Carl Johan, a popular Swedish poet, born June 2, 1791, died May 2, 1844, officiated as clergyman in various churches of Stockholm, and on several occasions as a member of the diet, where he advocated liberal principles. His complete works were published in Stockholm, in 6 vols. (1847–'49).

DAHLGREN, John A., commander in the U. S. navy, a native of Pennsylvania, entered the service as midshipman in Feb. 1826, was promoted to be a lieutenant, March, 1837, and a commander in Sept. 1855. Since 1847 he has been employed on ordnance duty, and, with the exception of a short cruise in command of the Plymouth sloop of war, armed according to his views with a few heavy shell guns, has been engaged in very important experiments at the navy yard at Washington, under the direction of the bureau of ordnance and hydrography. These experiments, together with other measures taken by that bureau, have resulted in great changes, as well as in increased system and efficiency, in that department of the naval service. Among these changes is the adoption of heavy shell guns of the Dahlgren pattern (see Cannon), and also of a very efficient armament for boats, consisting of bronze howitzers of 24 lbs. and 12 lbs. calibre, of light pattern, their projectiles being shells, shrapnel and canister shot. Light field carriages of iron, devised by Commander Dahlgren, are supplied with these howitzers, by which they are made available upon land. He has in the course of his experiments made the following publications, a part of them by order of the bureau of ordnance: "Report on the 32 pounders of 32 cwt." (1850); "System of Boat Armament in the U. S. Navy" (2 editions, 1852 and 1856); "Naval Percussion Locks and Primers" (1852); "Shells and Shell Guns" (1856).

DAHLIA, the numerous varieties of which are among the most popular of flowers, originated in Mexico from a single form known as *D. variabilis*. In a wild condition it is said to be about 7 or 8 feet high, with purple or lilac blossoms of no great merit. Thouin (*Annales du muséum*, vol. iii.) has given a memoir on the dahlia, making 3 species, viz.: *rosea*, *purpurea*, and *coccinea*. Simultaneous with the efforts of the Dutch florists, semi-double flowers were obtained elsewhere after 26 years of cultivation. The immense number of seedlings since that period have brought into universal attention blossoms of every form, size, and color, some even of bizarre and exquisite tints. The dahlia, from a coarse single scarlet, orange, purple, or lilac blossom, has at last vied with the proudest triumphs of the artistic skill of the floriculturist, as represented in the tulip or the rose. The choicest sorts are marked by the globular shape which the barren florets or petals assume, more than by their color, though the richest hues and the most delicate tints obtain in some, which command great prices when first offered for sale. Facility of propagation soon places such within the reach of every one, and competition brings out others of newer styles from year to year. The chief requisites to secure good flowers seem to be a rich soil, abundance of moisture, and judicious pruning of superfluous shoots. Several insects are injurious to the growing plants, some boring into the stem and destroying the young stalks, others eating the buds before half grown; but their destruction is easy.

DAHLMANN, Friedrich Christoph, a German historian of Swedish descent, born at Wismar, May 17, 1785, now (1859) officiating as professor of history and political science at the university of Bonn. He is the author of a celebrated work on the history of Denmark (3 vols., Hamburg, 1840–'43); also of *Vita Ansgarii* (in Pertz's *Monumenta Germaniæ Historica*); of *Forschungen auf dem Gebiete der deutschen Geschichte* (2 vols., Altona, 1822–'23); edited the *Chronik von Dithmarsen* (2 vols., Kiel, 1827); and wrote a history of the English (3d ed. Leipsic, 1843) and French revolution (Leipsic, 1845). As secretary of a committee of the Schleswig-Holstein diet in 1815 he became conspicuous by his opposition to the Danish policy in regard to the duchies; and being appointed professor at Göttingen in 1829, he obtained there 8 years afterward a still wider political celebrity by his energetic protest against the abolition of the Hanoverian constitution, and by his consequent dismissal from the university, together with 6 other liberal-minded professors. In 1848 he became one of the leaders of the party in favor of constitutional monarchy, was deputed by the king of Prussia to the German diet, April 31, 1848, and afterward elected by the people to the Frankfort parliament, of which he was one of the most gifted and influential members. His influence prevailed particularly in the elaboration of the German constitution. The attempt, however, to make Germany an empire under a Prussian dynasty, soon proved a failure; as did the subsequent efforts of the party of Gotha, with whom he acted, and the parliament of Erfurt, to which he was elected. In 1852 he retired from political life, disappointed at the futility of his efforts.

DAHLONEGA, a post village and capital of Lumpkin co., Ga., built on a high hill in the midst of one of the richest gold-mining regions of the state; pop. in 1850, 735. The metal was first obtained from alluvial deposits, and afterward discovered imbedded in quartz. The surrounding hills are now completely riddled with mines, and several remarkably rich veins have been opened. A branch United States mint is established here, which, including the machinery, cost $100,000. The village also contains 2 churches and a newspaper office. Its Indian name was Tau-lau-ne-ca, or "yellow money."

DAHOMEY, a kingdom of Africa, on the Slave Coast, between Ashantee on the W. and Yarriba and Benin on the E., extends S. along the gulf of Guinea, and stretches indefinitely N. toward the Kong mountains. The whole coast from long. 7° W. to 8° E. goes under the name

of Guinea, and also of the Slave Coast, of which Dahomey forms the portion lying between the rivers Volta and Niger. This gives it an extent of about 180 m. in length, by 200 in width. At the commencement of the 18th century the coast was divided between the kingdoms of Dahomey and Whydah, the first warlike, the other effeminate. As a consequence, the rich and fertile country of Whydah was absorbed in 1727 by Dahomey, and now forms part of its limits. The country bordering on the coast consists of a plain of extraordinary fertility, whence the ground rises by a gentle ascent to a distance of 200 m. inland. The soil is a reddish loam, without rocks. No river of importance is found on the seaboard. Fertility depends on the periodical rains, which are copious and usually accompanied by tornadoes. By reason of the position of this country between lat. 6° and 10° N., every variety of vegetable product may be cultivated. Cotton, sugar, indigo, palms, spices, tobacco, grains, and fruits flourish. The banana, plantain, and cassada, pineapples, oranges, limes, guavas, and other tropical fruits, are abundant. Among the vegetable productions peculiar to the country are a variety of millet, or Guinea corn, a legume called *calavances*, or pea-beans, and a species of vegetable called ground beans, as also a berry said to possess the property of turning bitters and acids sweet. With all these advantages, little is produced for export. Yams and maize are grown by the natives for consumption, with a moderate quantity of palm oil for the coast traders. Formerly Dahomey carried on a large traffic in slaves, and the ferocious habits engendered by that trade are still a characteristic of the people. Elephants, tigers, leopards, buffalo, wild sheep, and goats are plentiful, as are boas and other serpents. Trees grow along the river courses to an enormous size, it being not uncommon to see a canoe formed from a single trunk capable of holding 70 to 100 persons. The horses are small but hardy. The climate on the whole is not unfavorable to health. A breeze called the harmattan blows for 3 months in the year, and tends much to purify the air. Abomey, the capital city of the country, is situated in lat. 7° 59′ N., lon. 1° 20′ E. Whydah, oftener called Griwhee, is the port of Dahomey. A route of about 100 m. passes through Favies and Toro to Abomey, the intermediate stations being Glegouch, where the French, English, and Portuguese have fortified trading ports; next Sabyeh, capital of the ancient kingdom of Whydah, and yet the residence of a Dahoman viceroy; and further on is Ardrah, or Aradah-Kassy, where the roads from Jakyn, Epeh, and Porto Novo on the coast, join the main road to Abomey. The villages are large and numerous, but many ruined sites testify to the ravages of war. Houses are built of adobe, covered with straw, and usually have attached a small slip of garden. Two field crops are grown annually, the time of sowing being the vernal and autumnal equinoxes. Agriculture has advanced but little beyond its first elements. The Dahomans fabricate cotton cloth, pottery, mats, and trinkets, beside spears, swords, daggers, clubs, and rude agricultural tools. Their money consists of cowry shells, of which it takes over 2,000 to represent one dollar. The king's revenue consists of gifts, annually presented at a festival, a tax on various articles of commerce, and the sale of wives. In other respects the Dahomans are subjected to the most ferocious despotism of which we have any knowledge. The life of every man except that of the prime minister, and the persons of all females, belong to the king. Once a year the women are required to appear, that the monarch may make his selection. He retains a large number for himself, and distributes the rest as wives to his subjects, who are required to pay for them and be satisfied with his selection. The king is regarded as a fetich or deity. Doubtless this belief has much to do with the sanguinary customs which prevail at his court. Even the highest officers prostrate themselves in the dust when they approach him. As he claims to be sovereign over life and death, his residence is paved with human skulls. Every year he holds a festival in which human sacrifices are offered, and persons are slain on the graves of his ancestors in order that their spirits may bathe in the blood. The sacrifice is of the nature of a religious ceremony. Faith is placed in charms and amulets. A serpent is regarded as the sacred symbol of Whydah, and a tiger of Dahomey. The notion of a future state is that each person shall occupy precisely the same position he did on earth. The only visible objects of worship, at least on the coast, are a reptile which they call *Dabooeh*, which has its temples and priests, and certain idols of clay, to which the women offer worship. Snelgrave, who spent some time among this people, thinks they have a vague belief in a supreme, invisible deity, of whom idols are but the symbol. Next to the prime minister, called the *tamegari*, ranks the grand master of the ceremonies (*mayboo*), who joins the premier in selecting a new sovereign among the children of the deceased monarch. The other officers of state are the *agaoo*, commander-in-chief, having under him 3 generals called the *possoo*, *zohinoo*, and *fasapah*; next in rank is the viceroy of Whydah, entitled the *ivogan*, and next the superintendent of the king's household, styled the *yaoo*. Provinces, cities, and villages are governed by officers called *kabashirs*, who pay an annual tribute, collected from the heads of families. Polygamy is the custom of the country, the king having 3,000 to 5,000 wives; great men have from 200 or 300 downward, in proportion to their wealth; while most of the people can afford but one. The Dahoman language is an idiom of that spoken along the whole Guinea coast. It has no written character, although the Ardrah dialect has a symbol alphabet. A curious feature of Dahoman life is that the members of the king's harem form his body guard, and are regularly disciplined as soldiers.

They number 3,000 to 5,000, and form, in all respects, a portion of the army. In time of peace his total military force, male and female, is about 17,000, and in time of war 24,000. They fight with great ferocity. Apart from their disregard of shedding blood, the manners of the Dahomans are mild. They have a considerable degree of intelligence, but are indolent, and place much of their happiness in eating and sleeping. The dress of the men consists of trousers of native calico, and on high occasions a jacket without sleeves, the head being covered and the feet bare. The female costume is a robe or wrapper of cloth, with bracelets of beads and shells on the neck, wrists, and ankles, rings on the fingers, and pendants in the ears. Children are nursed 3 years, and circumcision is practised. Tattooing is occasionally performed as an embellishment. The Dahomans are of the same race as the Ardrahs, and are distinguishable from their neighbors by a darker complexion. They are, in general, of medium height, and well proportioned.—Dahomey first became of importance in the eyes of Europeans about the beginning of the 18th century, when the king was named Trudo. This sovereign conquered the strip of country lying between him and the sea, and opened a trade with the Europeans. He had frequent quarrels with them, and finally destroyed the French, English, and Portuguese factories at Xavier in Ardrah, beside hanging Mr. Testefole, the English governor. Trudo was succeeded by his son, Bossa Ahadee, whose first act of sovereignty was to put to death every person of the name of Bossa within his dominions, as a punishment for their presumption in bearing the same name as the king. He died in 1774, and was followed by a succession of savage rulers, who engaged in shocking atrocities to supply the slave trade. Since the suppression of that traffic, Dahomey has sunk in importance. Wars with the adjoining states have been attended with varying success. Not long since the Eyeos or Ayohs obtained the mastery over the Dahomans, and compelled them to pay tribute. It is said the Dahomans have once more gained the ascendency; also that the present king has put a stop to human sacrifices.

DAIRY. See Butter, Cattle, Cheese.

DAIS, a raised floor at the upper end of ancient dining halls, where the principal persons sat at table. The term also designated a seat with a canopy over it for those who sat at this table. The same name is applied in some monarchies to the canopy which hangs over the throne, and at Rome the pope is borne beneath a dais in solemnities which require him to traverse the streets and public places.

DAISY, or Day's Eye (*bellis perennis*, Linn.), a little perennial plant, native of Europe, and better known in its varieties than as a species. It was formerly employed for edgings to borders, and patches set in the turf of lawns frequently mown present a very pleasing appearance. In a wild state, the flower is borne upon a long slender peduncle. The florets or petals are numerous, narrow, white-tipped with a slight stain of crimson, in a single row around the central florets of the disk. In this form it is called single, but by cultivation it has become very double or multiplex, and has run into many curious and beautiful varieties. Of these the hen and chickens is the most singular, where the main flower heads are surrounded by several smaller flower heads. Beside this, which is known as the *prolifera*, the older sorts were the large double and the double quilled, the latter a deep rich crimson, with globular heads, and mostly cultivated as a pot plant. Of late years considerable attention has been directed to raising new sorts, and the catalogues enumerate choice varieties of white, blush, rose color, striped, and other diversities of hues. Division of the plants, which make numerous offsets, is an easy and practicable mode of propagation.

DAKEL, El, or El Dakleh, the western oasis of upper Egypt, 28 m. long by 15 m. wide. It has a very fertile soil, prolific in dates, olives, and other fruits. It contains several ruined towns, a remarkable temple, and a number of small villages, the principal of which are El Kasr and Kalamoon. Pop. estimated at between 6,000 and 7,000.

DALAYRAC, Nicolas, composer of *Les deux petits Savoyards*, and of many other French operas, born June 13, 1753, died in Paris, Nov. 27, 1809. He first became known to fame by a composition performed at a freemason festival given in honor of Benjamin Franklin.

DALBERG, or Dalburg, a noble family of Germany, mentioned as early as 969, and so much respected that at each imperial coronation the herald was required to proclaim: "Is there no Dalberg present?" whereupon the member of the family who happened to be present stepped forward and was knighted by the emperor. Among its most distinguished members are: I. Johann, bishop of Worms, born in 1445, died in 1503, an active and able patron of literature and science. II. Wolfgang Heribert, born in 1749, died Sept. 28, 1806, the friend of Schiller, and a zealous patron of the German drama. At the time of his death he was state minister in Baden. III. Emmerich Joseph, duke and peer of France, son of the former, born at Mentz, May 30, 1773, died April 27, 1833. He officiated as ambassador of Baden in Paris, where he became a favorite of Talleyrand and one of the diplomatic agents of Napoleon. Naturalized in France in 1810, he exerted himself in 1814 in favor of the restoration of the Bourbons, and attended, as French plenipotentiary, the congress of Vienna; after the 2d restoration he was a minister of state. IV. Johann Friedrich Hugo, born May 16, 1760, died in July, 1803, filled high functions in the Roman Catholic church, at Treves, Worms, and Spire, wrote on antiquities and music, and was himself a composer. V. Karl Theodor Anton Maria, the last archbishop elector of Mentz, and archchancellor of the German empire, born at Herns-

heim, Feb. 8, 1744, died in Ratisbon, Feb. 10, 1817. He studied at Göttingen and Heidelberg, and in 1772 became administrator of the territory of Erfurt, which then belonged to the elector of Mentz. He soon rose to a high position among the dignitaries of the church, and on July 25, 1802, became archbishop elector of Mentz. In the following year, when the territory of Mentz was secularized, the dioceses of Ratisbon, Aschaffenburg, and Wetzlar were assigned to Dalberg. In 1806, when the empire was dissolved, Napoleon made him prince primate of the Rhenish confederation and grand duke of Frankfort-on-the-Main. After 1813 he lost all his territories, only retaining the archiepiscopal dignity. His *Grundsätze der Æsthetik* (Frankfort, 1791) was much esteemed in its time.

DALBY, Isaac, an English mathematician, born in Gloucestershire in 1744, died Oct. 14, 1824. He was intended by his friends for a cloth worker, but, laboring by the aid of a few mathematical books to fit himself to be an usher, was employed in that capacity. Going to London in 1772, and being appointed to teach arithmetic in Archbishop Tenison's grammar school, he became known to many men of science, and was employed in making astronomical observations in a building erected for philosophical purposes by Topham Beauclerk. When this establishment was broken up, after being employed in various other situations of a similar nature, he became mathematical master of the naval school at Chelsea. In 1787 he acted as an assistant to Gen. Roy in taking the trigonometric observations for connecting the meridians of Greenwich and Paris, and for 2 years was occupied in extending the triangulations through Kent and Sussex to the coast opposite France. Gen. Roy died in 1790, and the next year Dalby was engaged together with Col. Williams and Capt. Mudge to continue the survey of England. They began their operations by remeasuring the original base line, on Hounslow Heath, and under their care the triangulation was extended to the Land's End. On the formation of the military college at Wycombe, Dalby was appointed professor of mathematics in the senior department.

DALCHO, Frederic, an American physician and clergyman, born in London in 1770, died in Charleston, S. C., Nov. 24, 1836. His father, a Pole, retired to England on a pension after serving as an officer in the armies of Hanover. On his death, his son was invited by an uncle to Maryland, and received an excellent education in Baltimore. He studied medicine and natural science, and became a practitioner in Charleston, where he was active in establishing the botanic garden. Subsequently he devoted himself to theological studies, became lay reader in St. Paul's church, Colleton, in 1814, and having received priest's orders was elected assistant minister of St. Michael's church, Charleston, in 1819, in which position he remained till his death. He published a treatise on the "Evidence of the Divinity of our Saviour," and a "Historical Account of the Protestant Episcopal Church in South Carolina."

DALE, a S. E. co. of Ala., bordering on Fla.; area, about 900 sq. m.; pop. in 1850, 6,346, of whom 721 were slaves. The surface is hilly and mostly occupied by pine forests. The soil is sandy and unproductive. In 1850 it yielded 2,158 bales of cotton, 182,396 bushels of corn, and 69,408 of sweet potatoes. Number of pupils in the public schools, 190. Capital, Newton.

DALE, David, the originator of the Lanark mills, Scotland, born at Stewarton, Ayrshire, in 1739, died in 1806. He was at first a journeyman weaver, and afterward became a great cotton manufacturer, at first in conjunction with Sir Richard Arkwright, and then on his own account. He was remarkable for the care which he took to provide teachers and the means of mental instruction for the thousands of people, old and young, to whom he gave employment at his works. He is described as "one of the most benevolent men of the last century." His daughter was married to Robert Owen.

DALE, Richard, a commodore in the U. S. navy, born near Norfolk, Va., Nov. 6, 1756, died in Philadelphia, Feb. 26, 1826. He commenced his career in the merchant service at the age of 12, and made several voyages between Virginia and Liverpool. When the revolutionary struggle commenced, Virginia, in common with several of the maritime colonies, organized a marine of its own, composed of small vessels, which were employed in the bays and rivers, and on board one of these Dale was appointed a lieutenant, in the early part of 1776. He had the misfortune to be captured soon after by a tender to an English frigate, and was thrown into a prison ship at Norfolk. Here he was surrounded by royalists, among whom were many of his old schoolfellows, who at once set about his conversion to the cause of the mother country, and he was finally induced to embark in a cruiser against the vessels of the state. Hostilities were now very active, and the vessel in which he was serving soon engaged an American flotilla, from which she was compelled to run after a heavy loss. Dale received a wound in this affair, with which he was confined several weeks at Norfolk, during which time he formed a resolution, as he said, "never again to put himself in the way of the bullets of his own countrymen." In after life, he always spoke with perfect candor and sincerity of the great error which he had committed by his momentary abandonment of the cause of his country. Immediately after the declaration of independence, we find Dale a midshipman in the brig Lexington, under the command of Capt. John Barry, in which vessel he served actively, under different commanders, until the autumn of 1777, when she was captured upon the coast of France by the English cutter Alert of 10 guns, after a very close and severe action. She was at this time commanded by Capt. Henry Johnston. The Alert took her prize into Plymouth, and the prisoners were placed in con-

finement in Mill prison, upon a charge of high treason, where they remained until Feb. 1778, when most of the officers and several of the men escaped. Dale found his way to London, where he was recaptured, and immediately carried back to Mill prison. Here he was held a year longer, subjected to the most unfeeling and insulting treatment, when he escaped a second time, in the disguise of a British naval officer. The manner in which he obtained his disguise and other facilities, he always refused to disclose. He succeeded in reaching France, and hastening to L'Orient joined a force then equipping under the celebrated John Paul Jones. He was now about 23, and after serving for some months as master's mate, Jones, discovering that he was an accomplished seaman, made him first lieutenant of his own ship, the Bon Homme Richard. On Aug. 15, 1779, the squadron sailed from Groix, and on Sept. 19 the memorable battle between the Bon Homme Richard and Serapis, a new ship of 50 guns, took place off Flamborough head. Dale distinguished himself highly in the battle, and received a severe wound by a splinter, with which he was laid up for some time. The Bon Homme Richard was so completely cut to pieces, that she sank soon after the engagement. The rest of the squadron put into the Texel, Jones having shifted his flag to the Alliance, and afterward to the Ariel, in both of which ships Dale still served as first lieutenant. On Feb. 18, 1781, he arrived at Philadelphia, and was regularly put on the list of lieutenants in the navy. He now parted from Paul Jones, with whom he had served nearly 2 years, and in June following joined the Trumbull, 28, Capt. Nicholson, which about 2 months afterward was captured off the Delaware, after a very severe action, by the Iris, 32, and Monk, 18. Dale was wounded in this action, making his 3d wound and the 4th time he had been captured during the war. He was taken to New York, and exchanged in the following November, when he received a furlough, and was employed in letters of marque and the merchant service until the close of the war. Under the law of 1794, he was appointed a captain in the navy, and ordered to superintend the construction of one of 6 frigates, which were directed to be built to resist the aggressions of Algiers. An arrangement with that regency was made, however, in consequence of which the building of the ships was suspended, and Dale was again placed on furlough. With the exception of a short cruise in the sloop Ganges, during our difficulty with France, he was not again in the public service until 1801, when he was appointed to the command of a squadron of 3 frigates and a brig, ordered to the Mediterranean, in consequence of hostilities with Tripoli, although war did not actually exist. His flag ship during this command was the President, 44, Capt. James Barron. This was an exceedingly well appointed squadron, but our policy at that time with regard to the Barbary states was so uniformly timid, that there was but little for it to do. The Tripolitan admiral, with two of his cruisers, was blockaded by one of our frigates in Gibraltar, while the rest of the squadron proceeded up the Mediterranean. A severe action occurred between the brig Enterprise, Lieut. Comdt. Sterrett, and a Tripolitan of equal force, in which the latter was compelled to surrender; but as there was no legal authority to detain her, she was liberated. Although the commodore was so fettered by his instructions that no serious enterprise could be attempted, his vigilance was so great that the Tripolitans made no capture during his command. In April, 1802, he returned to the United States, and in the autumn of that year resigned his commission, and was never again in service.

DALE, Sir Thomas, a colonial magistrate sent from England to Virginia as high marshal in 1609, and again in 1611, with 300 colonists, supplies, and new laws. The town of Henrico, on James river, was founded by him, and that of the Appomattox Indians at the mouth of the river of that name taken. He remained in the colony, and took an active part in its affairs, after being superseded by Sir Thomas Gates in 1611, and when the latter returned to England in 1614, again assumed the chief command. He went himself to England in 1616, and afterward to the East Indies, and there died.

DALECARLIA, or Dalarne, an ancient province of Sweden, celebrated in Swedish history for its noble struggles in behalf of national independence, and for the bravery, probity, and hospitality of the inhabitants. It was among the mountains of Dalecarlia that Gustavus Vasa took refuge from the Danish king Christian II., and by the aid of the Dalecarlians he was first enabled to make head against Denmark. Dalecarlia is now comprised in the province of Falun. The 3d son of the present king of Sweden bears the title of duke of Dalecarlia.

DAL-ELF (Dal river), the principal river of Dalecarlia, Sweden, formed by the union of the Oster and Wester Dal. It flows successively S. E. and E., and after a course of 250 m. from the source of the Oster Dal, during which it passes through a number of lakes, and forms several cataracts, it empties into the gulf of Bothnia. Except near its mouth, it is only navigable for rafts.

DALGARNO, George, a British philologist, born at Aberdeen about 1627, died at Oxford, Aug. 28, 1687. He was educated in the university of Aberdeen, and taught for about 30 years a grammar school at Oxford. In 1661 he published a work entitled *Ars Signorum, vulgo Character Universalis et Lingua Philosphica.* This was the basis of Bishop Wilkins's "Essay toward a Real Character." The work, however, by which he is best known in modern times is his "Didascalocophus, or the Deaf and Dumb Man's Tutor," which appeared in 1680. This work contains so fully the principles of deaf mute instruction, though deduced from theory only, that it would not be seriously defective as a handbook for the teacher at the present day.

He was also the inventor of the two-handed alphabet. His works were reprinted by the Maitland club (1 vol. 4to., Edinburgh, 1834).

DALGAS, Carl Frediuk Isak, a Danish scientific agriculturist, born at Fredericia in 1787. He studied at Copenhagen, and in 1808 was commissioned by the government to go abroad to study new modes of agriculture, and particularly the cultivation of hemp. Returning in 1810, he began to cultivate a farm, practising with his own hand the agricultural principles he at the same time promulgated with his pen.

DALHOUSIE, James Andrew Broun Ramsay, marquis of, a British statesman, born April 22, 1812. The earl of Dalhousie, his father, officiated for a time as governor of Canada. The present marquis was educated at Harrow and Oxford, entered the house of commons in 1837 as member for Haddingtonshire, and on the death of his father (March 21, 1838) took his seat in the house of lords. In 1843 Sir Robert Peel made him vice-president, and in 1844 president of the board of trade. On the accession of the whigs to office in 1846, he was requested to retain his position. In Nov. 1847, he went to India as Lord Hardinge's successor in the post of governor-general, and entered upon his duties Jan. 12, 1848. On the death of Runjeet Singh, the various Sikh chieftains who had been kept in check by his vigorous rule broke out into hostilities. Lord Hardinge had been compelled to march against them, and had vanquished them in the battles of Moodkee and Ferozeshah. On the breach of the treaty then concluded, and new risings in Mooltan, where several British were massacred, Lord Dalhousie invaded northwestern India, and having subjugated the Punjaub, annexed it permanently to the British empire. It was also under his administration, in 1852, that Pegu was annexed. Several minor annexations also took place, and the close of his official Indian career was marked by the annexation of Oude. The effects of the climate having destroyed his health, Lord Dalhousie resigned, and was succeeded by Lord Canning in March, 1856. On her voyage home Lady Dalhousie had already died (May 4, 1853). He was raised to the rank of marquis in 1849; appointed warden of the cinque ports on the death of the duke of Wellington in 1852; and rewarded in 1856 with a life pension of £5,000 by the East India company, which he resigned, however, in favor of the sufferers from the Sepoy rebellion of 1857.

DALIN, Olof, a Swedish author, born in 1708, died in 1763. His poetry, although popular at the time of its appearance, is now but little read in Sweden; but his historical works are still highly esteemed. His most extensive work, *Svearikes historia* ("History of Sweden"), appeared in Stockholm, in 4 vols., 1747–'62, and a German translation was published at Wismar, 1756–'63.

DALLAS, the name of counties in several of the United States. I. A S. W. co. of Ala., intersected by Alabama river, which is joined within the county by the navigable river Cahawba and several smaller streams; area, about 890 sq. m.; pop. in 1850, 29,727, of whom 22,258 were slaves. It has an uneven surface and a highly productive soil, skilfully and extensively cultivated. The surface rock is rotten limestone. Good water was formerly scarce in many parts of the county, but the deficiency has lately been supplied by a number of Artesian wells, from 200 to 900 feet in depth. The staple productions are cotton and Indian corn, and the harvest of 1850 amounted to 35,275 bales of cotton (the greatest quantity produced by any one county of the United States, except Tuscaloosa co., Ala.), 1,267,011 bushels of Indian corn, 227,298 of sweet potatoes, and 106,525 of oats. There were 45 churches, and 1,773 pupils attending public schools. Capital, Cahawba. The Alabama and Mississippi railroad passes through the co. II. A N. E. co. of Texas, drained by the forks of Trinity river; area, 900 sq. m.; pop. in 1856, 5,738, of whom 502 were slaves. Most of the land is fertile, well watered, and plentifully supplied with timber. The soil is suited to the production of cotton, grain, and wheat, and in 1850 yielded 44 bales of cotton, 94,870 bushels of Indian corn, and 35,520 lbs. of butter. The county contained 1 church and 1 newspaper office, and the public schools numbered 170 pupils. Capital, Dallas. III. A central co. of Ark., bounded W. by the Washita, and E. by Saline river; area, about 860 sq. m.; pop. in 1854, 5,894, of whom 2,526 were slaves. The Washita is navigable in this part of its course for boats of light draught. The soil is generally productive, and the surface level or moderately uneven. Indian corn and cotton are the staples. In 1854 there were raised here 5,343 bales of cotton, 212,809 bushels of Indian corn, 15,304 of oats, and 4,574 of wheat. The public schools in 1850 numbered 194 pupils, beside which there were 124 attending other schools and academies. Capital, Princeton. IV. A central co. of Mo., intersected by the Niangua river, an affluent of the Osage, and drained by several small streams; area, 576 sq. m.; pop. in 1856, 4,620, of whom 96 were slaves. Water power is abundant and valuable, and in several places there are excellent springs of limestone water. There are no great elevations in the county, and most of the surface is occupied by prairies and forests. The soil is good, but better adapted to grazing than to the cultivation of grain. Indian corn, wheat, oats, and live stock are the staples. In 1850 the productions were 187,580 bushels of Indian corn, 8,858 of wheat, and 65,795 of oats. There were 375 pupils in the public schools. Capital, Buffalo. V. A central co. of Iowa, traversed by Raccoon river and Beaver creek; area, 576 sq. m.; pop. in 1856, 3,991. The soil is said to be of excellent quality, but little more than one fifth of the land is under cultivation. In 1856 it produced 4,864 bushels of wheat, 2,658 of oats, 58,945 of Indian corn, 3,830 of potatoes, 19,566 lbs. of

butter, and 5,256 of wool. Capital, Adell. VI. A new county in the peninsula of Florida. It is not included in the census of 1850.

DALLAS, Alexander James, an American statesman, born in the island of Jamaica, June 21, 1759, died at Trenton, N. J., Jan. 14, 1817. His father was an eminent physician, a native of Scotland, who had amassed a handsome fortune in Jamaica. With the double purpose of regaining his health and of bestowing the proper care upon the education of his children, he returned to Edinburgh while the subject of this notice was still young. The latter was placed at school in London, where he remained until the death of his father, which occurred soon after. He now became a student of law at the Temple, but was subsequently induced to accept a position in a mercantile house. Circumstances, however, afterward led him to abandon this, and he again resumed his studies. In 1780 he was married, and in the following year he determined upon settling in Jamaica. There he remained until 1783, leaving in April of that year for the United States. On June 17 he took the oath of allegiance to the state of Pennsylvania. Having established himself in Philadelphia, he had designed entering immediately on the practice of the law; but the rules of the courts requiring a residence of 2 years in the state before an attorney could be admitted to the bar, he obtained from Jonathan Burrall, commissioner for settling the accounts of the commissary and quartermaster's departments of the revolutionary army, a situation in which he could use to advantage the knowledge he had acquired in his brief mercantile career in London. On July 13, 1785, he was admitted to practise in the supreme court of Pennsylvania, and subsequently in the U. S. courts. Not being fully employed by his profession, he prepared his "Reports of Cases ruled and adjudged in the Courts of the United States and of Pennsylvania, before and since the Revolution," of which 4 volumes were published between 1790 and 1807. These reports are the oldest in the United States except Kirby's. Lord Mansfield is reported to have said of them: "They do credit to the court, the bar, and the reporter; they show readiness in practice, liberality in principle, strong reason and legal learning; the method, too, is clear and the language plain." Considerable time was also given by him to other literary pursuits, in the preparation of numerous essays in the periodicals of the day, and in the editing of the "Columbian Magazine," published in Philadelphia. In 1790 Pennsylvania adopted a new constitution, under which Gen. Thomas Mifflin was elected in the same year its first governor. Mr. Dallas was, Jan. 19, 1791, appointed by Gov. Mifflin secretary of the commonwealth, an office which he filled for several years. While holding this position he prepared and published an edition of the laws of the state with notes. He was an ardent republican and a leading politician, and on the elevation of Mr. Jefferson to the presidency he received the appointment of U. S. district attorney for the eastern district of Pennsylvania, which office he held without interruption until he was called to the head of the treasury department. In May, 1813, Albert Gallatin, who had been secretary of the treasury from early in 1802, was sent on a special peace mission to Russia; and at the time, it being thought that his absence would be but temporary, no successor was named. The duties of the office were placed under the charge of Mr. Jones, then secretary of the navy, who after some months' experience found it impossible to do justice to them. In the winter of 1813–'14, it becoming evident to Mr. Madison that Mr. Gallatin would not soon return to the country, he resolved upon looking for a successor to him in the cabinet. Mr. Dallas was pressed to accept the office, not only by the administration, but by other distinguished public men. William Pinkney, the attorney-general, having resigned in Feb. 1814, the choice of these offices was tendered to him, but declined. While, as we have seen, Mr. Dallas was an undoubted republican, he did not entirely agree with the senators from Pennsylvania, Messrs. Roberts and Laycock, and it was more than intimated that an effort would be made by them to bring about his rejection by the senate in case of his nomination. On Feb. 9, George W. Campbell, a senator from Tennessee, was appointed secretary of the treasury. From his report to congress, Sept. 26, it appeared that the government was almost threatened with being brought to a stand for the want of means. In March previously, congress had authorized a loan of $25,000,000, of which $10,000,000 was advertised for in May; and although contracts had been made for the amount, $2,000,000 of it had not been paid by the parties contracting. In August the secretary had further advertised for $6,000,000, of which he had been able to negotiate but about $2,500,000, and even that sum at a discount of 20 per cent., with the additional provision that should the United States dispose of any further loan at a larger discount, the parties making this purchase were to be placed upon the same footing. The report of the secretary further indicated an imperative necessity of raising for the 2 last quarters of the year the sum of $25,000,000, while he estimated the actual revenue at $4,800,000. Having exhausted the means of borrowing, and with this deficiency threatening him, it was clear that more vigorous measures were imperatively necessary; but Mr. Campbell suggested no practical means of removing the difficulty. His health and spirits were broken down by the cares and anxieties of his office, and on Sept. 28 he resigned. Such was the position of the treasury when Mr. Dallas was again pressed to accept office. So alarming was the crisis, that those who had a few months before threatened to cause his rejection, were glad to withdraw their objections. He was accordingly nominated, Oct. 5, and con-

firmed the following day. On Oct. 14, John W. Eppes, the chairman of the committee of ways and means, addressed a communication to the secretary, asking for any suggestions from him respecting any "additional provision which may be necessary to maintain unimpaired the public credit." Three days after the receipt of this communication, he sent to that committee a report which to this day is one of the most remarkable papers which have emanated from the treasury department. It is distinguished alike by its bold and manly tone, the clearness with which the causes of existing evils are laid bare, and above all by the confidence which its author displays in his ability to grapple with and finally overcome the difficulties with which he had to contend. While he recognized the fact that the most important cause of difficulty was the inadequacy of the system of taxation to produce the revenue necessary even to base a credit upon, he at the same time added: "The exigencies of the government require a supply of treasure for the prosecution of the war beyond any amount which it would be politic, even if it were practicable, to raise by an immediate and constant imposition of taxes." Further, he assured them that there must be a resort to credit, which was too greatly impaired to hope to obtain adequate succor on moderate terms. Hence it became the object first and last in any practical scheme to reanimate the public confidence. He then submits in detail 6 propositions, in substance as follows: 1. That during the war there be raised the sum of $21,000,000 for the support of government, principal and interest of public debt created before the war, interest on public debt created or to be created during the war, payment of treasury notes, payment of debentures, addition to sums raised by loans, and for sinking and contingent funds. 2. The particular manner of raising the amount so required, by taxes and duties, is subjoined. 3. That a national bank shall be incorporated for 20 years, with a capital of $50,000,000, $\frac{2}{5}$ of which shall be subscribed by the United States, the remainder by corporations or individuals; that of the subscription of the latter $\frac{1}{5}$ shall be paid in gold or silver, the remainder in gold or silver, or in 6 per cent. stock issued during the war, or in treasury notes; the subscription of the United States to be paid in 6 per cent. stock; that the bank shall loan to the United States $30,000,000, at 6 per cent., at such times as shall be found mutually convenient. Other provisions with reference to the organization and government of the bank were also added. 4. That after having thus provided for the punctual payment of the interest upon every denomination of the public debt, for raising annually a portion of the current expenses by taxation, for establishing a sinking fund, and for securing to the public the efficient agency of a national bank, the only remaining object of supply shall be accomplished by annual loans, and issues of treasury notes, if unexpectedly such issues should continue to be necessary or expedient. 5. Contains a plan of settlement of accounts. 6. After a statement showing a necessity for providing for the 4th quarter of the year the sum of $19,176,391, he proposes to meet this by means of actual revenue, the negotiation of loans, and the issue of treasury notes. As early as Oct. 24, a resolution of the house was passed in committee of the whole, declaring it expedient to establish a national bank. In November a long and excited discussion took place in congress on the subject, opinions being conflicting and apparently irreconcilable. On Nov. 27, the secretary of the treasury was applied to by Mr. Lowndes, the chairman of the bank committee of the house, to know what would in his opinion be the effect of a large issue of treasury notes, which should be received in payment of subscriptions to the bank stock. The same day he made a reply in the same prompt and fearless spirit as the former report. "Whether Mr. Dallas was right or wrong in his bank plan," says a distinguished historian of that period, "his tone to congress, in the face of the country, and before the world, was a stirring appeal to the rising spirit of the nation." For a time the national bank project failed by reason of the difficulty of harmonizing the different views and plans; but in the few weeks of his administration, Mr. Dallas had already by his energy and ability greatly restored the public credit. He negotiated in October, on favorable terms, the loan which Mr. Campbell had failed in procuring in August; and after much discussion, in Jan. 1815, a bill chartering a national bank was passed, and on the 30th was returned by the president with his objections, which were to the effect that from the nature of the plan it would fail to accomplish its object. This bank was very different from the one proposed by the secretary, and, requiring too large an amount of coin, would have had but little influence on the fiscal affairs of the government. Finally, on April 10, 1816, a bill with less objectionable features, which had passed both houses, received the signature of the president and became a law. The practical effect of Mr. Dallas's administration of his department may be seen in the fact that treasury notes, which on his entering office in Oct. 1814, "none but necessitous creditors, or contractors in distress, or commissaries, quartermasters, and navy agents, acting as it were officially, seemed willing to accept," were on Jan. 10 following sold at par with interest added. This was also notwithstanding the fact that congress had failed to act with promptness and energy in carrying out his recommendations. Peace, however, having been declared on the ratification of the treaty of Ghent, Feb. 17, 1815, a great change immediately took place in the finances of the country, rendering extraordinary expenditures and loans unnecessary, except as temporary measures. In Nov. 1816, Mr. Dallas resigned the position which he had held with so much credit to himself and advantage to the country, leaving the national finances in the

most flourishing condition. When it became known that he intended to resign, he was urged to allow his name to be used as a candidate for congress from Philadelphia; but this he promptly declined, intending to resume the practice of his profession. His plans were, however, soon frustrated by his death from an attack of gout in the stomach, of 24 hours' duration. Various marks of respect were paid to his memory by the citizens of Philadelphia, by the various courts of the county, and by the supreme court of the United States, which recognized his "illustrious talents in professional, and eminent virtues in private life." One among his political opponents thus spoke of him at that time: "As a husband, a parent, and a friend, he was confessedly most amiable and exemplary. But it was by the sweet amenity of his disposition, his open hospitality, and the genial courtesy of his deportment, that he conciliated, even in the worst times of party contentions, so large a portion of the community."

DALLAS, George Mifflin, an American statesman, born in Philadelphia, July 10, 1792. He was the 2d of 3 sons of Alexander James Dallas, the eldest of whom, Commodore A. J. Dallas, a distinguished officer of the U. S. navy, died in 1844. George M. Dallas was graduated at Princeton college in 1810, and commenced the study of the law under direction of his father, and in April, 1813, was admitted to the bar. The United States being then at war with Great Britain, and the emperor Alexander having offered to mediate between the belligerents, Albert Gallatin was selected to fill the special mission to St. Petersburg; and from him Mr. Dallas received the appointment of private secretary, which he accepted. On his arrival in St. Petersburg, Mr. Gallatin found that Great Britain had declined the proffered mediation; but Mr. Adams and he resolved to ascertain if possible what were the views of that government; and with this object, Mr. Dallas was sent to London with despatches to the Russian ambassador at the court of St. James. This movement resulted in the appointment of the commission to Ghent, which after prolonged negotiations ended in the treaty of Dec. 24, 1814, which closed the war. Mr. Dallas, after a residence of several months at Ghent, was sent home by the American commissioners as bearer of important despatches, after which he held for about a year a position in the treasury department; relinquishing this, he entered on the practice of his profession in Philadelphia, and became the solicitor of the U. S. bank. In 1817 he was appointed by the attorney-general of Pennsylvania his deputy for Philadelphia county. During the presidential canvass of 1824 he took an active and important part, supporting Jackson for that office, and Mr. Calhoun for vice-president. In 1828 he was elected mayor of the city of Philadelphia, which office he resigned in the following year on receiving the appointment of U. S. district attorney. This position he in turn resigned, on being elected to a vacancy in the U. S. senate in 1831, which he held until the expiration of the term, March 3, 1833. During this brief occupancy of office, he displayed ability in the advocacy of the recharter of the U. S. bank, and of a protective tariff, as well as of other important public measures. Declining a re-election, he was appointed by Gov. Wolf attorney-general of Pennsylvania, which office he held until 1835. On the elevation of Mr. Van Buren to the presidency, he was, in 1837, appointed minister to Russia. Being at his own request recalled in 1839, and the office of U. S. attorney-general having recently become vacant by the death of Felix Grundy, it was tendered to him by the president, but was declined, and he again resumed the practice of his profession in Philadelphia. In May, 1844, Mr. Dallas was nominated for vice-president by the democratic national convention at Baltimore, in connection with James K. Polk for president. The ensuing canvass, which was conducted with great spirit by the two great parties of the country, resulted in the election of Messrs. Polk and Dallas, who received each 170 out of 275 electoral votes cast. The great and important issues which this contest decided were the policy of the country with reference to the tariff of duties upon imports, and the annexation of Texas to the United States. While the friends of Mr. Polk everywhere boldly avowed themselves in favor of "annexation," they were by no means so unanimous in reference to the revenue policy, being in favor of what is termed free trade in one section, while advocating in Pennsylvania the most positive protectionist principles. The moral influence of the election of Mr. Polk was sufficient to bring about the annexation of Texas under the administration of Mr. Tyler 3 days before his successor was inaugurated. In his first "Report on the Finances," in Dec. 1845, Mr. Robert J. Walker, the secretary of the treasury in the new administration, took the most decided ground in favor of the abandonment of the protective policy, and recommended a system of duties for revenue alone, which led, on July 28, 1846, to the passage of the tariff of that year—a free trade measure. So nearly balanced in the senate were the friends and the opponents of this radical change in the revenue system, that on the resignation of the Hon. W. H. Haywood, jr., of North Carolina, the fate of the bill was felt to depend upon the vote of the Hon. Spencer Jarnigan of Tennessee, a whig, who was opposed to its passage, but who had received from the legislature of that state instructions to vote for a bill based upon the principles of that measure. Mr. Jarnigan, while he declined to vote for the bill, did not feel himself at liberty to vote against it, and he withheld his voice entirely. This made the result depend upon Vice-President Dallas, who gave his casting vote for the bill, and it thus became the law of the land. That Mr. Dallas was fully aware of the deep responsibility of this act is quite clear from his address to the senate upon

that occasion. While he stated that the bill was not without many faults, he believed that "ample proof had been furnished that a majority of the people of the states desired a change to a great extent, in principle if not fundamentally," and as well for these as for other weighty reasons, he was induced to take the step which he then took. Mr. Dallas occupied the office of vice-president until March 4, 1849, when he was succeeded by Mr. Fillmore. In 1855, he was spoken of as a candidate for the presidency, but his name was not brought before the convention of his party held in the following year. On Mr. Buchanan's signifying his desire to be recalled from London, Mr. Dallas was nominated to the senate on Jan. 31, and confirmed on Feb. 4, 1856, as minister to the court of St. James, a position which he still (1859) holds.

DALLAS, Robert Charles, a British author, brother of Alexander James Dallas, born in Jamaica in 1754, died at St. Adresse, Normandy, Oct. 21, 1824. The higher branches of his education were conducted under the celebrated James Elphinstone, the friend of Dr. Johnson, at his school at Kensington, London, where he met with Dr. Franklin as well as with Dr. Johnson. At a subsequent period he furnished to John Nichols a memoir of his preceptor, which was abridged and used in Nichols's "Literary Anecdotes." His name was entered at the Inner Temple, but relinquishing the law he returned to Jamaica about 1775, where he remained some 3 years, when he again visited England and was married. Once more he determined to settle in his native island, intending to fulfil the duties of an office to which he had recently been appointed; but he was unable to remain there long, the climate being unfavorable to the health of his wife. He visited the continent of Europe, and afterward came to the United States, for the purpose of again meeting with his brother. Early in 1797 he published the first of his works, entitled "Miscellaneous Writings," which was followed in rapid succession, between that date and 1824, by various books either original or translated, covering a wide range of subjects, including natural history, history, biography, and fiction. His writings are in 46 volumes of various sizes and styles. In 1803–'4 he published the "History of the Maroons" (2 vols. 8vo.), a work of authority which is often referred to at the present time. His sister, Charlotte Henrietta, having married Capt. George Anson Byron, R. N., an uncle of Lord Byron, Mr. Dallas at an early day took an interest in the poet, and soon discovered in his writings "the marks of the genius which has been since so universally acknowledged." Immediately after the publication of the "Hours of Idleness," Mr. Dallas commenced a correspondence with Byron, which was the beginning of an acquaintance which soon ripened into friendship. On the completion of his "English Bards and Scotch Reviewers," in 1809, Lord Byron placed it in the hands of his friend for publication. Mr. Dallas was at once strongly impressed with the power which it displayed, and which so much surprised those who had judged him by his previous book. "Were you sufficiently acquainted with my mind to be certain that it cannot stoop to flattery," said Mr. Dallas after reading the manuscript, "I would tell you that it rivals the 'Baviad and Mæviad.'" When, in March, 1809, Lord Byron for the first time took his seat in parliament, by his particular request Mr. Dallas accompanied him on that occasion. In July, 1811, Byron returned to England after an absence of more than 2 years, bringing with him the 1st and 2d cantos of "Childe Harold," which he at once presented to Mr. Dallas, with the remark: "They are not worth troubling you with." Throughout the intimacy which existed between Lord Byron and Mr. Dallas, the latter "did every thing that a friend could do to win him to the cause of virtue." After many unsuccessful attempts, much to his satisfaction Mr. Dallas succeeded in reconciling him to his sister Mrs. Leigh, from whom he had been estranged for several years. The intimacy between Byron and Mr. Dallas was entirely broken off some time before the death of the former; immediately after which last event, he announced and prepared for publication in London, "Private Correspondence of Lord Byron, including his Letters to his Mother;" which he believed himself fully warranted in doing, by permission, if not expressed, at least implied, by their author. An application for an injunction was made, however, by Byron's executors, and the publication was prevented. Nevertheless, Mr. Dallas almost at once commenced the preparation of his "Recollections of the Life of Lord Byron, from the year 1808 to the end of 1814," which he had nearly finished when he died, after an illness of 3 months. The book was subsequently edited and published by his son, the Rev. A. R. C. Dallas.

DALLES (Fr. *dalle*, a flagstone), a name given by the Canadian French voyageurs to deep chasms in rocks, forming a narrow passage for rivers. The word is applied by them to the trough itself, the walls of which are composed of rocky slabs. The most famous locality thus named is Long Narrows of the Columbia river, 43 m. above the cascades. In this passage of ½ m. in length, the river is compressed to 300 feet in width, and rushes impetuously between walls of basaltic rocks, which present the appearance of having been forcibly rent apart. Fremont found the narrowest place only 58 yards across, and the average height of the walls 25 feet.—Upon the Wisconsin river, 2 m. above the crossing of the La Crosse and Milwaukee railroad, is another locality called by the same name. The gorge, in sandstone, is 5 m. long; the vertical walls are sometimes more than 100 feet high, and are worn into fantastic shapes by the action of the water. When the stream is low, small steamboats may pass up and down; but in freshets the waters rush through with destructive violence. An arched bridge was

built in 1852 across the chasm, being 100 feet long and 100 feet above the bottom.

DALMATIA, a kingdom within the Austrian empire, forming a small coast strip along the E. shore of the Adriatic, and on the W. slope of the Julian Alps, which form its frontier toward Turkey, lies between lat. 42° 30′ and 44° 28′ N., and long. 14° 59′ and 19° 9′ E., and is the southernmost province of Austria; area, 4,928 sq. m.; pop. 432,337, mostly of Slavic descent, but there are also numerous Italians, Arnauts, Greeks, and about 500 Jews. The Roman Catholic religion is predominant; the non-united Greek church numbers about 80,000 adherents; other sects are less numerous. The formation of the frontier mountain chain (rising to a height of 6,000 feet), which has a picturesque and rugged outline, is of limestone, with many mammoth caves, not perfectly explored, and subterranean lakes and rivers; but the surface is dry and bare, the rivers and lakes drying up during the summer, and leaving to the inhabitants nothing to drink but cistern or marsh water. The slope is sudden, the rivers descending in cataracts; the few fertile valleys are narrow. The coast consists of bold promontories with deeply indented bays, before which a series of long and narrow rocky islands stretch in a S. E. direction nearly parallel to the Julian Alps, forming a great number of excellent harbors. The climate is mild along the coast, the average temperature at Ragusa being 59° F., and not severe on the mountains, ice and snow being almost unknown; rains prevail when the *bora*, a northerly winter storm, blows, but the average annual fall is only 12 inches at Cattaro and Ragusa, and further north somewhat more. In spite of this, the climate is not very healthy, owing to the swamps along the coast range of mountains. Notwithstanding the limited space of fertile land (about 2,500,000 acres), the country might support a far larger population but for the frequent emigrations, and the quarrelsome and indolent habits of the population. Husbandry and the rearing of cattle are neglected, and Dalmatia is less productive than any other dependency of Austria. The value of the products was estimated at about $5,000,000 in 1855, of which timber formed about ⅓, and olive oil, wine, liquors, fruit, hides, tallow, and wax, the rest. Olive oil is largely consumed at home, and 20,000 barrels are exported annually. About 8,000,000 gallons of good wine are produced, of which ⅞ are exported and ⅛ retained for home consumption. Of figs 1,000,000 lbs. are exported, beside great quantities of dates, oranges, almonds, and raisins. The grain crops supply only the local wants for 6 or 8 months, the deficiencies being imported from Turkey and Hungary. The sardine and tunny fisheries employ about 10,000 persons. The shipping comprises only 22,000 tons, chiefly small craft. The manufactures are insignificant, excepting the distillation of spirits and liquors, of which Maraschino is the most celebrated. The total exports are valued at about $2,500,000; the imports at $2,000,000.—Physically the Dalmatians are a fine race, tall, of regular features and dark complexion, and make excellent soldiers, particularly the Morlaks, who live in the interior. They are also daring sailors, and constituted the strength of the power and ascendency of Venice in the middle ages, the violent storms and the perilous navigation in the Dalmatian archipelago developing their vigor and skill. They love liberty and independence, and have almost always successfully withstood the aggressions of the Turks. Their language is Servian, the same Slavic dialect which is spoken by their neighbors in the Herzegovina. Education is much neglected. There are 5 theological seminaries, 4 gymnasiums, and 251 badly organized and ill-attended public schools. Dalmatia is divided into 4 districts, Zara, Spalato, Ragusa, and Cattaro, and contains, beside the 4 cities of the same names, 15 other cities, and 35 towns. The Turkish portion of the ancient domain of Dalmatia forms the present province of Herzegovina.—The Romans subjected Dalmatia after a struggle of nearly 100 years, under Augustus; and under Diocletian it was one of the most flourishing portions of the empire, he having his residence at Spalato. The Slavic race took possession of it about 620, when the great Germanic migration had scarcely left a trace of the ancient inhabitants. The N. portion of the country was conquered by the Hungarians during the 11th century, and the southern (the Herzegovina) surrendered itself to the protection of Venice, which, however, could not prevent it from being, in the 16th century, conquered by the Turks, who possessed for almost 100 years the whole of Dalmatia. By the treaty of Campo Formio (1797) Austria came into possession of the Venetian portion, united it with the Hungarian portion, and has since ruled Dalmatia with the exception of the period 1805–'13, when it was under the sway of Napoleon, who strove to develop its resources for a navy. Austria has begun in the last decade to increase its commercial prosperity; she has established a naval academy at Spalato, tried to deepen several harbors, and to encourage ship-building. Napoleon conferred the title of duke of Dalmatia upon Soult.

DALMATICA, a kind of cloak with long sleeves, the use of which came originally from Dalmatia. It was this garment which characterized those nations whom the Greeks and Romans designated under the name of barbarians. When the emperors Commodus and Heliogabalus appeared in public wearing it, it was regarded as a dishonor by the Romans, who like the Greeks thought men effeminate who concealed their arms in the folds of their cloak. In later times the dalmatica became the distinguishing garment of deacons, who still wear it when they assist the priest at the altar or at any other ceremony. According to Alcuin, Pope Sylvester was the first who made deacons exchange the *colobium* or robe with short sleeves for the dalmatica, because he blamed the custom of having the

arms uncovered. Artists usually represent St. Stephen, the first deacon, as clothed with a dalmatica, which is an anachronism. The form of the dalmatica was the same as that of the usual garment of the ancient oriental nations who bordered upon the Mediterranean. As now worn by Catholic ecclesiastics, it has lost its ancient shape. It is made of very stiff materials, like the chasuble, and the loose flowing sleeves are replaced by a short covering for the upper part of the arm, slit underneath, and cut off above the elbow.

DALRYMPLE, the name of a Scottish family which rose into importance about the beginning of the 15th century. The following are its most eminent members: I. James, viscount of Stair, born in Drummurchie, Ayrshire, in May, 1619, died Nov. 26, 1695. He received his education at the university of Glasgow, and in the 22d year of his age, while holding a captain's commission in the army, was appointed professor of philosophy. Having filled this position for several years with credit, he was admitted in 1648 an advocate at the Scottish bar, and soon rose to eminence in civil practice. He was secretary of the commissions sent in 1649 and 1650 to treat with Charles II., then an exile in Holland; and in 1657, on the recommendation of Gen. Monk, he was appointed by Cromwell one of the "commissioners for the administration of justice," as the judges of the court of session were then called. After the restoration he was appointed by Charles II. one of the new lords of session, but resigned office in 1663, from an unwillingness to take the declaration against the national covenant of 1638, and the solemn league and covenant of 1643, appended to the oath of allegiance. The king refused to receive his resignation, and made him a baronet. In 1671 he became lord president of the court, and availed himself of his position to make some improvements in the system of judicature. In 1681 he refused to take the new test oath, and was obliged to resign office. In the same year he published his "Institutions of the Law of Scotland," a work held in no less esteem in Scotland, as the grand text book of the law, than are Blackstone's Commentaries in England. In 1682 he experienced such persecution from government as rendered it necessary for him to take refuge in Holland, where he prepared for publication his decisions, and published in 1686, at Leyden, a Latin treatise entitled *Philosophia Nova Experimentalis*. He accompanied the prince of Orange to England, exclaiming: "Though I be now in the 70th year of my age, I am willing to venture that (pointing to his head), my own and my children's fortune, in such an undertaking." He was rewarded for his adherence to William and Mary by a reappointment to the presidency of the court of session, and was elevated to the peerage as Viscount Stair. II. John, earl of Stair, son of the preceding, died in 1707, was an advocate at the Scottish bar, and became secretary of state for Scotland. He was created an earl in 1703. His complicity in the Glencoe massacre has given an unenviable notoriety to his name. Influenced, as his apologists say, by an intemperate and remorseless zeal for the interests of the state, he conceived an intense hatred against the Macdonalds of Glencoe for their tardiness in taking the oath of submission. To him is ascribed the infamy of having united with Breadalbane and Argyle to obtain from William the order for the extirpation of the clan, without informing him of the submission of its chief, Mclan, and of carrying it into effect. After a full inquiry the Scottish parliament pronounced him the original author of the massacre, but failed to impute to him such criminality as would affect his life or his estate. III. John, earl of Stair, son of the preceding, born in Edinburgh, July 20, 1673, died there, May 9, 1747. He entered the army at the age of 19, and served with great distinction under Marlborough. On the accession of George I. he was appointed commander-in-chief of the forces in Scotland, and for several years was ambassador in France, in which capacity he distinguished himself equally by diplomatic skill and magnificence of living. Subsequently he lived many years on his estates, and is known to agriculturists as the first to plant turnips and cabbages in open fields in Scotland. IV. Sir David, better known as Lord Hailes, great-grandson of the 1st Viscount Stair, and an eminent lawyer and antiquary, born in Edinburgh, Oct. 28, 1726, died Nov. 29, 1792. He was educated at Eton, studied the civil law at Utrecht, and in 1748 was admitted an advocate at the Scottish bar. After 18 years of professional life, he was made a judge of the court of session, under the title of Lord Hailes. Ten years later he was appointed a lord of justiciary, a position which he held until his death. As a criminal judge he was distinguished by learning, dignity, and a leaning to the side of mercy. He wrote much on other than professional subjects. His publications, 48 in number, exclusive of articles in reviews and magazines, commence with the year 1751 and extend to 1790. The first was a volume of paraphrases and translations from the Scriptures by various authors; which was followed by the publication, with ample notes and illustrations, of a variety of memorials and original letters, throwing light upon the history of England and Scotland. In 1769 he produced a historical memoir of the provincial councils of the Scottish clergy, and "Canons of the Church of Scotland, drawn up in the Provincial Councils held in Perth, in the years 1242 and 1269;" and in the succeeding year a collection of old Scottish poems from manuscript, with many curious illustrations. In 1773 appeared his "Remarks on the History of Scotland," and in 1776–'79 his "Annals of Scotland" from the time of Malcolm Canmore to the accession of the Stuarts, his most popular and one of his most useful works. The same year he published an account of the Christian martyrs of Smyrna and Lyons in the 2d century; which was succeeded,

in continuation of the subject, by the 2 volumes of "Remains of Christian Antiquity." In his "Disquisitions concerning the Antiquity of the Christian Church," he combated many of the hypotheses of Gibbon regarding the origin and progress of Christianity. "An Inquiry into the Secondary Causes which Mr. Gibbon has assigned for the Rapid Growth of Christianity," published in 1786, was a more elaborate development of his ideas upon the same subject. His last work was a translation of the address of Q. Septimius Tertullus to Scapula Tertullus, proconsul of Africa, with notes, to illustrate the state of the church in early times. Most of these works were published at his own expense. V. ALEXANDER, brother of the preceding, born at New Hailes, Scotland, July 24, 1737, died in London, June 19, 1808. He entered the East India company's service at the age of 16, and for many years occupied the position of hydrographer to the company. His published works amount to about 60 in number, and include a great variety of subjects, though the greater part are devoted to Indian affairs. He also prepared some valuable charts of the eastern seas.

DAL SEGNO (It. from the sign), in music, a direction to the performer to recommence from that part of the piece to which the sign :𝄋: is prefixed.

DALTON, JOHN, an English chemist, the author of the atomic theory, and of that of the constitution of mixed gases, born Sept. 5, 1766, at Eaglesfield, near Cockermouth, in Cumberland, died in Manchester, July 27, 1844. With his parents, he belonged to the society of Friends. He received his first instruction at the school of his native village, and in 1781 became usher in a school kept by one of his relatives at Kendal, with which he remained connected until 1793. His favorite studies were mathematics and natural philosophy. In 1788 he commenced a series of important meteorological observations, which, in the course of some 5 years, amounted to the number of 2,000. The nature of his studies and his high moral character procured him an introduction to Mr. Gough, the blind philosopher of Kendal, who obtained for him in 1793 the appointment of professor of mathematics and natural philosophy in a college or seminary at Manchester, which was removed to York in 1799. Dalton continued his lessons to pupils of both sexes in private schools for years, occasionally giving lectures on the physical and experimental sciences in neighboring towns and cities. In 1793 he published his first separate work, entitled "Meteorological Essays." This was one of his most favorite pursuits, and he continued to collect and record meteorological observations until the period of his death. In the following year he gave an account of a singular defect in his own vision which rendered him incapable of distinguishing certain colors; green, red, purple, and blue, all appearing alike to him. He attributed this peculiarity to the color of the retina or of the fluids of the eye; but after his death, no abnormal coloration was discovered on dissection. In relating to a friend the manner in which he first discovered the defect, he stated that on one occasion, when a boy, he went to see a review of troops, and being surprised to hear the other boys admire the red coats of the soldiers and the purple sashes of the officers, he could not understand in what manner the red coats differed from the color of the grass in the fields where the review took place. He asked the boys what difference they could see between the two; and from the general burst of laughter he obtained in reply, he was led to suspect there must be some defect in his own vision, which rendered him unable to perceive the difference. This peculiar defect of vision, which is not very uncommon, has sometimes been called Daltonism in England, since the publication of his paper. The earliest papers of Dalton consist of contributions to an able periodical called the "Gentleman's and Lady's Diary." He afterward published articles in the "Memoirs of the Manchester Society," in "Nicholson's Journal," the "Philosophical Magazine," and the "Transactions of the Royal Society of London." In 1801 his daily occupation as a teacher in a school led him to write and publish an "English Grammar." In 1802 he wrote 6 dissertations for the "Memoirs of the Manchester Society," in one of which he unfolded his celebrated theory of the "Constitution of Mixed Gases." His views on this subject were for some time strongly opposed by eminent chemists, but they are now universally received. The leading feature of this theory is that gases which do not form new chemical compounds act on each other as a vacuum, diffusing themselves among each other by their own elasticity. The greater part of the experiments of Dalton were made with a view to ascertain the influence of heat in the production of physical and chemical phenomena; and much of the progress of modern science in this department is due to his researches. Other subjects treated in these papers were the "Force of Vapor of Water and other Fluids at Different Temperatures in the Torricellian Vacuum, and under Atmospheric Pressure," and the "Theory of Evaporation and the Expansion of Gases by Heat." These works display profound reasoning based on accurate observations; and beside establishing the high philosophical reputation of the author, have rendered great service to the progress of pneumatic chemistry, and of modern investigations on the specific gravity of gases. The celebrity of Dalton, however, rests mainly on his atomic chemical theory, which he began to work out in 1803. The first developments of this new theory were deemed obscure and unsatisfactory by English chemists; nor did they generally receive it after he had done his best to make it plain. Dr. Wollaston, however, investigated the subject carefully, and admitted the truth of the system at an early period; and Berzelius gave a masterly analysis of the atomic

theory, and placed it on an elevated basis of authority. Prof. Thomson of Glasgow, and Dr. Henry of Manchester, gave many luminous and popular illustrations of the doctrine in England; and Dalton, before he died, was universally honored in his native land, as well as among men of science in all other civilized countries. The atomic theory is said to be a consequence of the investigations of Richter; a theory which that laborious experimentalist did not perceive, but which, it is affirmed, was obscurely indicated in a paper by Dr. Higgins. It is, nevertheless, acknowledged now that the first development of its general principles, and the important consequences of its application to the explanation of chemical and natural phenomena, are due to Dalton. The atomic theory was fully propounded by Dalton in his "New System of Chemistry," the 1st volume of which appeared in 1807, and the 2d in 1810. These were followed by a 3d in 1827. The elements of the mathematical principles of the science are fully explained in these important volumes. In his papers on subjects connected with meteorology, he has left valuable remarks on evaporation, rain, the aurora borealis, winds, and dew. His observations on the latter contain the principles of Dr. Wells's theory of dew, and of Daniell's hygrometer. In 1822 Dalton visited France, where he was received with much distinction. In the reign of William IV. the English government gave him a pension of £150 a year, which was subsequently increased to £300. In person, Dalton was of middle stature, with a good constitution, though not robustly formed. His early habits as a member of the society of Friends had given him a quiet, grave demeanor. He was never married.

DAM, an obstruction of wood, stone, or earth, raised to keep back a current of water, either for the purpose of giving power by increased head, for holding back supplies of water, for flooding lands, or for rendering the stream above the dam navigable by increased depth. The earliest dam builders were the beavers. With clay and earth bound together with sticks, they construct durable piles across rivers, and cause the marshy lands above to be converted into extensive ponds. Their dams in districts long since deserted by them remain as monuments of their wonderful sagacity. In Maine they have sometimes proved, with the materials accumulated upon them, serious impediments to the running of logs down the streams, and the opening of a way through them has often been a matter of great labor and expense. Some of the dams constructed for manufacturing purposes in New England are among the most remarkable of this class of works. The largest probably in the United States is that completed in Oct. 1849, at South Hadley Falls, 8 m. N. of Springfield, Mass. It is 1,017 feet long, and 28 to 32 feet high, built of timbers a foot square each, which are laid in tiers crossing each other and bolted together, bedded and secured at bottom 4 feet in the rock, and all having a slope up stream. The spaces are filled in with stone 15 feet from the bottom, and gravel is laid over this and in front. The whole width at base is 90 feet, and the slope from the top to the upper edge of the base is 21.5°. It is covered with 6-inch plank bolted to the timbers, and the ridge is double planked, and where most exposed to ice is further protected with a covering of boiler plate iron. The structure consumed about 4,000,000 feet of timber. The roar of the vast sheet of water falling over the dam is said to be heard sometimes at the distance of 40 miles; and the vibrations are at times distinctly perceived at Springfield, where the windows and doors of some of the houses are rattled in uniform pulsations with those observed at the dam. These have been counted by Prof. Snell of Amherst, and found, when the temperature of the air was 80°, to be 137 per minute. With the temperature at 70°, the vibrations were 130. The subject of the vibrations of dams appears to have been first discussed by Prof. Loomis, in a paper in the "American Journal of Science," vol. xlv., p. 363 (1843). He cites several instances of this phenomenon, which appears to have been sometimes a cause of serious annoyance to persons living in the vicinity of dams thus affected. Its occurrence was found in several cases to be dependent on the water falling in an uninterrupted sheet; and the vibrations ceased when this sheet was divided by a floating log catching upon the top of the dam, or by strips of wood secured at intervals upon the ridge for the same purpose. Prof. Loomis discusses the probable cause of the vibrations, and mode in which they are communicated to distant objects, whether through the air or the rock. The subject was treated by Prof. Snell in a communication presented to the American association for the promotion of science, at the Montreal meeting in 1857; and again by Mr. Charles Stodder of Boston, in a paper read the same year before the natural history society of Boston.—Probably the highest dam ever constructed is that described by Minard in his *Cours de construction des ouvrages qui établissent la navigation des rivières et des canaux* (Liége, 1851, p. 204). It is in the province of Alicante in Spain, between two steep mountains which closely approach each other. Its height is 156½ feet, its thickness at top 69½ feet, and its length 272½ feet. The aqueduct for the outlet of the water is excavated through the mountain on one side, discharging below the dam near its base; and the discharge is regulated by a gate above. The dam was built in 1594, and is used for collecting water in winter to be used for irrigating the vineyards in the neighborhood.—A Coffer Dam is a tight case constructed in any body of water to prevent its encroachment, while excavations are made within it for foundations or other purposes. They are commonly made by rows of piles driven into the bottom, those of each row sometimes close together, and sometimes connected by planking, and the space

between the two rows filled in with clay. When it happens that coffer dams are required upon a bottom of quicksand, their construction becomes a work of great difficulty and expense. This was especially the case in building the dry dock for the navy yard at Brooklyn, N. Y. For more than 60 feet below the superstratum of black mud, where the work was laid out, the bottom consisted of an impalpable sand containing much mica, and this when loosened and saturated with water flowed like a dense liquid body. In this material a pit was to be excavated covering a surface of over 2 acres at top and over one at bottom, reaching 42 feet below the surface of the ground, and 37 below mean high water. Piles of yellow pine 35 to 40 feet long, and 15 inches square, were first driven in close contact, forming 3 rows around the outer end of the proposed excavation, the intervals between the rows being 10 and 12 feet. These were filled in with the sand excavated. The piles were tied together with oak wales and 2-inch tie bolts. This barrier was forced inward by a pressure of less than 10 feet head of water, and when the excavation reached 30 feet the water came in under the piles and filled the pit. This was in July, 1846; in September, after the breach had been repaired, the water again burst in, and some of the piles settled down 5 to 6 feet. A new and stronger dam was then the only expedient. Piles 10 to 15 feet longer than the others were driven close together in 2 rows 30 feet apart, outside the old work, and the space between the 2 rows was filled with gravel and coarse stone. A third row was driven within the old work, to the depth of 12 to 15 feet below the proposed level of the foundation, and gravel filled in behind them. Thus constructed, the dam was retained in place during the progress of the excavation only by the closest attention and care. Unsupported within, it could be stayed only in a few places by mooring chains carried to the shore. These cables, made of 2-inch iron, were repeatedly snapped asunder by the pressure. Six of them broke in one night. The foundation was made with piles driven over the area of the pit, and upon these the masonry was laid. As the masonry was carried up it was used to brace against the dam. The pressure upon it moved at one time a mass of more than 250 tons weight. The whole number of piles employed in the dam was 3,504; and the total cost of this part of the structure alone was $206,378.

DAMAGRAM, a province of Central Africa, on the N. W. frontier of Bornoo, extending from lat. 13° 20′ to 14° N., and from long. 4° 30′ to 10° 50′ E. It is a fertile country, but the inhabitants are addicted to robbery and slave-stealing. Beside the tropical productions of Soodan, wheat, cotton, indigo, palms, melons, &c., are cultivated. The common domestic animals are found there, as are lions, wild boars and oxen, jackals, hyenas, &c. The capital was formerly a town of the same name, but is now Ziudoo, which name is sometimes given to the province. It is described in Petermann's "Account of the Expedition to Central Africa," 1854, and was visited by Dr. Barth in 1852.

DAMAR, a kind of indurated pitch or turpentine, the spontaneous exudation of various trees in the East Indian islands. It is used in China and Bengal in coating the bottoms of ships and for other similar purposes.

DAMASCENUS, Joannes, a saint and doctor of the church, born in Damascus about 676, died at the monastery of St. Sabas in Palestine in 780. His father, a Christian, held the office of chief secretary under the Saracen caliphs. On the death of his father, he was made by the caliph Ali governor of Damascus, which office was continued to him after the death of Ali and change of dynasty. The luxury and hazards of such a city were ill suited to his tastes, and after a few years he resigned his office, and became one of the hermits in the "Lama" of St. Sabas in the valley of the Kidron. The old monk who was here assigned as his spiritual instructor laid down for his observance the following 5 rules: 1, entire self-renunciation; 2, dedication of all labors and prayers to God; 3, utter humility, preventing all boast of learning or genius; 4, constant self-mistrust; 5, habitual silence and reserve, both in speaking and writing. He was sent to Damascus to sell baskets, for which he was required to ask an unreasonable price, and so to subject himself to the insults of the market in the city which he had ruled. He did not hesitate, departed on the journey, and persevered until the price was paid. On another occasion, having consoled a brother monk in affliction by repeating a Greek verse, he was excluded from his cell for this exhibition of scholastic vanity, as they chose to consider it, and was only restored after the most humble protestations and the promise to become the scavenger of the monastery. When his monastic virtue had been sufficiently confirmed by repeated tests, he was admitted to the priesthood, and was allowed to write against heretics and in defence of religious customs. His first essay was against the Iconoclasts, whose doctrines were supported by the edicts of Leo the Isaurian, at this time emperor. His most elaborate work was his "Accurate Summary of the Orthodox Faith," a compendium of the doctrine of the church in the 8th century. Supplementary to this treatise he published numerous special essays on controverted points of theology, philosophy, and ethics. In the Monothelite and Monophysite controversies he took an active interest. He wrote a treatise on the "Trisagion," to confute the Eutychians; a work called "Parallels," which lays down rules of practical morals; an abstract of Aristotle's logic and physics; a discussion of the "Eight Principal Vices;" a work on Lent and the proper method of observing it; a biographical sketch of the monk Stephen the Younger; with various other essays. He contributed numerous hymns to the ritual of the Greek church, and his authority as a doctor and a saint is very high

in all the East. His festival is observed both in the Roman and Greek churches. The best edition of his works is that of the Dominican Le Quien (2 vols. folio, Paris, 1712, republished at Verona in 1748).

DAMASCENUS, Nicolaus, a Greek historian and philosopher, contemporary and favorite of the emperor Augustus and Herod the Great. He was born at Damascus, studied with Herod, resided at his court, and went to Rome 13 B. C., where Augustus received him with favor. Of the numerous writings of Damascenus we have only some fragments, the most important of which are from his work on universal history. They are frequently referred to by Rawlinson, in his recent translation of Herodotus, in illustration of obscure passages in that historian.

DAMASCIUS, an ancient philosopher, born probably at Damascus about A. D. 480. He studied for a time at Alexandria, and then went to Athens, where he was first a student, and then a teacher, of the Neo-Platonic philosophy. When the heathen schools at Athens were closed by order of Justinian, A. D. 529, Damascius went to the court of Chosroes, king of Persia; and although he afterward returned, little is known with regard to the remainder of his life. His works, some of which are extant, included a philosophical treatise entitled "Difficulties and Solutions of First Principles" (Frankfort, 1828), and commentaries on Aristotle and Plato.

DAMASCUS (Arabic, *Dimeshk* or *Esh Sham*), anciently the capital of Syria, and justly accounted one of the oldest cities in the world, is situated in lat. 33° 32′ N., long. 36° 20′ E., 136 m. N. of Jerusalem, 180 m. S. W. of Aleppo, and about 45 m. E. from the Mediterranean, at an altitude of 2,344 feet above sea level, in a very fertile and extensive plain, 80 m. in circumference, remarkable for its beauty, so much so as to be called, in oriental phrase, one of the 4 terrestrial paradises. The streams from the adjacent high range of Anti-Libanus, the Barada or Chrysorrhoas, and the Awadj, are supposed to be coincident with the Abana and Pharpar of Scripture (2 Kings v. 12). For many miles the city is surrounded by fertile fields and gardens, which are watered by rivulets and sparkling streams, giving to the vegetation a charming freshness and sweetness. It is nearly 2 m. in length, and half a mile in breadth; it is 6 m. in circumference, and has a double brick wall on 3 sides, and on the 4th a small square citadel flanked with towers. On the whole, it is regular and cleanly for an oriental city; its streets are long and narrow, and tolerably paved with basalt; and its residences, though mean and unattractive externally, are many of them full of magnificence and luxury within. The market places are well constructed, and adorned with marble colonnades. The bazaars are numerous, larger than those of Aleppo, and more airy and better lighted than those of Cairo and Constantinople. Each class of merchants and artisans has its own bazaar, some of them being very extensive, as those of the goldsmiths, the druggists, the traders in cotton stuffs, the pipe makers, &c. The great khan of Damascus is a vast and striking building, filled with various commodities, and frequented by merchants from distant lands. Many of the khans are of great antiquity, and afford even in their present state a good idea of the manner in which business was conducted in ancient times. The mosque of Abd el Malek, 650 feet in length by 150 in breadth, is the chief architectural ornament of the city. There are several other mosques of much beauty, 4 Jewish synagogues, and Greek, Maronite, Syrian, and Armenian churches. The palace of the pasha is a large fortified building in the centre of the city. The population of Damascus has been estimated as high as 200,000, but it probably does not much, if at all, exceed 150,000, comprising 130,000 Mohammedans and Druses, 15,000 Christians, and 5,000 Jews. Damascus is the centre of the commerce of Syria; and its trade is very much increased by its forming the rallying point of all the pilgrims to Mecca from the north of Asia. The number of pilgrims who make Damascus their place of rendezvous, with their attendants, amounts annually to several thousands. The city at such times presents the appearance of a vast fair, and every vacant place is filled with camels, horses, mules, and merchandise. Caravans proceed from Damascus also to Bagdad and Cairo. The principal imports by these various channels are broadcloths, different sorts of metals from the coasts of the Mediterranean, and shawls, muslins, and Indian stuffs, which are brought by way of England. Its own manufactures consist chiefly of silk and cotton fabrics, highly finished saddles and bridles, fine cabinet work, jewelry, gold and silver trimming, and excellent soap, made of olive oil, kali, and chalk. Pearls and precious stones, as turquoises, are to be met with in the bazaars, and large quantities of dried fruits and sweetmeats are exported to Constantinople, to the annual value, it is said, of $200,000. In former days, Damascus was celebrated for the manufacture of sabres of such superior excellence that they would bend to the hilt without breaking, while the edge was so keen as to divide the firmest coat of mail. (See Damascus Blades.) This very ancient city was built, according to some writers, by Uz, the son of Aram; it is repeatedly mentioned in the history of Abraham. It was the residence of the kings of Syria during 3 centuries, and has experienced many and great changes in every period of its history. Hadad, who is called by Josephus the first of its kings, was conquered by David, king of Israel, but its subjection was of short duration. In the reign of Ahaz it was taken by Tiglath-pileser, who slew its last king Rezin, and added its provinces to the Assyrian empire. It subsequently came under the rule of Babylonia and Persia. After the battle of Issus (333 B. C.) it fell into the hands of Alexander the Great, and soon after became a part of the dominions of the Seleucidæ. Pompey at-

tached it to the Roman empire. Its connection with the life and career of St. Paul is well known (Acts ix.; 2 Cor. xi. 32). Many Jews had settled in Damascus after its conquest by Alexander; and Christianity being early preached here, it became the seat of a bishop. Under the emperors, Damascus was one of the principal Roman arsenals in Asia, and is denominated by Julian, in one of his letters, as "the eye of the whole East." The Saracens took it shortly after the death of Mohammed, and afterward made it the seat of the caliphate, and the capital of the Mohammedan world. The Ommyïades reigned at Damascus for more than 90 years. On their fall the Abbassides, their successors, made Bagdad their capital. When the family of the Fatimites obtained the supremacy, Damascus fell under the sway of these Egyptian caliphs; but it was wrested from them by the Seljook Turks, under whom it was in vain besieged by Louis VII. of France and Conrad III. of Germany, in 1148. Just at the beginning of the 15th century it was taken by Tamerlane, after a protracted resistance, which so enraged the conqueror that he put its inhabitants to the sword without mercy. The Mamelukes repaired it, when they gained possession of Syria; but the Turks, under Selim I., took it from them in 1516. It thus became part of the Turkish empire. In 1832, Ibrahim Pasha took it, and added it to the pashalic of Egypt; but in 1840 it was restored to Turkey.—Damascus is the name also of a pashalic extending from the Jordan valley, the Lebanon range, and the river Orontes on the E., to the Euphrates on the W., and from Hamah on the N. to Petra on the S. It embraces the most of Palestine, a part of the country of the Druses, and a part of the Syrian desert. The pasha resides in Damascus, which is the real capital of Syria. He is the head of the civil and military government, and the protector of the caravans which annually proceed from Damascus to Mecca. There is little agriculture except in the vicinity of the principal city, but the district is noted for its horses, mules, camels, Arabian sheep, and bees. The population is estimated from 1,000,000 to 1,500,000, consisting chiefly of Osmans, Arabians, Turkomans, Greeks, Armenians, and Jews. The commencement of a macadamized road, 70 m. long, between Damascus and Beyroot, was celebrated Jan. 3, 1859.

DAMASCUS BLADES. These famous weapons, though in use among nations little skilled in the metallurgic arts, long before the Christian era, and made familiar to the European nations from the time of the crusades, have, until a very recent period, defied all attempts to imitate them, and to reproduce their remarkable qualities. It appears that the Indian wootz was in those ancient times carried from the region of Golconda in Hindostan (where, as well as in Persia, it still continues to be manufactured by the original rude process), and being delivered at Damascus, was there converted into swords, sabres, and scymitars, the qualities of which will for ages to come cause the name of this ancient city to be linked with the most perfect productions in steel. The articles were particularly distinguished for their keen edge, which seemed alike adapted for severing the heavy iron spears opposed to them, or cutting as by a flash of fire the most delicate gossamer fabric floating in the air and offering no opposing weight to the instrument. Their polished surfaces were covered with delicate lines appearing as black, white, and silvery veins, parallel to each other or interlaced and arranged in bundles of fibres, which cross each other at various angles, or in knots and bunches. Constructed without doubt by some exceedingly simple method, the highest skill of modern science was long taxed in vain to imitate this variegated or watered appearance, and the rare qualities associated with it. Methods of great ingenuity and complexity were contrived, by which some very good imitations were made; but it was not till after the investigations of M. Bréant and of the Russian general Anossoff, an account of which was published in the "Russian Mining Annual" a few years ago, that the subject was fully comprehended. Karsten remarks that the true Damascus (leaving aside the false, which is merely engraving upon a coating of some substance laid upon the steel) is a certain proof of a want of homogeneousness in the metal. All steel, even after melting, and malleable iron also, shows this texture, if polished, plunged in acid, and examined with a microscope; and the softer the metal the more decided this is. The Damascus appearance may be given to iron by welding together bars of different degrees of hardness, drawing them down, and repeating the process several times. Karsten suggests that by the use of bars of good steel the best oriental blades may have been fashioned in this way. Such was the "torsion" process of Clouet and Hatchette, the bars being well twisted between each welding. The "mosaic" process, also practised by them, differed from the other by cutting the bar into short lengths and fagoting these pieces, the cut surfaces always being placed so as to face outward. Blades of great excellence were thus produced, but still inferior to the genuine Damascus. Professor Faraday in 1819 detected aluminum in wootz by two analyses, and was inclined to refer the peculiarities of the steel to this alloy; but Karsten failed to find any appreciable quantity of this metal, and other chemists have sought in vain for this or any other ingredient, to which its excellence could possibly be attributed. Elsner entertained the opinion, which is generally received at Sheffield, that it is the remelting and working over of the steel that imparts to it such valuable properties. M. Bréant appears to have been the first to suspect the real nature of the Indian process. By producing the steel with a considerable excess of carbon, and by a suitable method of cooling, he found that two distinct compounds of the metal with carbon were formed, one of which may be steel, and the

other of a quality approaching cast iron. Left to cool slowly, these tend to separate from their confused mixture, and to crystallize, each quality by itself; the slower the cooling the more complete is this separation, and the coarser the bands of stripes or lines in the hammered steel. The steel was prepared by M. Bréant by melting soft iron with $\frac{1}{30}$ its weight of lampblack; a much more ready way of making steel than by the cementation process, but manufacturers have been slow to adopt and improve upon it. With this he made excellent blades, and also from filings of gray cast iron mixed with an equal quantity of the same oxidized, the materials being carefully stirred during their fusion. The more oxidized the iron the better the effect, a large proportion of carbon causing the steel to work badly under the hammer. Gen. Anossoff, however, who repeated these experiments, was not satisfied with the results, the steel appearing to him to have neither the true lines of the Damascus nor its excellent qualities. The Indian method of carbonizing the iron, which they obtain direct from the ore, getting only about 15 per cent. of metal from the magnetic oxide they employ, is to place it in crucibles made of clay, intermixed with straw, adding about 10 per cent. of dry wood in small bits, and cover it in the crucible with 2 or 3 green leaves; only a little more than a pound of iron is the charge of each crucible. They exercise a choice in the wood and leaves, selecting of the former the *cassia auriculata*, and of the latter the *asclepias gigantea* or the *convolvulus laurifolius*. The crucibles are then closely covered with moistened clay, rammed to exclude the air, and are placed, 20 or more of them together, in a small blast furnace, and, with charcoal for fuel, are kept at as high a temperature as possible for about 2½ hours. On removing them from the fire and cooling, they are broken, and the steel obtained in the form of a melted lump. If this is covered upon the surface with irregular protuberances, the quality is bad; but if the surface is smooth, and covered with striæ radiating from the centre, the operation has succeeded, and the steel is of excellent quality. Four or five of these lumps are commonly rejected. The best are remelted, and then, on account of their brittleness, they are exposed to a red heat for some hours in a small wind furnace, by which a portion of the carbon is removed, and the steel is softened, so that it can be easily drawn out under the hammer. This Indian steel, according to the opinion of Mr. Stodart, is far superior for cutlery to the best English cast steel. One of the best samples selected by Gen. Anossoff, and analyzed by M. Ilimoff, gave the following result: iron, 98; carbon, 1.131; sulphur, 0.014; silicium, 0.5; aluminum, 0.055; copper, 0.3; silver, traces. The researches of Gen. Anossoff were made with great minuteness of detail, and their results present many curious and interesting particulars, which are highly instructive as to the nature of this and other qualities of steel, and can be gathered from no other source. The information he acquired upon the subject led to the establishment of works at Zlatoosk in the Ural mountains, where the manufacture of Damascus steel is carried on by a process of his own invention. The quality of the steel he found to be indicated by the appearance of the lines upon the surface, by the color of the ground, and by that of the light reflected from its face. The scoriæ detached from the metal in forging receive from it the impression of its lines, and when examined by the aid of a microscope, they serve better to denote its character than the metal itself; but much experience is required to distinguish correctly the effects of the great variety of lines. Straight lines nearly parallel indicate a bad quality of steel. As they shorten and curve, the quality improves. It is still better when the short lines are broken up, and the spaces between them are dotted over with isolated points, particularly if they become like the meshes of a net, and are connected together by serpentine lines running in different directions. The most perfect quality of steel is indicated by the threads or lines forming little points or knots, and being arranged in groups of the same pattern over the whole surface of the steel. Figures coarsely and strongly marked are much to be preferred to fine delineations. The scoriæ also indicate the depth of the color of the steel; those of deep color and vitreous are the best. When the cooled surface of the melted steel in the crucible is not uniform and displays no colored reflections, the quality is bad. The more brilliant the lustre and the more decided the reflection, the better it is, especially if this has a golden yellow tint. It may also have a bluish or reddish color. The peculiarities of the lines—whether these are properly coarse, or whether they are too fine—appear to Gen. Anossoff to depend upon the proportion of carbon and the intimacy of its combination with the iron. The color of the watered lines and that of the ground depend upon the purity of the iron and the carbon; a ground of deep shade and brilliant lustre with undulations of white indicates purity of materials. The reflection which the surface of the steel gives is the best indication of the condition in which the carbon exists in it. In the yellow-colored only is the combination of carbon and iron complete. When the reflection is red, the carbon is mixed with some strange substance; and when there is no reflection, the carbon is apparently unaltered from its original condition, and the steel, if largely charged with it, is brittle. By 4 methods, Anossoff succeeded in producing steel of the Damascus qualities; only one, however, appears to be of practical importance. One, which was melting the ore with graphite, requires ore of great purity and a large consumption of fuel, and is not uniform in its results. It is supposed from its simplicity to have been the ancient method of producing this steel. The best method was melting the iron in crucibles with graphite. A charge of 11 lbs. of iron, or a

smaller one for a very hard steel, is introduced into the crucible with $\frac{1}{12}$ as much graphite, and $\frac{1}{32}$ part of scales of iron, together with a certain quantity of some flux, as dolomite. This being a very fusible flux, only about $\frac{1}{24}$ part is employed. Being well covered, the crucible is placed in the fire, and the blast is put on. In $3\frac{1}{2}$ hours the surface is covered with a thin layer of scoriæ, on which floats the excess of graphite; one-fourth of it has disappeared. The metal has acquired a weak display of longitudinal lines, a clear ground, and, if the graphite is good, a certain degree of reflection. By continuing the fusion for 4 hours the loss of graphite is $\frac{1}{3}$, and the lines are undulating. In $4\frac{1}{2}$ hours $\frac{1}{2}$ the graphite is taken up, and the lines attain a medium degree of coarseness. The crucible generally begins to fail at this point, but if it should retain its shape for 5 hours, $\frac{3}{4}$ of the graphite will have disappeared, the lines will be reticulated and of medium coarseness, and the scoriæ amount to nearly $\frac{1}{2}$ a pound in weight. By continuing, when possible, the fusion for another half hour, the graphite will nearly all disappear, the scoriæ will amount to $\frac{2}{3}$ or $\frac{3}{4}$ of a pound, and the lines upon the steel will become more or less decided, reticulated, and sometimes zigzag. The following are given as requisites for the best steel: charcoal of the cleanest sort, as pine; a furnace constructed of the most refractory materials; the best quality of crucibles; iron also the best, very malleable and ductile; pure native graphite, or that obtained by breaking up the best crucibles; flux of dolomite, or calcined quartz; a high temperature; fusion as long continued as possible. The blast of the furnace is kept on till the fuel is entirely consumed; and the crucible is not removed until it is cold, or at least black. The cover is then taken off, the graphite removed, the scoriæ are broken, and the lump of steel is extracted. When cold, this presents a surface of uniform appearance; or there may be a depression in the centre if the steel is very hard and shows no reflection; or if steel of this quality exhibits no outward depression, a cavity may be looked for in the interior of the lump, which is the effect of too rapid cooling, and indicates a very inferior quality. The lump, which weighs about 11 lbs., is drawn out under the hammer with 3 to 9 heats; it is then separated into 3 pieces, each of which is forged anew. Particular care is required in reheating to give the proper temperature. At a white heat the steel if hard will crumble; if tender, it loses the watered lines. The best steel may be drawn out cold without cracking, and may even become red hot by hammering. In working the bars into other shapes, they ought not to be heated beyond a clear red, and the last heat should not exceed a cherry red. It is well, as the lower part of the lump is always better marked than the upper, to keep the two original sides distinguished from each other, that the cutting edge may be formed out of the lower. In tempering steel, the different heats are distinguished by the different colors the metal assumes. These are the yellow, violet, blue, and green. The hardest temper is given at the straw-yellow, the greatest elasticity at the blue; at the green the metal begins to lose its elasticity. This is the temper for scythes; the violet for chisels. The very hard Damascus is tempered in grease; all sword blades and arms in boiling grease. They cool more quickly in this than in cold grease, as the former moves more freely around the object plunged into it. The temper is first given to the whole instrument heated to redness, plunged into hot grease, and left to cool. It is then taken out, wiped clean, and rubbed on one side with a whetstone, the better to judge of the proper temperature for reheating. A sabre blade is brought at the point to a blue heat, in the middle to violet, along the edge to yellow, and near the handle to green. When tempered it is dressed with the hammer, sharpened, and plunged while hot into cold water. Greater elasticity is given to the whole blade by bringing a larger proportion of it to a blue heat. The edge takes a harder temper by being filed thin. Razors and some other instruments are tempered in water; scythes need only to be swung in the air. The processes of grinding, whetting, and polishing are liable to remove the temper, particularly with very thin blades. After grinding they frequently require to be heated to a blue color and plunged into water; this is the process called blueing of steel. The grinding tends to bring the metal in places to a green heat, when it loses its elasticity in these places. This happens even if the stone is wet, provided the blade be pressed hard upon it. This accounts for the difference in razors made of the same steel. Rather than risk injuring the temper, it is better not to give a high polish to the blades and edges of instruments; those of Damascus steel do not need it, for after the lines are brought out by the application of acids, polishing beyond a slight rubbing with fine emery and oil is no improvement. This last process of bringing out the watered appearance is accomplished by the use of a diluted acid, which acts more upon the ground than upon the lines. All acids are not equally suitable for this purpose. Nitric acid acts not only upon the iron, but also upon the carbon, and moreover injures the lustre. Sulphuric acid, having no effect upon the carbon nor the reflection of the surface, is much to be preferred, especially when it is used in the state of a sulphate; and a sulphate of iron which contains a certain quantity of sulphate of alumina is found to produce the best effects. The blade, thoroughly cleaned, is washed with the solution by pouring it over the surface, and when the lines are developed it is repeatedly washed with soap and water, and wiped dry with a cloth, care being taken not to wet any portion after it has been once dried. Some vegetable acids, as lemon juice or vinegar, answer very well in place of the solution of sulphate of iron. The last operation is to rub the sur-

face over with pure olive oil and again wipe it dry.—The total expense of the production of blades by these processes is estimated at Zlatoosk to be about $1 10 per lb. They prove to be of similar properties to those of the famous oriental blades, the accounts of which have not been so much exaggerated as is generally supposed. Gen. Anossoff has himself, with a blade of reticulated lines in broad stripes and showing a bright gilded reflection, cut through a gauze handkerchief in the air, a feat which cannot be accomplished with the best English steel. Bones and nails may be cleft without injury to blades tempered for such use, and other steel tempered to the same point may be nicked by them without causing a gap. Their elasticity is so great, that one may put his foot upon the end of the blade and bend it to a right angle, when it will fly back perfectly unchanged. Razors are said to do at least twice as much service as those made of the best English steel. Articles requiring great sharpness and strength should be made of the harder quality of Damascus, that which displays the lines before the treatment with acids; those requiring great elasticity should be made of the softer quality, which is prepared with a smaller proportion of graphite. Atkinson in his late work on Siberia states that Gen. Anossoff died in 1851, and that his successor at the works had failed to produce the remarkable blades for which the establishment had become celebrated. The wonderful quality of the arms previously made there is particularly noticed by Capt. James Abbott, in his "Journey from Herant to St. Petersburg." The observations of M. Anossoff upon the introduction of other metals to alloy the steel are very minute, but they are all unfavorable to any mixtures with the iron and carbon.—These researches are particularly interesting, from their bearing upon the new process of producing cast steel, introduced into successful operation in this country, by melting malleable iron in crucibles with carbonaceous fluxes, thus avoiding the tedious and expensive process of cementation. For this operation see STEEL.

DAMASK, a fabric originally manufactured at Damascus, whence its name. It was made of silk, and was distinguished by its ornamental woven figures of fruits, flowers, animals, and landscapes. It is still distinguished by these ornaments, and by the mode in which they are introduced in the process of weaving, though the material of modern damask is often linen, sometimes indeed woollen, or even cotton, or a mixture of linen and cotton. The cotton fabric, from its want of durability and beauty, has little to recommend it for this manufacture, particularly as it is only by great care and frequent bleaching that it can be made to retain its whiteness. Its peculiar texture is that called tweeling or twilling, in which the warp and the woof cross each other, not alternately, but at intervals of several threads. These intervals being at every 8 threads in damask, the stuff is called an 8-leaf twill. The linen damasks manufactured at Dunfermline in Scotland, and at Lisburn and Ardoyne in Ireland, are used chiefly for table cloths and napkins. Diaper is a variety of damask, differing from it by the warp and the woof crossing each other at intervals of 5 threads.

DAMASKEENING, the art of ornamenting iron or steel by inlaying with gold, silver, or some other metal. It is used chiefly for adorning sword blades, guards, and locks of pistols. The most beautiful method of damaskeening consists in cutting the metal deep with a graver, and filling the groove with thick wire of gold or silver. In this way the wire adheres very strongly. The more common process is superficial only. For this, the metal is heated to a blue color; it is then hatched with a knife, and the figure desired is drawn with a fine brass bodkin upon the hatching. This done, a gold wire is conducted according to the pattern designed, and sunk carefully into the metal with a copper tool. Of late a method is in practice of eating out a cavity for the precious metal by means of acid. The art was carried to great perfection in Damascus, in Syria, whence its name. It is of great antiquity, its invention being attributed by Herodotus to Glaucus of Chios, 490 B. C.

DAMAUN, or DAMAN, a seaport on the coast of N. Concan, belonging to the Portuguese; pop. about 6,000. It is situated at the mouth of the Damaun river, on the gulf of Cambay, 100 m. N. from Bombay; lat. 20° 24′ N., long. 72° 53′ E. It has a fine appearance from the sea; its houses are whitened, and it contains several churches and convents, but the streets are narrow and dirty. It is fortified by a rampart and a castle. The river has a bar at its mouth, with 18 feet of water at high tide. It is a good port of refuge and of repairs for small vessels. Ship-building is carried on to some extent, but commerce is declining. The Portuguese sacked and burned the town in 1531, and in 1558 took formal possession of it. The territory which they hold here is 10 m. long and 5 m. broad.

DAMAUN, DAMAN, or THE BORDER, a district of the Punjaub, formerly included in Runjeet Singh's kingdom of Lahore, between lat. 28° 40′ and 33° 20′ N., long. 69° 30′ and 71° 20′ E.; length 300 m.; average breadth 60 m. It lies between the Indus and the Suliman mountains, and extends from the borders of Sinde N. to the Kala or Salt range. The irrigated portions are highly fertile, but other parts of the country consist of burning, sterile plains, sandy deserts, or jungles infested by wild beasts. The heat in summer is intense, but ice often forms in winter. The inhabitants are mostly Juts and Beloochees, dark-complexioned, ill-formed, and quarrelsome.

DAMBOOL, or DAMBOLO, a village in the island of Ceylon, with an immense rock about a mile distant, rising 550 feet above the plain, and called Damboollagalla. On its S. side, 100 feet from the summit, are 5 very remarkable caves, in which the Ceylonese monarch Walogambahu concealed himself during an invasion of the Mal-

abars, 100 B. C. In gratitude for the protection thus afforded, he ordered the caves to be enlarged, and converted them into Buddhist temples. Images of the god were placed there, priests appointed to conduct the worship, and the revenues of certain lands set apart for their support; and the service is still kept up. In one of the caves is a colossal statue of Buddha hewn out of the rock; a long inscription found in another is interesting for the information it conveys concerning the government of Ceylon during the 12th century.

DAMER, Anne Seymour, an English sculptor, only child of Field Marshal Conway, born in 1748, died May 28, 1808. She imbibed an early love for literature, and was celebrated for her accomplishments. A casual conversation with Hume turned her attention to sculpture, and she took lessons from Ceracchi and Bacon, and went to Italy to prosecute the art. She was also an excellent amateur actress. The productions of her chisel are numerous and admired. Among them are a bust of Nelson in the Guildhall, 2 colossal heads on Henley bridge, and a statue of George III.

DAMERGU, a frontier province of Bornoo, in Central Africa. The capital, Olaloal, lies in about lat. 14° 30′ N. There are said to be 200 or 300 towns and villages in the country. It is very productive, and the granary of Aïr, and chiefly inhabited by slaves of the Kelowis under the rule of the Tuariks.

DAMEROW, Heinrich Philipp August, a German psychologist, and superintendent of the insane asylum at Halle, born in Stettin in 1798, is one of the greatest authorities in Prussia on all subjects pertaining to insanity, established and still edits the *Journal für Psychiatrie*, and has written *Die Elemente der nächsten Zukunft der Medecin* (Berlin, 1829); *Ueber die relative Verbindung der Irren-, Heil-, und Pflege-Anstalten* (Leipsic, 1840); and *Sefeloge, eine Wahnsinnsstudie* (Halle, 1853).

DAMIANI, Pietro, an Italian prelate, born in Ravenna about 988, died at Faenza, Feb. 22, 1072. While young he entered the monastery of Font Avellana, of which he became abbot in 1041, and in 1057, greatly against his own will, was raised by Pope Stephen IX. to the rank of cardinal-bishop of Ostia. He persuaded the simoniacal Benedict X. and the antipope Cadalous to lay aside their pretensions; he vigorously supported the measures of which Hildebrand (Gregory VII.) was the prime mover, and he was in consequence persecuted by the disorderly clergy of Milan, to whom he was sent as legate. In 1062 he withdrew to his solitude at Font Avellana, but the next year was sent to France by Alexander II. to investigate the charges of simony against the French clergy. In 1069 he went on a similar mission to Germany, and in 1071 he left his monastery again to restore order in Ravenna, the archbishop of which city had been excommunicated. There are many editions of his writings, comprising sermons, lives of saints, treatises on church affairs, and a work on the abuses of the clergy.

DAMIENS, Robert François, executed in Paris, March 28, 1757, for his attempt on the life of Louis XV. He was born near Arras, in 1714, and his character was of the worst description. While a child he was called *Robert le Diable* on account of his wickedness. He enrolled as a soldier, but deserted; afterward robbed one of his employers, and fled to Belgium.

DAMIETTA (Arab. *Damiat*, anc. *Tamiathis*), a town of lower Egypt, on the right bank of the E. branch of the Nile, 6 m. from its mouth, and 100 m. N. N. E. from Cairo; pop. about 28,000, a few of whom are Greeks and Syrians, and the rest Egyptians. Its general appearance is that of a straggling collection of poorly built houses, relieved by magnificent mosques, bazaars, and marble baths, with a few brick dwellings of a better sort on terraces near the river. It has a military school for 400 infantry officers, a cotton-spinning factory, a large rice mill, and a good coasting and interior trade in dried and salted fish from Lake Menzaleh, rice, coffee, beans, dates, flax, linen, &c. It was once famous for the manufacture of leather and striped cloth, and the name of dimity given to the latter in Europe is supposed to be derived from it. Its foreign commerce was formerly large, but is now merged in that of Alexandria. Its harbor is bad, and is inaccessible by large vessels owing to a bar at the mouth of the Nile. The ancient town of Damietta stood about 5 m. nearer the sea than the present. Under the Saracens it rose to great importance, and the crusaders, looking upon it as the bulwark of Egypt on the Mediterranean side, made it the object of many attacks. In one of these sieges it was captured by the French king Louis IX.; but the victorious monarch, having fallen soon after into the hands of the Arabs, was forced to purchase his freedom by restoring the city to its former owners. The sultan of Egypt, about 1251, in view of the danger of its exposed position, razed it to the ground, built the present city, and blocked up that mouth of the Nile by which it communicates with the sea.

DAMIRON, Jean Philibert, a French eclectic philosopher, born at Belleville, May 10, 1794. A pupil of the normal school, he taught literature and philosophy in provincial colleges, and through the influence of Victor Cousin was called to Paris, where he occupied a chair of philosophy in 3 of the principal colleges, and was finally appointed professor of philosophy in the faculty of letters. In 1836 he was elected to the academy of moral and political sciences, where he succeeded Destutt de Tracy. He first published *Essai sur l'histoire de la philosophie en France au XIX^e^ siècle* (1828); next a *Cours de philosophie* (1831), treating of psychology, logic, and morals. His *Essai sur l'histoire de la philosophie au XVII^e^ siècle*, which appeared 15 years later, gives a synopsis of the philosophical systems of Descartes, Gassendi, Spinoza, Malebranche, Bossuet, and Fénelon, con-

cluding with his own opinions. In 1857 appeared his *Mémoires pour servir à l'histoire de la philosophie du XVIII^e^ siècle*. He also edited Jouffroy's *Nouveaux mélanges*, with an introductory notice, beside publishing a variety of miscellaneous philosophical memoirs, including sketches of Bayle, Leibnitz, Clarke, Helvetius, Diderot, and others.

DAMJANICS, János, general in the Hungarian war of 1848–'49, born in the Military Frontier district of Austria in 1804, executed at Arad, Oct. 6, 1849. Though a Rascian by birth, and serving in one of the regiments of his native district, he early drew upon himself the attention of his Austrian superiors by manifestations of a liberal and national Hungarian tendency. After the outbreak of the Hungarian war he was for this reason to be sent to Italy, but he was retained by the Hungarian ministry, and subsequently sent as commander of the 3d and 9th battalions against his own countrymen, the Rascians, in southern Hungary. His gigantic stature, unsurpassed valor, and revolutionary rigor, soon made him the favorite of the army and nation, and the terror of the hostile tribes. He won the battles of Lagerndorf (Nov. 9, 1848), of Alibunar (Dec. 17), and when recalled to join the chief central army, the decisive battle of Szolnok (March 5, 1849); and in the spring campaign of Görgei he had the chief merit in the successive victories of Izsaszeg (April 6), Waitzen (10th), Nagy-Sarló (19th), and before Comorn (26th). Having accidentally hurt his leg, he was prevented from entering upon the office of substitute minister of war, which was tendered him, as well as from further service in the field. Made commander of the reconquered fortress of Arad, he surrendered 4 days after Görgei (Aug. 17) to the Russians, who soon delivered him up to the Austrians. He was hanged after having witnessed the execution of 12 fellow officers.

DAMM, Lake of (*Dammische See* or *Dammsche See*), a lake in the circle of Stettin, province of Pomerania, Prussia. It is formed by the expansion of the Oder, near its mouth, is about 10 m. in length by 1½ in breadth, and is navigable in its whole extent. It receives the waters of the Ilna and the Plöne.

DAMOCLES, one of the courtiers of Dionysius the Elder, tyrant of Syracuse. Damocles had extolled the happiness of Dionysius in being a rich and powerful king, and the latter, wishing to show him the nature of that happiness, placed him one day at a magnificent banquet, with a naked sword suspended above his head by a single hair.

DAMON and PYTHIAS, the names of two celebrated Syracusans, which are always joined as the types of true and noble friendship. They were both Pythagoreans. Pythias, or correctly Phintias, was condemned to death by Dionysius the Elder, but requested to be temporarily released in order to arrange his affairs, promising to procure a friend to take his place and suffer his punishment, if he should not return. Pythias was allowed to depart, and Damon gave himself up as his substitute. Before the time appointed for the execution, Pythias returned, and Dionysius set both of them free.

DAMOREAU, Laure Cinthie (Montalant), a French vocalist, born in Paris, Feb. 6, 1801. Her parents were employed as *concierges* in the conservatory, and Laure was not yet 7 when she became one of the pupils of that institution. Her talent attracted the attention of Plantade, one of the professors, who admitted her into his singing class, and afterward introduced her to Louis Napoleon's mother, Hortense, who became interested in the little girl. In 1819 she made her first appearance in Paris under the name of Mademoiselle Cinti; but her reputation was not established until 4 years afterward. In 1827 she left the Paris opera and went to Belgium, where she married M. Damoreau, an actor connected with the theatre of Brussels. One of her most memorable achievements was in 1829, when she sang in the first act of the *Matrimonio segreto* together with Malibran and Sontag, without being eclipsed by either of those artists. In 1844 she took leave of the French stage, and made a professional tour in the United States; after which she became professor in one of the singing classes of the conservatory. She has published a *Méthode de chant*, an *Album de romances*, and some fugitive pieces.

DAMPE, Jacob Jacobsen, a Danish professor of philosophy, born in Copenhagen, Jan. 10, 1790, died in 1850. The liberal sentiments of his lectures on philosophy gave umbrage to the government, and he was detained in prison from 1821 to 1841, when Christian VIII. restored him to liberty. He contributed many articles to religious and political publications, and is the author of a work on Danish orthography, of literary essays in prose and verse, and of a variety of books, the chief object of which is to show the compatibility of liberal institutions with the spirit of the Christian religion.

DAMPIER, William, an English navigator, born at East Coker, Somersetshire, about 1652; the date of his death is unknown. His father, a farmer, destined him for commercial pursuits, but having become an orphan at an early age, the boy's guardian took him from school, and sent him to sea as a common sailor, in which capacity he made voyages to Newfoundland and the East Indies. War having broken out between England and Holland, Dampier enlisted on board a ship of war, was present in two actions, fell sick, was invalided and sent home. On recovering, he undertook for 6 months the overseership of a plantation in Jamaica. Disliking that obscure life, he made several voyages in a Jamaica coaster. At Kingston he became acquainted with a party of lumberers about to sail for the bay of Honduras, to cut mahogany, and readily agreed to join them. He remained with them 3 years. Returning to London in 1678, he published a description of the bay of Honduras. In the succeeding year he left London for South America, with the intention to

resume lumbering; but at Jamaica he met with a party of buccaneers, who were about to make a descent on the Spanish main, and he and his comrades joined them. The party crossed the isthmus to the Pacific. On the Pacific coast, with their small boats, they boarded and captured several ships, which they converted into cruisers, and with them pillaged the cities on the Peruvian coast. An immense amount of plunder fell into their hands, but they quarrelled so much about its distribution that Dampier left, and arrived in Virginia in 1682. On Aug. 23, 1683, he set out with a privateer, Capt. John Cook, for the Pacific ocean, via Cape Horn. Cook's expedition cruised along the coasts of Chili, Peru, and Mexico, making depredations on the Spaniards. In 1685 Dampier joined the command of Capt. Swan on the coast of California, in hopes to intercept the Spanish Manila galleon; but that rich prize did not fall into their hands, and they set sail for the Philippine islands. After many hardships they arrived, in a perishing condition, at the isle of Guam; thence they steered for Mindanao, the crew being in a state of mutiny; at this place they set ashore Capt. Swan, and those who were favorable to him. Dampier continued to cruise with the mutineers in the Indian archipelago, where he noted some islands hitherto unknown, and in the course of the voyage touched at New Holland, or Australia. Having become disgusted with the excesses of his companions, he secreted himself with 7 others on one of the Nicobar islands, and on the departure of the buccaneers, put to sea in a canoe to reach the English factory at Acheen, Sumatra. A tempest threw him on the coast, but at length he reached his destination. From Acheen he made several commercial voyages to Tonquin, Malacca, Madras, and Bencoolen. At the latter place he held the office of master of the artillery for 5 months. From Bencoolen he embarked for England, where he arrived Sept. 16, 1691, and published his "Voyage around the World." He dedicated the book to Charles Montague, earl of Halifax, president of the royal society, by whom he was recommended to the admiralty, who gave him the command of the Roebuck, a government vessel of 12 guns, for the purpose of exploring the coast of New Holland. With this ship he set sail from the Downs, Jan. 26, 1699, and having run across to Brazil, turned his course eastward to the coast of New Holland, which he traced for nearly 300 leagues. Being unable to effect any communication with the natives, he bore up for the Dutch settlements to refit. On his departure he threaded the archipelago, and on Jan. 1, 1700, came on the coast of New Guinea, which he surveyed, passing through the strait which separates that island from New Britain, and which bears his name. After numerous other discoveries, he returned by a new route to Ceram, in the Moluccas. On his way to England, his ship foundered off the island of Ascension. Dampier and his crew saved themselves; 2 months after, in 1701, they were taken from the island by a passing ship, and carried to England, where he published an account of the expedition. Government seems to have been dissatisfied with the result, for it gave him no further employment. The rest of his life is obscure. In 1703 we find him making an unsuccessful cruise as master of a privateer belonging to a company of English merchants, and again in the capacity of pilot to a privateering expedition, under Capt. Woods Rogers, in 1711. In 1707 he published a defence of his buccaneering on the Spanish main. He also wrote a treatise on winds and tides. Dampier's style of relating his adventures is interesting; his descriptions are vivid, and his facts generally correct. The best edition of his collected voyages appeared at London in 1729, in 4 vols. 8vo.

DAN. I. One of the sons of Jacob. II. A tribe of Israel, descendants of the preceding, and the division of Palestine allotted to them. The latter was bounded by Ephraim, Benjamin, Judah, and the Mediterranean. III. A town of Palestine, on the northern boundary, called Laish before its conquest by the Danites from the Phœnicians.

DAN RIVER, a river of Va. and N. C. It takes its rise at the foot of the Blue Ridge in Patrick co., Va., and flows S. E. into Surrey co., N. C. It then turns E., and after a winding course of 200 m., during which it 5 times crosses the boundary between the 2 states, and drains a tract of country 4,000 sq. m. in extent, it unites with the Staunton, or Roanoke river, at Clarksville, Va. It is navigable by boats as far as Danville, Va.

DANA, Francis, an American jurist, born at Charlestown, Mass., June 13, 1743, died at Cambridge, April 25, 1811. He was graduated at Harvard college in 1762, and was admitted to the bar in 1767. The state of public affairs at this period attracted the zeal or the foresight of the young men of most promise in the profession. He joined the "Sons of Liberty," and John Adams's diary of Jan. 1766, speaks of the club in which "Lowell, Dana, Quincy, and other young fellows" were not ill employed in lengthened discussions of the right of taxation. The repeal of the stamp act gave an opening to practice, in which Mr. Dana was soon much engaged. He was of counsel in the well-known Lechmere slave case in 1769, decided some 3 years before that of Somerset, and to the same effect. In 1773 he acted in behalf of the Rhode Island patriots in concert with John Adams for the prosecution in the matter of Rome's and Moffat's letters; and in the next year opposed, though one of the youngest of the bar, the addresses of that body to Gov. Hutchinson on his departure. In Sept. 1774, he was chosen delegate from Cambridge to the 1st provincial congress of Massachusetts. In the beginning of April following he sailed for England (where his brother had settled), charged with confidential letters to Dr. Franklin on the critical state of affairs, from Warren, the elder Quincy, Dr. Cooper, and other leaders. John

Adams, in a letter of April, 1776, introduces him to Washington as "a gentleman of family, fortune, and education, who has just returned to his country to share with his friends in their dangers and triumphs. He will satisfy you that we have no reason to expect peace from Britain." His connection, through his brother's marriage, with the Kinnairds and the Pulteneys, among whom he also met Gov. Johnstone, enabled him to judge of the state of English feeling beyond the usual American circle there. He was also intimate with Dr. Price, and had contributed to the material of the work published by him, soon after, in defence of the colonies. In the May after his return he was chosen by the Massachusetts assembly one of the council, who at that time acted not only as a senate but as the executive of the state; of this body he continued a member by reëlections until 1780. In Nov. 1776, he was chosen a delegate from Massachusetts to the congress of 1777, which formed the confederation, and again to the congress of 1778, where he was placed at the head of a committee of the first importance and responsibility at that juncture, charged with the entire reorganization of the army and its establishments. Accompanied by President Reed, Gouverneur Morris, and others of the committee, he passed from January to April of that year in the camp at Valley Forge, concerting with Washington the plan subsequently transmitted by congress, June 4, 1778, to the commander-in-chief, "to be proceeded in with the advice and assistance of Mr. Reed and Mr. Dana, or either of them." He was also, with G. Morris and Drayton, of the committee of April 20, 1778, upon whose well-known report the so-called conciliatory bills of Lord North were unanimously rejected, and the intended influence of the peace commission of that year was forestalled and frustrated. His English acquaintance Johnstone was of this commission, and had hoped to secure his coöperation by a letter addressed to him immediately on his arrival; which was, however, laid before congress, July 18, with the more obnoxious overtures to Reed and Robert Morris. On Sept. 29, 1779, Mr. Dana was chosen secretary to Mr. Adams's embassy, to negotiate treaties of peace and commerce with Great Britain, and sailed with the minister from Boston, Nov. 13, in the French frigate Sensible. Landing after a passage of 25 days at Ferrol in Spain, they made a toilsome winter's journey across the mountains, and arrived at Paris, Feb. 9, 1780. Events being not yet ripe for negotiation, and his relations with Vergennes not cordial, Mr. Adams left for the Netherlands, July 27. Mr. Dana remained until Sept. 12, when, upon receiving the commission of congress for Mr. Adams and eventually for himself to raise loans in Europe, he joined that gentleman in Amsterdam, and remained with him in Holland until December following. March 15, 1781, he received in Paris the congressional appointment (of Dec. 18, 1780) of minister to Russia, and leaving that city April 7, again joined Mr. Adams in Holland, where he was detained until July 7, when he proceeded by way of Frankfort and Berlin to his post at St. Petersburg. His powers extended, beside the making of treaties of amity and commerce, to an accession of the United States to the "armed neutrality" of the north. The results of Mr. Dana's 2 years' residence at the court of St. Petersburg are given in detail in Sparks's "Diplomatic Correspondence of the Revolution," vol. viii. His intercourse with Count Ostermann of the foreign office was frequent and friendly, but informal. The influence of England was strong, of France ambiguous or suspected; the policy and perhaps the pride of Catharine promised her the part of mediator between the three powers, which she was no wise disposed to sacrifice to an immediate recognition of American independence; and she maintained her attitude of reserve even after the signature of the preliminaries of peace. Having exhausted every resource that appeared compatible with the dignity of his country, Mr. Dana obtained leave from congress, and quitted St. Petersburg, Sept. 4, 1783, returning direct by ship to Boston, where he arrived in December. To the diplomatic controversy of Mr. Adams with Count Vergennes and Dr. Franklin, Mr. Dana was not a party, but he was a party to the facts out of which it arose. Mr. Adams says in his vindication of his course: "I had the advice and approbation of Chief Justice Dana, then with me as secretary of the legation for peace, to every clause and word in the whole correspondence. He said the 'count neither wrote like a gentleman himself, nor treated me like a gentleman; and it was indispensably necessary that we should show him that we had some understanding and some feeling.'" In Feb. 1784, Mr. Dana was again delegated by the assembly to the general congress, where he took his seat May 24, and on the 29th was selected to represent Massachusetts on the committee of states, which continued in session until Aug. 11, being vested with many congressional powers during the recess. Jan. 18, 1785, he was appointed by Gov. Hancock a justice of the supreme court of Massachusetts. Aug. 29, 1786, he was chosen delegate to the Annapolis convention, which resulted in the call of the convention which framed the constitution of the United States. To this latter body he was also appointed a delegate, April 9, 1787, but his judicial duties and his health, still suffering from his residence at St. Petersburg, prevented his attendance. In the Massachusetts convention, however, for the adoption of that instrument (Jan. 9, 1788), he took a leading part in its favor. Nov. 29, 1791, he was appointed chief justice of Massachusetts, and during his 15 years' tenure of that office kept aloof from political life; unless it should now be considered an exception that he was a presidential elector in 1792 and 1800, as well as in 1808. He was appointed by Mr. Adams, June 5, 1797, with Cotesworth Pinckney and John Marshall, special envoy to the French

republic; but precarious health compelled him to decline that office, which was afterward conferred upon Mr. Gerry. After retiring from the bench in 1806, where he was succeeded by his friend Theophilus Parsons, Chief Justice Dana took no official part in public affairs. The ardent discussion of Mr. Jefferson's embargo throughout the towns of New England, called out his eloquence at Cambridge, where its impression is not yet lost. This was not, however, a partisan opposition, as he had always strenuously resisted the policy of suspending commerce when it had been advocated on earlier occasions.—A succession of such public trusts during 30 years of the first period of the republic attests Mr. Dana's eminent ability and integrity; yet one is additionally struck, in the accounts of his contemporaries, by a peculiar impressiveness of personal character, and an influence out of the common range. As a judge he was well read and apprehensive of principles, and of an exemplary austerity toward all manner of chicane and indirection, a discerning and assiduous diplomatist, and a man of leading in elective and popular assemblies, where his eloquence exhibited a rare union of impassioned feeling with natural dignity. He was one of the founders of the American academy of arts and sciences, and his retirement was enlivened by his interest in enterprises for the benefit of the neighborhood of Boston, and by literary and other cultivated tastes. His house at Cambridge was much visited by his old fellow leaders of the federal party, and by younger men from the university, the Channings, Allston, Buckminster, and others, afterward variously distinguished. He was married in early life to a daughter of William Ellery of Rhode Island, one of the signers of the declaration of independence, and was the father of Richard H. Dana, and several other children.

DANA, James Dwight, LL.D., an American philosopher, born at Utica, N. Y., Feb. 12, 1813, was graduated at Yale college in 1833, having been attracted to that institution by the fame of the elder Silliman. During his regular course of study, Mr. Dana evinced an especial love for the natural sciences and mathematics. Soon after leaving the college he received the appointment of teacher of mathematics to midshipmen in the U. S. navy, and sailed to the Mediterranean in the Delaware ship of the line, returning in 1835. During the 2 years following he acted at Yale college as assistant to Prof. Silliman, whose successor in office he afterward became. In Dec. 1836, he was appointed mineralogist and geologist of the U. S. exploring expedition, then about to be sent to the Southern and Pacific oceans. The squadron, under the command of Com. Wilkes, sailed in Aug. 1838, and returned home in 1842. During the 13 years following, Mr. Dana was engaged in preparing for publication the various reports of this expedition committed to his charge, and in pursuing other scientific labors. He resided at Washington from 1842 to 1844, and then returned to New Haven, where he soon after married Henrietta Frances, daughter of Prof. Silliman, and where he has since resided. Before going to the Pacific he published, in 1837, the first edition of his "Mineralogy," a work of high repute in Europe and America, of which the 4th revised and enlarged edition appeared in 1854. His first publication connected with the observations which he made in the exploring expedition was a "Report on Zoophytes," which appeared in 1846 (740 pp. 4to.), with an atlas of 61 folio plates. In this work, Mr. Dana reviewed the whole department of polyps, combining his own observations with those of earlier authors, and proposed a new classification, bringing, for the first time, the actiniæ and the alcyonoid polyps into their true relations to the astræoid polyps. The number of new species which he describes is 230. The 2d work in the same series was a "Report on the Geology of the Pacific" (756 pp. 4to., 1849), with an atlas of 21 plates. This work presents a view not only of the geology of parts of Australia, western America, and the islands of the Pacific, but also treats at length, and with original views, of volcanic phenomena, coral reefs and islands, and the general features of the globe. The 3d work pertaining to the exploring expedition was a "Report on Crustacea" (1620 pp. 4to. 1852–'54), with an atlas of 96 folio plates. In this work 680 species are described, of which 658 are new. These reports were published by the U. S. government, and only 200 copies of each have thus far been issued. With few exceptions, the drawings in these atlases were made by Mr. Dana himself. While engaged in preparing the last two of these reports, Mr. Dana has been the active editor of the "American Journal of Science and Arts," founded in 1819 by the elder Silliman, and well known as the chief repository of the scientific labors of their countrymen. To this journal, which completed its 76th volume in 1858, as well as to the proceedings of the American academy of arts and sciences in Boston, the lyceum of natural history of New York, and the academy of natural sciences of Philadelphia, Mr. Dana has contributed various important scientific memoirs. A series of 4 articles from his pen, entitled "Science and the Bible," called forth by a work of Prof. Tayler Lewis on the "Six Days of Creation," appeared in the "Bibliotheca Sacra" in 1856–'7. Soon after the resignation by Prof. Silliman of the chair of chemistry and geology in Yale college, Mr. Dana entered, in 1855, on the duties of the office of Silliman professor of natural history and geology in that institution, to which place he had been elected in 1850; his brother-in-law, Prof. Benjamin Silliman, jr., having been appointed to the chair of chemistry. Prof. Dana is now engaged in discharging the duties of his professorship, and in editing the "American Journal of Science." A text book on geology from his pen has been announced as nearly ready for

publication. In 1854 he was elected president of the American association for the advancement of science, having been for many years one of the standing committee of that body, and in Aug. 1855, he delivered the annual address before that association at its meeting in Providence. Prof. Dana has been elected a member of various learned societies in Europe, including the royal academy of sciences in Berlin, the royal academy of sciences in Munich, the geological and Linnæan societies in London, the philomathic society in Paris, and others.

DANA, James Freeman, an American chemist, born in Exeter, N. H., in 1793, died in the city of New York in 1827. He was the son of Luther Dana, an officer in the American naval service in the revolution. He was graduated at Harvard college in 1813, studied medicine with Dr. Gorham of Boston, spent 6 months in London in the study of chemistry under the instruction of the celebrated Accum, and on his return was employed to refit and refurnish the laboratory of Harvard college, and established himself in Cambridge as a physician, holding also the office of assistant to the professor of chemistry. In 1819 he was appointed professor of chemistry in the medical school of Dartmouth college, where he lectured also on mineralogy and botany. In 1825 he was chosen professor of chemistry in the New York college of physicians and surgeons, which office he held at the time of his death. His only considerable publication was a small work on the "Mineralogy and Geology of Boston and its Vicinity," written in conjunction with his brother, Dr. S. L. Dana.

DANA, Richard, an American jurist, born at Cambridge, Mass., July 7, 1699, was graduated at Harvard college in 1718, died May 17, 1772. He was a grandson of Richard Dana, the first of the family who came from England and settled at Cambridge in 1640. After practising law for a time at Marblehead and Charlestown, he removed to Boston, where he became a leading barrister. Judge Story, in his work on American precedents, has taken more examples from him than from any other pleader, except Judge Trowbridge. In the obituary notices of him he is spoken of as at the head of the bar. He was more generally distinguished for his prominence in the measures of resistance which immediately preceded the revolution. His age already advanced, his office of magistrate and position at the bar and in society, and the intrepidity of his character, carried great weight to the side of his young patriot friends. Although devoted to his profession and declining office, he was a leading figure in those important political assemblages, where he sometimes presided, the Boston town meetings from 1763 to 1772. It was the custom of Boston in those troubled times to address the country at large on public affairs under the form of published instructions to the representatives of the town. Warren, Hancock, and the Adamses were on committees for this purpose. Mr. Dana was always a member, and often at their head. He reported the papers of Nov. 20, 1767, and May 8, 1770, noted at that time. He was a member of the association of the sons of liberty, and at their celebrated meeting of Dec. 17, 1769, administered to Secretary Oliver the oath of non-execution of the stamp act, and made and signed a solemn official record of that fact, by which he would seem to have exposed himself to the charge of treason under the constructions of those days. His death, which occurred 3 years before the battle of Lexington, is spoken of in the letters of the leading patriots as a great loss to the cause. He was married to the sister of Judge Trowbridge, and was the father of Chief Justice Francis Dana.

DANA, Richard Henry, an American poet and essayist, born at Cambridge, Mass., Nov. 15, 1787. He entered Harvard college in 1804, where he remained 3 years, but did not graduate, being involved in the noted rebellion of the classes in 1807. He passed the next 2 years at Newport, R. I., in completing the usual collegiate studies. He read law partly with his father, Chief Justice Dana, and partly in Boston, and was admitted to the bar there in 1811, and afterward, with a view to practising in the latter city, to the bar of Baltimore, after an additional short term of study. He returned in the winter of 1811–'12 to his native town, where he entered upon his profession, and was for a time also warmly interested in politics, on the federal side, as a member of the legislature and otherwise. His paramount tastes, however, were literary, and he joined in 1814 the club of gentlemen in Cambridge and Boston by whom the "North American Review" was projected and for a time conducted. His earliest writings were published in that periodical, the "Essay on Old Times," and an article upon the poems of Washington Allston, afterward his brother-in-law. In 1818–'19 he was associated with Prof. E. T. Channing in the editorship of that review, which subsequently passed to Mr. Edward Everett. His criticisms at that time excited much attention, perhaps as much surprise, and even some indignation. It was then believed that Pope was the touchstone of English poetry; the Elizabethan writers were in less esteem, while Wordsworth and the names associated with his were a matter for jest. The ethics and educational system of the Edgeworths were also in fashion. Mr. Dana expressed a very different opinion on these subjects. In 1821–'22 he published in numbers the "Idle Man," with some aid from his friends Bryant and Allston. It was read and admired by a class of literary men, but this was too small a public for its continuance. His first pieces in verse, the "Dying Raven" and the "Husband and Wife's Grave," appeared in the "New York Review," in 1825, then edited by Mr. Bryant. In 1827 he ventured the "Buccaneer and other Poems" in a small volume. This was well received, indeed highly commended by the critics, and for a volume of American poetry at that day was not unsuccessful. Wilson's praise of the "Buccaneer" in "Black-

wood's Magazine," as "the most powerful and original of American poetical compositions," was perhaps not without an effect on the already changing tendency of poetical taste in this country. In 1833 he published an enlarged volume, including new poems and the papers of the "Idle Man;" and again in 1850, "Poems and Prose Writings," in 2 vols., in which to the contents of the former volume are added poems, the essays and reviews from the "North American Review," and others of a recent date; being a complete collection of his writings, with the exception of a series of 8 lectures upon Shakespeare, prepared at the instance of his cousin, Dr. Wm. Ellery Channing, and delivered with marked appreciation before the best audiences in Boston, New York, and Philadelphia. In the controversy between the Unitarian and Trinitarian Congregationalists of Massachusetts, in 1825–'35, Mr. Dana took an active part with the latter. For many years past, however, he has been connected with the Episcopal church. He resides in Boston, and at a beautiful summer retreat on the shore of Cape Ann.—The success of Mr. Dana as an author is, perhaps, more noteworthy for its quality than its extent. His peculiar style is most highly appreciated by lovers of the simple and masculine beauties of the older English writers. In dealing with the greater passions, the handling is bold, and the language instinctively true, but the manner is dramatic, not melodramatic, nor what is called popular. His vein of sentiment has a charm for meditative minds, and though in a new country, his thoughts turn singularly toward whatever has been consecrated by reverence or the touch of time. The influence of his critical principles is often observable in that order of minds which form the minds of others, and has thus been greater in the literature of the country than may at first appear.

DANA, Richard Henry, jr., an American advocate, son of the preceding, born at Cambridge, Mass., Aug. 1, 1815, was graduated at Harvard college in 1837. Being compelled to interrupt his collegiate course, in 1834, by a weakness of the eyes, he made the voyage described in his "Two Years before the Mast," to California, then a wild and almost unknown region. He was a member of the Dane law school from 1837 to 1840, under Judge Story and Prof. Greenleaf, and during 2 years of that time also acted as adjunct to Prof. Channing in the department of rhetoric at the university. He was admitted to the Boston bar in 1840, and was directly much employed in the admiralty courts, having been naturally led to pay special attention to maritime and commercial law. In 1841 he published a manual of sea usages and law, "The Seaman's Friend," republished in England as the "Seaman's Manual." A letter published by him at the time of the melancholy affair of the U. S. brig Somers, 1843, and in detailed explanation of the critical position of the officers on that occasion, served to moderate the natural public feeling, and rendered it more favorable to Capt. Mackenzie. Mr. Dana's practice gradually became general in the law courts, where he is now one of the leading advocates, and has been engaged in a larger than usual proportion of causes of public interest; among others, in the well-known reinvestigation of the presumption of murder from homicide (York's case, 1845), which has led to new enactments on the general subject in several states; on the legal right to require the use of the Bible in the common schools in Maine (Donahoe *vs.* Richards, 1854); on the canon law of the Episcopal church, in the Rev. Mr. Prescott's cases, 1852; on the title to public and religious charities, in the case of the Presbyterian synod *vs.* the parish of the late Dr. Channing, 1854; in the numerous trials for the rescue of the slave Shadrack in 1853, and in the still more noted case of Anthony Burns in 1854. He appeared, however, voluntarily in 1855, against the removal of Judge Loring in the then state of the law, but not after the Massachusetts statute of May 21, 1855, under which the removal eventually took place. Mr. Dana has not been a candidate for office, but his political course has been one of some mark. He was one of the founders of the free-soil party, a delegate from Boston to the Buffalo convention of 1848, and a popular speaker in that and the republican movement of 1856. He was one of the ablest members of the Massachusetts constitutional convention of 1853, and his speeches in that body have received high praise in the chief work of an eminent foreign publicist (Mohl's *Geschichte und Literatur der Staatswissenschaften*). The "Two Years before the Mast," by which Mr. Dana is so well known, is the ship and shore life of a common sailor detailed from personal experience by a man of education. It gained at once both in America and England a popularity that may be compared to that of "Robinson Crusoe." It is also a trustworthy authority on a subject of some importance, the distinctive character of the American merchant service. Mr. Dana has been for many years a member of the Episcopal convention of the diocese of Massachusetts, and taken a leading part in its proceedings. He has published biographical sketches of the lamented Major Vinton, and of his relatives, Prof. Channing and Washington Allston, prefixed to posthumous volumes of their writings. He has also occasionally contributed to the "North American Review" and the "Law Reporter."

DANA, Samuel Luther, an American chemist, brother of James Freeman Dana, born at Amherst, N. H., July, 1795. He was graduated at Harvard college in 1813, while war raged between the United States and Great Britain. He was desirous of becoming a military engineer, solicited the appointment of a cadet to enter West Point, and was immediately commissioned a lieutenant in the 1st regiment U. S. artillery, and served both in New York and Virginia, until the close of the war. He was retained on the peace establishment when the army was disbanded, but resigned his commis-

sion in June, 1815. He immediately commenced the study of medicine, and received the degree of M.D. in 1818. Practising as a physician from 1819 to 1826, in Waltham, Mass., he was in daily friendly intercourse with those able and enterprising men who founded the cotton manufacturing industry of the state; and having established on his own account a chemical laboratory for the manufacture of oil of vitriol and bleaching salts, he founded the "Newton Chemical Company," of which he was the chemist till 1834. He then accepted the appointment of resident and consulting chemist to the Merrimack manufacturing company, the duties of which office he still performs. In his first work he was associated with his brother, Prof. James F. Dana, in publishing the "Mineralogy and Geology of Boston and its Vicinity" (1818). His next publication, made while he was in England in 1833, was a clear exposition of the chemical changes occurring in the manufacture of sulphuric acid. This was followed by a report to the city council of Lowell, on the danger arising from the use of lead water pipes. About this period, although the responsible duties of his position absorbed the principal portion of his time, the experiments and observations which have connected his name with agricultural science were made, and the original materials obtained for the "Farmers' Muck Manual," published in 1842. In 1843, "An Essay on Manures" was honored by the prize of the Massachusetts agricultural society, and has been printed in successive editions, while his labors in connection with the agricultural and geological reports of the state survey have been gratefully acknowledged. The translation and systematic arrangement of the treatise of Tanquerel on lead diseases, was a contribution to medical knowledge most earnestly called for, and most important in its influence. The discussion of the lead pipe question gave rise to several papers and pamphlets from Dr. Dana's pen. He has also contributed several papers to the "North American Review," and other periodicals. His investigations have shed light on the more obscure points of the important art of printing cotton, and led to many improvements. His discoveries in connection with bleaching cotton were first published in the *Bulletin de la société industrielle de Mülhausen*, in several papers, as correspondence with that society. The principles there established have led to the American method of bleaching, of which that acute practical chemist Persoz, in his *Traité de l'impression des tissus*, says "that it realizes the perfection of chemical operations." (See BLEACHING.)

DANAË, in Greek mythology, the daughter of Acrisius, king of Argos, and mother of Perseus. An oracle had predicted that a son of Danaë would one day kill Acrisius, and the latter, in order to prevent the fulfilment of the prophecy, shut up Danaë in a brazen tower. But Jupiter was enabled to visit her by transforming himself into a shower of gold, and descending through the roof of the tower, and Danaë gave birth to a son. Seeing his designs thus thwarted, Acrisius placed the mother and child in a chest, and cast them into the sea. But Jupiter watched over their safety, and wafted them to the island of Seriphus, where they were kindly received by King Polydectes. Perseus grew up, and did afterward actually kill his father by an accident. Another legend relates that Danaë went to Italy, where she became the mother of Daunus, the ancestor of Turnus, who was king of the Rutuli when Æneas arrived in Italy.

DANAIDES, according to the Grecian legend, 50 daughters of Danaus. They were married to the 50 sons of their uncle Ægyptus, and their father, who was in dread of Ægyptus and his sons, made them promise to murder their husbands on their wedding night. This promise they all fulfilled except Hypermnestra, who spared her husband Lynceus. For their punishment they were condemned, in Hades, to fill sieves with water.

DANAUS, a mythical personage in Grecian story, son of Belus, and twin brother of Ægyptus. He had received from his father the kingdom of Libya; but fearing Ægyptus, he fled to Argos, where he became king. According to one legend, he was afterward killed by his nephew Lynceus, the only one of the sons of Ægyptus who escaped death at the hands of his wife.

DANBURY, a post town, and one of the capitals of Fairfield co., Conn.; pop. of the whole township in 1850, 5,964. It is a handsome town, built principally on one street, over a mile in length, and beside the county buildings contains 7 churches, 2 banks, a savings bank, a printing office, 4 fulling, 5 grist, and 15 saw mills, numerous hat factories, and 3 comb factories. The Danbury and Norwalk railroad and Still river, a good mill stream, flowing into the Housatonic, pass through it. Value of real estate in 1857, $1,827,161. In 1777 it was attacked and burned by the British, on which occasion Gen. Wooster, the American commander, was killed. Incorporated in 1696.

DANBY, FRANCIS, a British painter, born at Wexford, Ireland, Nov. 16, 1793. Among the best known of his early pictures are "Christ Walking on the Sea," "Cleopatra setting out to meet Anthony," the "Opening of the Seventh Seal," &c. His later works are more familiar to the general public through the medium of the illustrated art journals. Such are the "Ship on Fire," "Departure of Ulysses from Ithaca," "Caius Marius among the ruins of Carthage." Mr. Danby has 2 sons who are also painters.

DANCE, GEORGE, an English architect, died Feb. 8, 1768. As architect to the corporation of London, he built the mansion house in 1739–'40. He was also architect of St. Botolph's, St. Luke's, and other churches in London.—GEORGE, jr., son of the preceding, born in 1740, died Jan. 14, 1825, was the architect of the prison of Newgate and of St. Luke's hospital. In 1789 he erected the front of Guildhall. Among his minor works are the British institution, Pall-mall, and the theatre at Bath. He was one of

the earliest members of the royal academy, and professor of architecture. He published a series of portraits of artists and public characters in 1811–'14, engraved by William Daniell, R. A., after the original drawings.

DANCE OF DEATH (Lat. *chorea machabæorum*; Fr. *danse macabre*, and *danse des morts*; Ger. *Todtentanz*), a mediæval religious dance, long a favorite subject of painting and poetry, in which persons of all ranks and ages were represented as dancing together with the skeleton form of death, which led them to the grave. The gaunt and stalking anatomy, in which Gothic imagination personified death, was treated both by the poets and populace of the 14th century with mingled humor and seriousness. Masked figures representing it appeared during carnival, with the privilege of taking by the hand and dancing with whomsoever they might meet. With the approbation of the clergy, a sort of masquerade was instituted, which was performed in the churches, in which the chief characters in society from the pope to the beggar were supported, dramatic conversations being intermingled between death and the persons in the procession, each of whom in turn vanished from the scene, as a symbol of departure from life. This custom, as represented by art, appears for more than 3 centuries in a vast number of forms, most various in pathos, humor, and grotesqueness; in verse in nearly every European language; and in paintings on town halls, in market places, in the arcades of burying grounds, and on the walls of palaces, cloisters, and churches. One of the most interesting poems on the subject is in Spanish, the *Dança general de los muertos* (found entire in the appendix to Ticknor's "History of Spanish Literature"), which belongs to the 14th century, and in which death summons to his mortal dance first the pope, then the cardinals, kings, bishops, and so on, down to day laborers. Each makes some remonstrance, but in vain, "for still the cry is, haste! and haste to all." Jacques Jacques, a facetious canon of Ambrun (1658), gives a collection of the useless excuses which were offered, and makes death exclaim: "Were I not absolute over them, they would confound me with their long speeches; but I have business, and must gallop on." Poetical inscriptions often accompanied the paintings, which are first traced in the south-western parts of Germany, in Switzerland, Alsace, and Swabia, the oldest being that in a convent of Basel, which, according to the inscribed verses, was painted in 1312, and was renewed probably in the 16th century. Among the most celebrated dances of death are those of the cloister of the Dominicans at Basel, painted in 1480 and often renewed, of the palace of St. Mary at Lübeck, in the castle and cemetery of Dresden, at Lucerne, Anneberg, Leipsic, Strasbourg, and Rouen, in the church of the innocents at Paris, in the church of *La chaise Dieu* in Auvergne, in the crypts of the church of St. Michel at Bordeaux, in the cathedral of Amiens, in the church of St. Paul in London, to which John Lydgate added verses that were translated from the French, in the palace of St. Ildefonso in Spain, and the famous painting of the *Trionfo della morte* in the *campo santo* of Pisa, by Andrea Orcagna, in the 14th century. Many of these have been preserved in engravings, are found on missals and on the margins of numerous old books, and in the 16th century were reproduced in miniature as ornaments for the sheaths of swords and poniards. The fresco at Basel was destroyed by the falling of the walls in 1805, only fragments of it being preserved, but in the 16th century it suggested to Holbein his celebrated series entitled the "Dance of Death," which combines 53 distinct and most diverse scenes. Death here assumes various ironical costumes, while meeting with and overcoming persons in every condition of life. The older pictures are not divided into single scenes, but the skeleton appears leading after it a procession of all ranks and ages. All of the poems and paintings on this grim subject are of a mingled sublime and grotesque character, betraying a sentiment of profound sadness beneath a gay and ironical manner. The best works treating of it are Massmann, *Literatur der Todtentänze* (Leipsic, 1841), *Baseler Todtentänze* (Stuttgart, 1847); Peignot, *Recherches sur la danse des morts* (Dijon and Paris, 1826); Langlois, *Essai historique, philosophique, et pittoresque sur les danses des morts*, with 54 engravings (2 vols., Rouen, 1852); and Douce, the "Dance of Death" (London, 1833).

DANCING (Ger. *tanzen*, Fr. *danser*, to dance), the art of rhythmical movement, consisting of steps, bounds, and inclinations of the figure, usually performed to the cadence of music. Though the feet, by which the body changes from place to place, are the principal agents in dancing, yet all the slight wavy motions of the bust, head, and arms are also to be considered, since it is by the harmony of all the movements that dancing becomes a thing of beauty and art. Especially when several persons join in the dance, the most diverse postures and motions have a general symmetry, so that the dancing group presents an æsthetic unity. Dancing is perhaps the oldest and most universal of the fine arts, and has been in vogue for various purposes, in greater or less perfection, from the earliest times, equally among savage and civilized nations. Among the ancient Egyptians, it was both a social recreation and a religious exercise. Persons of high rank did not, however, indulge in it either in public or private assemblies, but employed professional dancers, like the almeh and ghawazee of the present time, who obtained a livelihood by performances in wealthy houses. A modern Asiatic ambassador once remarked to his European host: "You are then very poor, since you are obliged to dance yourselves." The object of Egyptian dances was to exhibit a great variety of graceful gestures and attitudes. They followed the music of the harp, lyre, guitar, pipe, tambourine, or drum, or even the clapping of hands or snapping of fingers; many of their

postures resembled those of the modern ballet; and the *pirouette* seems to have been a favorite in Egypt 4,000 years ago. There was a figure dance common throughout the country, in which two partners advanced toward each other, stood face to face upon one leg, and having performed a series of movements, retired in opposite directions, continuing to hold each other by one hand, and concluding by whirling each other around. The costume of the female dancers was a flowing and ornamented robe, reaching to the ankles, and of the finest texture, so as hardly to conceal the figure. The Egyptians danced also at the temples in honor of the gods, some of their sacred dances being mysterious imitations of the celestial movements and of the harmony of the universe. The Hebrews also introduced dancing into solemn festivities, especially on occasions of triumph and pleasure, the Hebrew word for dance meaning literally to "leap for joy." The description given of Miriam who took a timbrel in her hand, while all the women went out after her with timbrels and with dances, applies to many modern oriental dances, led by a principal person, whose steps, gyrations, and songs, often extemporaneous, are skilfully imitated by the group of attendants. Both sexes bore a part in the Hebrew dancing processions, but always remained in separate companies. In Babylon the worship of Astarte was celebrated by the dances of maidens in the temples; and a Persian dance is mentioned whose movements, performed to the music of the flute, consisted in dashing crescent-shaped shields together, falling upon the knee, and rising again. In India the most ancient sacred writings mention the bayaderes, or dancing girls, whose performances are still indispensable in religious and social festivities, and whose style of dancing, unlike that of the ballet, consists in but slightly raising the feet and in expressing vehemence of passion by the eyes and by gliding and waving movements of the neck, bust, and arms. The dancing girls of Java are painted entirely white, and though they move their feet but slightly, they keep their arms and the upper portion of their body in so ceaseless and rapid circular and undulatory motion that it is impossible for the eye to distinguish any definite outlines to their figure.—In Greece dancing formed a part of the education of youth, and was included with song and poetry in the wide sense of music. It was in high esteem from the heroic ages, was connected with nearly every religious ceremony, and skilful dancers sometimes were honored with golden crowns, and had statues erected to their memory. The strophes and antistrophes of odes are supposed to owe their origin to the alternate movements of different parties of dancers, and the dramatic chorus probably consisted at first of all the population of a city meeting in a public place, and worshipping the gods by hymns and dances. Plato thought that all dancing should be of a religious character, and should be an object of legislative care, as being essential to grace of motion. The Greek religious dances, excepting the Bacchic and corybantian, were very simple, consisting of gentle inclinations of the body and a gliding promenade around the altar. The Bacchic dance, representing the adventures of the god Dionysus, was common throughout Greece, forming a principal part of the Bacchanalian festivities; and the most illustrious men in the state combined with persons representing satyrs and titans, and with husbandmen, in performing it. The corybantian dance, known chiefly in Crete and Phrygia, was of the wildest character, the performers being armed and dashing together their swords and shields with extravagant fury. Greek dancing was a gymnastic and military as well as a mimetic and religious exercise. The Pyrrhic dance, which existed from the mythical age, is described by Plato as representing by rapid movements of the body the ways of avoiding strokes of the javelin and sword, and the mode of attacking an enemy. It was remarkable for somersets, tumblings, and swift evolutions in the midst of projecting daggers and drawn swords, and seems to have surpassed in skilful escapes any thing known in modern times. Tacitus mentions that the German youths were taught to dance amid swords and spears pointed at them. Prof. Wilson, who was a most accomplished athlete, is recorded to have mounted one of the tables at a festival in commemoration of Burns, and to have danced a *pas seul* among the wine glasses and decanters, without causing any fracture; but this precarious mode of dancing has rarely been cultivated in modern times, except by professional artists. In many of the Greek states dancing was carried to great perfection by the *hetæræ*, who were often admitted to divert the guests at the close of a repast.—Dancing among the Romans was at first most strictly connected with religion, and it was always deemed dishonorable for a Roman citizen to take part in other than religious dances. During the latter years of the republic this art was even deemed unworthy of a free man, and Cicero affirmed that it was rare for any one to dance who was not either intoxicated or a fool. But under the empire the pantomime and mimetic dances attained a high degree of perfection. The performers were in such esteem that when at the approach of famine the emperor Constantius banished all philosophers from Rome, he retained more than 3,000 dancers. Lucian, in his dialogue on dancing, maintains that the mimetic dancer should be familiar with poetry, geometry, music, and even philosophy; he should be a good rhetorician to express the passions of the soul, and a good painter and sculptor to reproduce attitudes and countenances; he should rival Chalcas in knowing the present, past, and future, and Thucydides in the sense and observation of decorum; he should be inventive, judicious, with a delicate ear, a quick sensibility, and a firm and supple body; in short, it would seem that he should be the most perfect of men.—In the early centuries of the church, the dance was sometimes united

with the hymn in Christian festivities. According to Scaliger, the first bishops were styled *præsules*, because they led the dance. Pious dances were customary in the churches till at least the 12th century. Banished at length from the sanctuary as according ill with the gravity of the sacred mysteries, they were still perpetuated till the 17th century in Spain, Portugal, and some other Catholic countries. Cardinal Ximenes permitted devotional dancing in church at Toledo; the Jesuit Menestrier related in 1682 that it was not then uncommon for the clergy to dance in the churches with the children on Easter day; and within a century, at Limoges, the people and clergy have danced together around the choir of the church of St. Leonard on St. Martial's day. The baladoir dances were early combinations of pagan ceremonies with Christian festivities, which were censured by Pope Zacharias in 744, but 3 of which (the May dance, the dance of Saint John, and the torch-light dance) remained in France throughout the middle ages as frenzied and extravagant processions, in which crowds of people, sometimes nearly naked, but crowned with flowers, marched hand in hand through the streets and churches, singing, dancing, and gambolling with such fury that only a resort to exorcism could check them. The ambulatory dances, many of them of Portuguese origin, were mediæval allegorical processions, such as those of the famous feasts of fools and of asses, presenting often a rude spectacle of the principal scenes in the life of Christ. With such solemnities the canonization of Cardinal Borromeo and the beatification of Ignatius Loyola were celebrated, the theme represented on the latter occasion being the siege of Troy.—The Mohammedan religion forbids both dancing and music, not only in the mosques, but even within the harem. It is only by special permission obtained at Constantinople that the master of a house is released from this law. Dancing is not one of the pleasures of paradise promised by the Koran. The dervises, celebrated for their fantastic dances, whirling upon their feet with extraordinary rapidity, sometimes holding lighted coals in their teeth, are condemned by the law and reproved by religion. The modern Christian sect of Shakers make their worship consist largely in dancing, which was originally of a violent and irregular character, abounding in leaps and shouts, but is now a simple and uniform movement around the hall of worship to the music of a hymn and of clapping of hands.—In the 14th century the dance, banished from the cities, took refuge in the country and became the delight of peasants, who were excluded from the chivalric diversions of the nobles. In this way originated the picturesque rural dances, which in the next century were borrowed by the courts of Italy and France. Thus at the marriage of Charles VI., 6 mountaineers from the Pyrénées were introduced to perform one of their native dances; and at the festival given by Catharine de' Medici to the duke of Alva at Bayonne there were troops of shepherds and shepherdesses, each of which executed the dances peculiar to their own district. Among the dances which have been successively favorites in France from the 16th to the 19th century are the *branle*, consisting of several persons joining hands, leaping in circles, and keeping each other in continual agitation; the minuet, introduced from Spain under the auspices of Catharine de' Medici, and of a slow and grave character; the *pavane*, also of Spanish origin, proud and stately as a hidalgo, in which the performers looked upon each other strutting like peacocks, and in which Margaret of Valois excelled; the *gaillarde*, a Neapolitan dance, of livelier movement than the preceding; the *gavotte*, which Marie Antoinette preferred and danced excellently, which was modulated to a quicker air after the Terror, was performed by two persons only, and abounded in salutations and reverences; the waltz, which was introduced by the triumphant soldiers of Napoleon from Germany; the *contre danse*, the country dance of England, which dethroned the minuet in France, by which Trenitz gained his successes in the *salons* of the consulate, and which after a long reign has but recently ceased to be *à la mode;* and the *galop* or *galopade*, the most rapid of dances, which had its origin in Hungary, made its first appearance at Vienna or Berlin about 1822, was introduced into France at the balls given by the duchess of Berry during the carnival of 1829, and which is famous as the furious and dishevelled gallop which terminates the masked balls at the French opera, and which Auguste Barbier has stigmatized in his verses. Other dances, once peculiar to particular districts, but most of which are now cosmopolitan, are the Scottish jig, the Portuguese *modinha*, the Spanish *bolero*, *fandango*, *jota*, and *cachuca*, the Basque step, the impetuous *farandole* of Languedoc, the polka, *mazourka*, *redowa*, and *cracowiak*, borrowed from the peasants of various Slavic countries, the cotillon by which Lauzun made his singular fortune, the schottisch which Cellarius made popular, and the simple *ronde*, the French national dance, by which the peasants celebrate annually the gathering of the harvests, and which is esteemed a symbol of union and strength. The gypsies are favorite dancers in Spain, and they render the *ole*, the *jaleo de Xeres*, and the *fandango* with inimimitable grace and passion. The *ole* especially delights the vehement Andalusians, and its charm consists in its rapid combinations of the most various motions, while the vivid gypsy eye glaring with delirium of transport holds the spectators entranced. The *fandango* is a love scene, consisting of successive approaches by the *danseur*, and retreats by the *danscuse*, till at last, tired of the contest, both parties approach, at first with hesitation, and then rushing with eagerness. Many of the Spanish dances are of an indelicate character, and are prohibited from the public stage. Fanny Elssler was forbidden in some of the cities of

Europe to dance the *jaleo de Xeres*. Dancing exists among all savage peoples which travellers have visited, and negroes on the African coast have been said to throw themselves at the feet of a European playing on a fiddle, and to beg him to desist unless he would tire them to death; for while he played they could not cease dancing. Dancing was one of the principal amusements of the American aborigines, being more common among them than in any civilized society. It entered into their forms of worship, their martial celebrations, and their mode of entertaining strangers of distinction. The term scalp dance designates a custom, prevalent especially among the Sioux, of dancing for 15 nights in succession around the scalps brought back by a war party. They dance in a circle, with their heads adorned with ostrich feathers, leaping, yelling, brandishing their weapons, boasting their prowess, distorting their faces, and imitating all the fury of battle. This celebration is usually by night, by the light of blazing torches. Young women may assist by chanting in chorus, or by standing in the centre of the ring, but are rarely permitted to join in the dance. (See also BALL and BALLET.)

DANCING DISEASE, or TARANTISMUS, an epidemic nervous affection, apparently allied to chorea, occasionally prevalent in Italy and other countries in the south of Europe. It was long supposed to be caused by the bite of a large spider, the *aranea tarantula;* but as scarcely any of those affected with it had any consciousness of having been bitten by a spider or any other insect, and as it has been in every instance propagated mainly by physical contagion, like chorea, demonomania, and other kindred affections, there is every reason to believe it originated from the same causes. The tarantismus was first noticed in the 15th century, a period rife with cerebral and nervous affections, and is thus described by Baglivi: "When any are stung (or attacked with the disease), shortly after it they fall upon the ground, half dead, their strength and sense going quite from them. Sometimes they breathe with a great deal of difficulty, and sometimes they sigh piteously; but frequently they lie without any manner of motion, as if they were quite dead. Upon the first sounding of music the forementioned symptoms begin slowly to abate; the patient begins slowly to move his fingers, hands, feet, and successively all parts of the body, and as the music increases their motion is accelerated; and if he was lying upon the ground, up he gets (as in a fury), falls a dancing, sighing, and into a thousand mimic gestures. These first and violent motions continue for several hours, commonly for 2 or 3. After little breathing in bed, where he is laid to carry off the sweat, and that he may pick up a little strength, to work he goes again with as much eagerness as he did before, and every day spends almost 12 hours by the clock in repeated dancing; and, which is truly wonderful, so far is he from being wearied or spent by this vehement exercise, that, as they say, it makes him more sprightly and strong. There are, however, some stops made; not from any weariness, but because they observe the musical instruments to be out of tune; upon the discovery of which one could not believe what vehement sighings and anguish at heart they are seized with, and in this case they continue till the instrument is got into tune again, and the dance renewed. This way of dancing commonly holds 4 days; it seldom reaches to the 6th." Other observers speak of those affected with tarantismus as howling like dogs, leaping, running wildly about, stripping themselves of their clothing, expressing a like or dislike for particular colors, "and never better pleased than when soundly drubbed on the breech, heels, feet, or back." The attack was frequently followed by melancholy, the lypemania of the medical writers, under the influence of which those affected sought solitary and deserted places, graveyards, and the like, and there remained for several days. Music, generally on the guitar, violin, or dulcimer, was the established prescription for the disease. The dancing mania was very likely to recur at the anniversary of the attack.

DANDELION (Fr. *dent de lion; leontodon taraxacum*, Linn.), a well-known plant, with a perennial root and bitter milky juice, the leaves of which when blanched are used as a salad; the root also is sometimes roasted, and used as a substitute for coffee, or to adulterate that substance. Under cultivation, the plants are forced to extraordinary size, to vend in the spring for a popular and much esteemed pot herb under the name of greens. In medicine, the expressed juice, especially of the root, is employed for its aperient, detergent, and strongly diuretic properties, and should be used while fresh. The flowers of the dandelion are very conspicuous in the meadows and grassy fields in early spring, and are hailed as the harbinger of warm weather and returning heat in the north. The common and generic names, both meaning lion's tooth, were given from a fancied resemblance of its single florets.

DANDINI, the name of a family of Florentine painters: CESARE, born in 1595, died in 1658; VINCENZO, brother of the preceding, born in 1607, died in 1675; PIETRO, a son of Cesare, born in 1646, died in 1712, an artist of considerable genius, who had a peculiar talent for imitating the works of the old masters, particularly those of the Venetian school; and OTTAVIANO, a son of the preceding.

DANDOLO, ENRICO, doge of Venice, member of a patrician Venetian family, which traced its origin to the Roman era, born about 1110, died June 1, 1205. He served the republic in many capacities, and at one time was sent as ambassador to Constantinople. His high rank did not, however, protect him from outrage, and at the command of Manuel Comnenus, he was nearly deprived of sight by having his eyes burned with hot irons, applied, as some historians relate, by the emperor himself. He

was appointed doge in 1192, when he was above 80 years of age, but he still retained all the fire and vigor of youth. During the 4th crusade, the French barons, under Baldwin of Flanders, applied to Venice for aid. After some delay, the doge himself urging the suit of the French ambassadors, the necessary ships were supplied on condition of 85,000 marks of silver, about $850,000, being paid down before the expedition set sail. Great difficulty having been experienced in raising all the money, it was proposed to capture and pillage Zara, a city on the Adriatic which had refused to join the league. Zara was accordingly taken and sacked, and the booty proving amply sufficient for all expenses, the expedition, diverted from the real object of these religious wars, vengeance against the infidel, set sail for Constantinople, on the pretext of enabling young Alexis Angelus to restore his father, the rightful emperor, who had been deposed by his own brother. The city was defended by immense fortifications, by deep fosses and strong walls, by massive chains stretched across the harbor, and by 478 towers placed in a circumference of 18 miles. The aged doge, displaying the gonfalon of St. Mark's, animated his followers, the city was taken, the usurping emperor fled, and the rightful monarch was restored. But when he and his young son were treacherously murdered, and the patriarch of Constantinople driven into exile, the city was again taken and given up to pillage (1204). Dandolo died the following year, and was buried beneath the dome of St. Sophia.—There were 3 other doges of the same family: Giovanni, who reigned from 1279 to 1289; Francesco, from 1328 to 1339; and Andrea, from 1343 to 1354. The last incurred the jealousy of the Genoese by his endeavor to establish commercial relations between Venice and Egypt. Hostilities arose between the 2 states, and, in concert with the Byzantine emperor and Aragon, Dandolo destroyed the Genoese fleet at Cagliari (Aug. 29, 1349). Giovanni Visconti, the new ruler of Genoa, sent Petrarch as ambassador to Venice to negotiate for peace; but, notwithstanding the friendly relation that existed between the poet and the doge, Andrea anew declared war against Genoa in 1354, shortly before his death. He was also one of the earliest historians of Venice. He left a Latin chronicle which comprises the history of Venice from the earliest times to 1342, and compiled a portion of the Venetian laws. A new edition of the *Liber Albus*, treating of the relations of Venice with Turkey, and of the *Liber Blancus*, treating of those with the states of Italy (both based upon the chronicles and code of laws left by Dandolo), appeared in Germany in 1854.

DANDOLO, Vincenzo, an Italian chemist, and for a short time governor of Dalmatia, but not a member of the above family, born in Venice, Oct. 26, 1758, died there, Dec. 13, 1819. After completing his studies at the university of Padua, he established himself as chemist in his native city. His principal work, "Fundamental Principles of Physical Chemistry, applied to the Formation of Bodies and to Natural Phenomena," appeared in 1796, and passed through 6 editions. At the outbreak of the revolution, he was one of those who were deputed by the people to solicit Bonaparte's protection; but by the treaty of Campo Formio, Venice fell into the hands of Austria, and Dandolo, rather than render allegiance to this power, established himself at Milan, which at that time became the capital of the Cisalpine republic. In 1799, when the Russians invaded the town, Dandolo betook himself to Paris, where he published a philosophical work on the regeneration of mankind. Afterward he devoted himself to agricultural and industrial pursuits near Milan; and on Napoleon's annexing Dalmatia to his kingdom of Italy, he appointed Dandolo governor of that province, over which he presided until 1809, when it was allotted to Illyria. He then returned to Venice, with the title of count conferred upon him by the French emperor, and ceased to take any further part in public affairs except in 1813, when he coöperated in quelling the insurrection which had broken out in a neighboring district. Dandolo translated many of the leading French chemical works into Italian, and, apart from his original productions on the same science, conferred a great service upon Italian silk industry and œnology, by his works on the silkworm and Italian wines.

DANE, a S. co. of Wis.; area, 1,235 sq. m.; pop. in 1855, 37,714. The surface is moderately hilly, and the soil calcareous and fertile. In the central part lie some sheets of water called the Four Lakes, the largest of which is 6 m. long. They are connected by short channels, and have their outlet through Catfish river. In the western part of the county is a hill about 1,000 feet high, called Blue Mound. The greater part of the land is occupied by prairies and oak openings. In 1850 the productions were 347,250 bushels of wheat, 122,290 of Indian corn, 243,601 of oats, and 266,214 lbs. of butter. There were 4 churches, and 2,707 pupils attending public schools. Organized in 1839. Three railroads centre at Madison, the capital of the state and county.

DANE, Nathan, an American jurist, born in Ipswich, Mass., in 1752, died in Beverly in 1835. He entered Harvard college in 1774, was graduated in 1778 with high reputation, studied law in Salem, Mass., and began practising in the adjoining town of Beverly in 1782, where he resided until his death. He was among the most eminent lawyers in New England, and was repeatedly placed by his fellow citizens in offices of great importance. He was in 1782, '83, '84, and '85 a member of the house of representatives of Massachusetts; in 1785, '86, and '87, a delegate to the continental congress; in 1790, '94, '96, '97, and '98, a member of the senate of Massachusetts; in 1795, a commissioner to revise the laws of that state; in 1811, to revise and publish the charters which had been granted therein; and again in 1812, to

make a new publication of the statutes. In 1794 he was appointed a judge of the court of common pleas for Essex co., Mass., and took the oaths of office, but almost immediately resigned. In 1812 he was chosen an elector of president of the United States; in 1814 he was a member of the Hartford convention; and in 1820 he was chosen a member of the convention for revising the constitution of Massachusetts; but a deafness which had been growing upon him for some years had at this time so much increased, that he declined for this reason to take his seat in the convention. He was not eloquent, either at the bar or in legislative bodies; nor did he, perhaps, possess any of the attributes of genius. But he had great good sense and a sound judgment, and was faithful to all his duties, and every one felt perfect confidence in his industry, discretion, and integrity. As a lawyer, he was among the most learned in his province, and his large and diversified experience gave him great ability and success in the conduct of cases. He was among the most laborious students that this country ever produced; and he attributed his capacity for continuous toil to his having strengthened his constitution by working on his father's farm like any laborer until he was 21 years of age. While he was a delegate from Massachusetts to the continental congress in 1786, the best method of providing for the government of the vast territory owned by the confederacy north and west of the Ohio river came into consideration. It was determined to do this by an ordinance which should establish with much detail not only the foundation of that government, but the leading principles which should prevail in the systems of law and public policy to be in force there. The drafting of this instrument was intrusted to Dane; and it was adopted by congress without a single alteration, on July 13, 1787. The clause in it which has been the subject of most frequent and emphatic remark is that which provides "that there shall be neither slavery nor involuntary servitude in the said territory." The name of the "Northwest Territory" was given to it; and it comprehended all the territory at that time belonging to the confederacy northwest of the Ohio. Not long before his death, he stated in conversation that not until this ordinance was on the eve of enactment did the thought occur to him of inserting in it this clause respecting slavery. He incorporated in this ordinance a prohibition against all laws impairing the obligation of contracts, which the convention that formed the constitution of the United States, a few months afterward, extended to all the states of the union, by making it a part of that constitution. From 1823 to 1829 he published his "Abridgment and Digest of American Law," in 9 large octavo volumes. This work will always be a storehouse to which all must resort who desire to become acquainted with the origin and history, and what may be called the fundamental principles, of the law of this country. In 1829 he imparted new vigor and life to the law school in Harvard university, in Cambridge, by giving $10,000 (adding $5,000 more in 1831) for the foundation of the Dane professorship of law, with the request that his friend Judge Story should hold the office, which he did until his death. During 50 years he devoted his Sundays (the hours of public worship, of which he was a regular attendant, alone excepted) to theological studies, generally reading the Scriptures in their original languages.

DANEGELT (Sax. *gelt*, money), an ancient tax paid by the Saxons in England, either for buying peace with the Danes, or for making preparations against the inroads of that nation. It was first paid in the year 991, when a band of Northmen attacked Ipswich, and advanced through an unguarded country as far as Maldon. Instead of meeting the enemy in the field, King Ethelred accepted the counsel of his nobles, and purchased the retreat of the invaders by a bribe of £10,000 in silver. This soon became a permanent tax under the name of Danegelt, raised by an assessment upon landed property. The last instance of its payment was under Henry II. in 1173.

DANICAN, François André, better known as Philidor, a French composer and chess-player, born at Dreux, Sept. 7, 1727, died in London, Aug. 30, 1795. His father and grandfather were musicians, and the latter, who was flutist to Louis XIII., received from that monarch the surname of Philidor, which had been borne by a celebrated hautboyist of the time, and this name was retained by his descendants. André was admitted at an early age as chorister in the chapel of Louis XV., studied composition under Campra, and at 15 years of age produced a motet for a full choir, which was performed before the court at Versailles to the great satisfaction of the king. Upon leaving the chapel he supported himself by teaching and copying music, and in 1745 commenced a tour through Germany, Holland, and England, in the course of which he exhibited his skill in the game of chess, which he had a short time before begun to cultivate. He returned to Paris in 1754, and devoted himself chiefly to his profession. Failing in an attempt to receive the appointment of *maître de la chapelle*, he wrote for the *opéra comique* with considerable success. In 1777 he revisited London, where he published his treatise on chess, his skill in which he turned to a very profitable account. He continued to compose for the comic stage, and produced airs and choruses for the *Carmen Seculare* of Horace, performed in London in 1779; but the last 10 years of his life were almost entirely devoted to his favorite game, which had become a passion with him. In Paris he played at the *café de la régence*, where the greatest players in France assembled, and in London at Parsloe's club in St. James's street. At both places he maintained a supremacy which his contemporaries rarely disputed on equal terms, and which reached its highest point when he performed what was then con-

sidered the marvellous feat of playing 3 simultaneous games blindfolded, against skilful antagonists, each of whom he defeated. A month before his death he played 2 games in the same manner, and was again successful. His death was hastened by grief, occasioned by the refusal of the French government to allow him to return to his native country. Danican's mental powers were exercised almost exclusively in chess or music. In other respects he was of less than ordinary intelligence, or, as Laborde once said of him: "He has no common sense; it is all genius." His treatise on chess has been frequently republished in foreign languages.

DANIEL (*i. e.* God is my judge), a prophet in the Chaldean and Persian period of sacred history. He was descended from one of the highest families in Judah, if not even of royal blood. Jerusalem is supposed to have been his birthplace. At the age of 12 or 16 we find him in Babylon, whither he had been carried with 3 other Hebrew youths of rank, Hananiah, Mishael, and Azariah, at the first deportation of the people of Judah in the 4th year of Jehoiakim. He and his companions were selected for the purpose of being instructed in the language and literature of the Chaldeans, with a view to their being employed in the service of the court. On this occasion the names of all 4 were changed, and Daniel was henceforth called Belteshazzar, *i. e.* prince of Belus or Bel. After the lapse of 3 years we find him interpreting a dream of the king so much to his satisfaction that he rose into high favor, and was intrusted with the governorship of the province of Babylon, and the head inspectorship of the sacerdotal caste. Considerably later in the reign of Nebuchadnezzar, we find Daniel interpreting another dream of his, to the effect that in consequence of his pride he would be deprived for a time of his reason and his throne, and after being exiled from the abodes of men, would be eventually restored to his senses and his rank. Under the immediate successor of Nebuchadnezzar, Evil-Merodach, the prophet seems to have been forgotten. No mention is made of him during this reign, or in the short reign of his successor; and in the last Chaldean reign he is mentioned in connection with the closing scene of Belshazzar's life. Belshazzar having had a remarkable vision of a handwriting on the wall, which none of the wise men of the Chaldeans could read and interpret, Daniel, at the instance of the queen mother, who remembered his former services, was called in and read the writing, and announced to the king the impending catastrophe of his empire. Under this reign, Daniel had two of his prophetic visions (ch. vii., viii.). After the conquest of Babylon by the united powers of Media and Persia, Daniel devoted himself during the short reign of Darius the Mede to the affairs of his people and their possible return from exile, the time of which, according to the prophecies of Jeremiah, was fast approaching. The elevation to which he was now raised was not beheld without malice and envy, and his enemies resolved if possible to compass his overthrow. They, therefore, under plausible pretences, secured the passage of a law that no one in the realm should be allowed for a certain time to offer any petition to any god or man except the king, on penalty of being thrown into a den of lions. Daniel, as they anticipated, was the first to disregard this law, by continuing his regular habit of worshipping God in prayer 3 times a day with his window open. The consequence was, that Daniel was cast into the den of lions, but was miraculously preserved; and this was the means of his being raised to more exalted honor (ch. vi.). He had at last the happiness to behold his people restored to their own land. His position at the court of the Medo-Persian government gave him the opportunity of rendering material aid to this end. Beyond the 3d year of Cyrus, during which he had another series of remarkable visions (ch. x., xi., xii.), nothing further is known of him.—The Book of Daniel takes its name not only from the principal person in it, but also and chiefly from him as its author. It occupies, however, but a third rank in the Hebrew canon, being inserted not among the prophets, but in the Hagiographa, for which various reasons have been assigned by the learned. Among these, the most probable is, that the book was originally classed with the prophets, but that at a later period, say in the first 3½ centuries A. D., when the disputes arose between the Christians and the Jews about the Messiah, the latter felt themselves to be so pressed by the prediction in Dan. ix. respecting the 70 weeks, that they sought to give the book a lower place than it had occupied before, and thus, by detaching it from its connection with the other prophets, to diminish the force of the argument that Jesus of Nazareth was the Christ. The genuineness and authenticity of the book of Daniel were for a long time unquestioned in the church, Porphyry, a learned adversary of the Christian faith in the 3d century, having been the first to assail its authority. His objections were answered by Eusebius, Apollinarius, Methodius, and Jerome. No further attack was made until the 17th century, when the question was raised whether the whole book was written by Daniel. But in more recent times the genuineness of the book has been questioned or denied in whole or in part by men of high repute in the German school of criticism, such as Corrodi, Gesenius, Dereser, Scholl, Lengerke, Eichhorn, DeWette, Griesenger, Bertholdt, Bleek, Ewald, Hitzig, and Kirms. It has been defended, on the other hand, by the English writers generally, and among the Germans by Staüdlin, Beckhaus, Jahn, Hävernick, Hengstenberg, and others; but more especially by Hengstenberg, whose "Authenticity of Daniel" goes over the whole ground, and embodies the ablest defence of the book that has yet appeared. For a detailed view of all the arguments employed on both sides in this controversy, the reader is referred to Mr. Barnes's introduction to his "Notes on Daniel."

DANIEL, Peter Vyvian, an American judge, born in Stafford co., Va., about 1785. His ancestors were substantial land owners, and during the revolution, in common with most of their class at that day, strenuously advocated resistance to the British government. In accordance with the prevailing practice in Virginia, he received the rudiments of his education under a private tutor, and was graduated at Princeton college in 1805, after which he studied the law at Richmond with Edmund Randolph, whose youngest daughter he afterward married. He was admitted to the bar in 1808. In 1809 he was elected a delegate to the legislature from Stafford co., and was reëlected in 1810. In 1812 he was elected a member of the privy council, and was successively reëlected councillor until the adoption of the new constitution in 1830. For a large portion of this time he was lieutenant-governor, and *ex officio* president of the council. Upon the adoption of the amended constitution in 1830, he was again elected privy councillor, the number of members composing the board being then reduced from 8 to 3. In 1835 the whigs had a majority of the legislature, and Judge Daniel with other democrats was ejected from office. He was restored at the following session, the democrats having regained their ascendency. In 1834, when Chief Justice Taney was transferred to the treasury department from the office of attorney-general, Judge Daniel was invited to the vacant position by President Jackson, but declined the appointment. In 1836 he was appointed by the president judge of the U. S. district court for the district of Virginia, to fill a vacancy occasioned by the transfer of Philip P. Barbour to the supreme bench. Upon the death of Judge Barbour in 1840, Judge Daniel was appointed as his successor by President Van Buren. He still holds the office.

DANIEL, Samuel, an English author, born in Somersetshire in 1562, died in Oct. 1619. He was the son of a music master, and was educated at Magdalen hall, Oxford, under the patronage of the Pembroke family. He devoted himself while in the university to the study of poetry and history, and left it in 1582 without taking his degree. He resided for some time with the earl of Pembroke, and became tutor to Lady Anne Clifford, subsequently countess of Pembroke. After the death of Spenser, he became "voluntary laureate" to Queen Elizabeth, but was soon superseded by Ben Jonson. During the reign of James he was appointed gentleman extraordinary and groom of the privy chamber to Queen Anne, who took great delight in his conversation and writings. His poems are numerous, comprising an epic in 6 books, on the wars of the Roses, several dramatic pieces, and many short poems. They are marked by grace of language and sweetness of thought, and have been highly esteemed by Wordsworth and other recent poets. He sought the smoothness of rhythm and simplicity of narrative characteristic of much of the Italian and Spanish poetry, and in respect of language he is among the best writers of his time. Beside his poems, he wrote in prose a "Defence of Rhyme," and a history of England from the Norman conquest to the end of the reign of Edward III., which exhibit a purity of style hardly equalled by any other work of so early a date.

DANIELL, John Frederic, an English natural philosopher, born in London, March 12, 1790, died there, March 13, 1845. He was a pupil of Brande, and afterward began business as a sugar refiner. In 1816 he began, in connection with Prof. Brande, the "Quarterly Journal of Science," of which they published the first 20 volumes. In 1820 he published a description of a new hydrometer, by which for the first time regular and accurate observations on the dryness and moisture of the air were made practicable. His great work, "Meteorological Essays," appeared in 1823. This was the first attempt to explain the principles of meteorology by the general laws regulating the temperature and constitution of gases and vapors. One of the most interesting of his theories was that which he proposed to account for the horary oscillations or periodic daily rise and fall of the barometer, by which he predicted the occurrence of a fall near the poles coincident with the rise at the equator, a conjecture afterward confirmed by actual observation. In 1824 he published an essay on "Artificial Climate," and about the same time became managing director of the continental gas company, and travelled through many of the European cities making the arrangements by which they are lighted at the present day. He was also the inventor of a process for extracting inflammable gas from resin. On the establishment of King's college in 1831 he was appointed professor of chemistry, which office he held until his death. About this time he published an account of his new pyrometer for measuring high temperatures, such as are employed in fusing metals, in furnaces, &c. Thenceforth he gave his attention principally to voltaic electricity. In 1836, in a paper communicated to the royal society, he described his valuable improvement in the voltaic battery, by which, avoiding the rapid decline of power in the ordinary batteries, he showed how a powerful and continuous current may be kept up for an unlimited period. In 1839 appeared his "Introduction to Chemical Philosophy," a treatise on the molecular forces. Beside these works there was hardly a year of his life in which valuable communications from his pen did not appear in his journal, or in the "Transactions of the Royal Society." He was the only person who ever received the 3 medals in the gift of the royal society, of which he was a zealous member, and for the last 6 years of his life foreign secretary. He expired suddenly of apoplexy, while attending a meeting of the council of the royal society.

DANIELL, Samuel, an English artist and traveller, born in 1777, died in the island of Ceylon in 1811. He spent 3 years at the cape of

Good Hope, and afterward proceeded to the interior of Africa, making sketches of the scenery and people, which he brought home with him to England in 1804, when they were published, with an account of the animals of southern Africa. He afterward went to the island of Ceylon, and during a residence of 6 years collected a large amount of similar materials, one volume of which was published, with a description of that country and its inhabitants, in 1808.

DANIELL, Thomas, an English landscape painter and engraver, born in 1749, died in 1840. In company with his nephew, William, he made an extraordinary journey through India, for the purpose of preparing sketches and illustrations of the scenery, which were afterward published. He was originally a heraldry painter, and became fellow of the royal, Asiatic, and antiquarian societies. He published several works on India.

DANIELL, William, an English painter and engraver, born in 1769, died in 1837. He set out at the age of 14, in company with his uncle Thomas, upon an artistic exploration of the peninsula of Hindostan. They commenced their journey at Cape Comorin, and sketched almost every thing beautiful or interesting in the country between that point and Serinagur, in the Himalaya mountains. They were occupied 10 years in this undertaking. Of their immense number of sketches, they selected and published a portion in a great work entitled "Oriental Scenery" (6 vols. folio, 1808). Five of these volumes were engraved by William, or under his direction; the other was engraved by Thomas, after drawings by James Wales. William also published "A Picturesque Voyage to India," "Zoography," "Animated Nature," &c., and from 1814 to 1825 was engaged in making sketches for "A Voyage round Great Britain," a work of a similar character to that which he had executed on India. Beside these, he painted many oil paintings of Indian scenery, among them a panorama of Madras, the "City of Lucknow," and the "Elephant Hunt," and was the chief contributor to the "Oriental Annual."

DANILO I. (Petrovitch Niegosh), reigning prince of Montenegro, born May 25, 1826, was educated in Vienna, succeeded, Oct. 31, 1851, his uncle, Peter Petrovitch, and was proclaimed vladika, Jan. 13, 1852. He then proceeded to St. Petersburg, to be confirmed in his dignity by the czar, and obtained the sanction of Russia for various innovations, which he carried into effect on his return to Montenegro. The most prominent of these was the separation of the civil from the ecclesiastical power that had previously been vested in the vladika. Conferring the latter upon one of his relatives, to whom he gave the title of archimandrite, he assumed the civil power under the name of Danilo I. Other changes which he had projected were interrupted by the war with Turkey, and by intestine commotions. In 1855 Danilo married the daughter of a banker of Trieste, who brought him a dowry of $50,000. About the same time, the war between Russia and Turkey and her allies was brought to a close. The prince now endeavored, but in vain, to be recognized as an independent sovereign by the treaty of Paris. In Sept. 1856, he addressed a note to the principal European powers, urging his claims to the sovereignty of Montenegro, and proposing to annex a portion of the Herzegovina and Albania, and the port of Antivari on the Adriatic. Early in 1857 he repaired to Vienna and Paris to plead his cause in person, appointing his brother regent during his absence; but a conspiracy, instigated by one of his uncles, soon compelled him to return to Montenegro, and he has since been engaged in hostilities with Turkey.

DANISH LANGUAGE and LITERATURE. See Denmark.

DANNECKER, Johann Heinrich von, a German sculptor, born at Waldenbuch, near Stuttgart, Oct. 15, 1758, died Dec. 8, 1841. His father was groom to the duke of Würtemberg, and Dannecker grew up with a very limited education. He manifested a taste for drawing at a very early age, and for want of better materials, resorted to the yard of a stone-cutter, and covered the slabs therein with his designs. In 1771 he entered, in spite of his father's opposition, the military school established by the duke at Ludwigsburg, where, on his examination, his talent for art was clearly evinced. When he was 16, he obtained a prize for his model of Milo of Crotona. He here formed a friendship with Schiller, his fellow pupil, which lasted while the poet lived, and in whose memory he sculptured a noble statue and several busts, one of them of colossal size. On leaving the school in 1780, he was appointed statuary to the court, and 3 years afterward went to Paris on foot, having only his small salary, as statuary, of about $125 a year. He remained 2 years in Paris, finding much encouragement from his master, Pajou, and then made his way on foot to Rome. Here he became acquainted with Canova, who rendered him much service. His first work in marble was chiselled in Rome, where he made statues of Ceres and Bacchus, which procured his admission into the academies of Milan and Bologna. In 1790, after having spent 5 years in Rome, he returned to his native country, and was made a professor of the fine arts in the academy of Stuttgart. In 1796 he produced several works in marble, among them a Sappho; and afterward was employed by Frederic of Würtemberg upon a monument to Count Zeppelin, representing a figure of friendship weeping over a coffin. This he finished in 1804, and in 1809 began his most celebrated work, Ariadne, which is now in Bethmann's garden, at Frankfort-on-the-Main. In 1812 he was again employed by King Frederic, on a statue of Cupid. His greatest work is his colossal statue of Christ, on which he spent 8 years. This was ordered by the empress-mother of Russia, and presented to her son Alexander I. In 1826 he executed a statue of St. John, which is also

ranked among his best productions. Among modern sculptors he occupies a medium place between Canova and Thorwaldsen.

DANNEMORA, a township of Clinton co., N. Y., 150 m. N. of Albany, formed from Beekmantown in 1854; pop. in 1855, 723. It is the seat of Clinton state prison, which in 1857 contained 274 convicts, mostly employed in the neighboring iron works and mines. In 1852, when the number of inmates was only 155, the annual expenses of the institution exceeded the prisoners' earnings by about $27,000.

DANNER, Luise Christina, countess, morganatic wife of Frederic VII. of Denmark, born in Copenhagen, April 21, 1814. Her maiden name was Rasmussen. She was only 15 when she attracted the attention of Frederic. At first she supported herself as a governess in a Norwegian family, and afterward as a milliner. Toward 1845, when Frederic, who had been absent from Copenhagen, returned to the Danish capital, he renewed his acquaintance with her. On Jan. 20, 1848, on his accession to the throne of Denmark, he conferred upon her the title of Countess Danner, and on Aug. 7, 1850, contracted a morganatic marriage with her in the chapel of the palace of Frederiksborg. She has founded several charitable institutions, and in 1852 and 1854, when she accompanied the Danish sovereign in his tour through the provinces, she was everywhere received with great cordiality by the people.

DANTAN, Jean Pierre, a French sculptor, born in Paris, Dec. 25, 1800. He is chiefly distinguished by his humorous and grotesque busts of eminent contemporaries.

DANTE (Durante, by contraction Dante) DEGLI ALIGHIERI, the illustrious Italian poet, was born at Florence in 1265, probably during the month of May.* This is the date given by Boccaccio, who is generally followed, though he makes a blunder in saying, *sedendo Urbano quarto nella cattedra di San Pietro*, for Urban died in October, 1264. Some, misled by an error in a few of the early manuscript copies of the *Divina Commedia*, would have him born 5 years earlier, in 1260. According to Arrivabene (*Secolo di Dante*, Udine edition of 1828, vol. iii. part i. p. 578), Sansovino was the first to confirm Boccaccio's statement by the authority of the poet himself, basing his argument on the first verse of the *Inferno:*

Nel mezzo del cammin di nostra vita;

the average age of man having been declared by the Psalmist to be 70 years, and the period of the poet's supposed vision being unequivocally fixed at 1300.† Leonardo Aretino and Manetti add their testimony to that of Boccaccio, and 1265 is now universally assumed as the true date. Voltaire (*Dict. Phil.*, art. "Dante"), nevertheless, places the poet's birth in 1260, and jauntily forgives Bayle (who, he says, *écrivait à Rotterdam* currente calamo *pour son libraire*) for having been right, declaring that he esteems him neither more nor less for having made a mistake of 5 years. Oddly enough, Voltaire adopts this alleged blunder of 5 years on the next page, in saying that Dante died at the age of 56, though he still more oddly omits the undisputed date of his death (1321), which would have shown Bayle to be right. The poet's descent is said to have been derived from a younger son of the great Roman family of the Frangipani, classed by the popular rhyme with the Orsini and Colonna:

Colonna, Orsini, e Frangipani,
Prendono oggi e pagano domani.

That his ancestors had been long established in Florence is an inference from some expressions of the poet, and from their dwelling having been situated in the more ancient part of the city. The most important fact of the poet's genealogy is, that he was of mixed race, the Alighieri being of Teutonic origin. Dante was born (as he himself tells us, *Parad.* xxii.) when the sun was in the constellation Gemini, and it is supposed from a passage in the *Inferno* (Canto xv.) that his horoscope was drawn and a great destiny predicted for him by his teacher, Brunetto Latini. The *Ottimo Comento* tells us that the Twins are the house of Mercury, who induces in men the faculty of writing, science, and of acquiring knowledge. This is worth mentioning as characteristic of the age and of Dante himself, with whom the influence of the stars took the place of the old notion of destiny (*Purg.* xvi.). It is supposed from a passage in Boccaccio's life of Dante, that Alighiero the father was still living when the poet was 9 years old. If so, he must have died soon after, for Leonardo Aretino, who wrote with original documents before him, tells us that Dante lost his father while yet a child. This circumstance may have been not without influence in muscularizing his nature to that character of self-reliance which shows itself so constantly and sharply during his after life. His tutor was Brunetto Latini, a very superior man (for that age), says Aretino parenthetically. Like Alexander Gill, he is now remembered only as the schoolmaster of a great poet, and that he did his duty well may be inferred from Dante's speaking of him gratefully as one who by times "taught him how man eternizes himself." This, and what Villani says of his refining the Tuscan idiom (for so we understand his *farli scorti in bene parlare**), are to be noted as of probable influence on the career of his pupil. Of the order of Dante's studies nothing can be certainly

* The *Nouvelle biographie générale* gives May 8 as his birthday. This is a mere assumption, for Boccaccio only says generally May. The indication which Dante himself gives that he was born when the sun was in Gemini would give a range from about the middle of May to about the middle of June, so that the 8th is certainly too early.

† Arrivabene, however, is wrong. Boccaccio makes precisely the same reckoning in the first note of his commentary (Bocc. *Comento*, &c., Firenze, 1844, vol. i. pp. 32, 33).

* Though he himself preferred French, and wrote his *Trésor* in that language for two reasons, *l'una perchè noi siamo in Francia, e l'altra perchè la parlatura francesca è più dilettevole e più comuna che tutti li altri linguaggi.*" (*Proemio, sul fine.*)

affirmed. His biographers send him to Bologna, Padua, Paris, Naples, and even Oxford. All are doubtful, Paris and Oxford most of all, and the dates utterly undeterminable. Bologna and Padua we should be inclined to place before his exile, Paris and Oxford, if at all, after it. If no argument in favor of Paris is to be drawn from his *Pape Satan* (*Inf.* canto vii.) and the corresponding *paix, paix, Sathan*, in the autobiography of Cellini, nor from the very definite allusion to Doctor Siger (*Par.* canto x.), we may yet infer from some passages in the *Commedia* that his wanderings had extended even further (see especially *Inf.* ix. 112 *et seq.*; xii. 120; xv. 4 *et seq.*; xxxii. 25–30); for it would not be hard to show that his comparisons and illustrations from outward things are almost invariably drawn from actual eyesight. As to the nature of his studies, there can be no doubt that he went through the *trivium* (grammar, dialectics, rhetoric) and the *quadrivium* (arithmetic, music, geometry, and astronomy) of the then ordinary university course. To these he afterward added painting (or at least drawing—*designavo un angelo sopra certe tavolette*—*Vit. Nuov.* p. 61, ed. Pesaro, 1829), theology, and medicine. He is said to have been the pupil of Cimabue, and was certainly the friend of Giotto, the designs for some of whose frescoes at Assisi and elsewhere have been wrongly attributed to him. To prove his love of music, the episode of Casella were enough, even without Boccaccio's testimony. The range of Dante's study and acquirement would be encyclopædic in any age, but at that time it was literally possible to master the *omne scibile*, and he seems to have accomplished it. How lofty his theory of science was, is plain from this passage in the *Convito:* "He is not to be called a true lover of wisdom (*filosofo*) who loves it for the sake of gain, as do lawyers, physicians, and almost all priests (*li religiosi*), who study, not in order to know, but to acquire riches or advancement, and who would not persevere in study should you give them what they desire to gain by it. . . . . And it may be said that (as true friendship between men consists in each wholly loving the other) the true philosopher loves every part of wisdom, and wisdom every part of the philosopher, inasmuch as she draws all to herself, and allows no one of his thoughts to wander to other things." (*Tratt.* iii. cap. 11.) The *Convito* gives us a glance into Dante's library. We find Aristotle (whom he calls the philosopher, the master) cited 76 times; Cicero 18; Albertus Magnus 7; Boëthius 6; Plato (at second hand) 4; Aquinas, Avicenna, Ptolemy, the Digest, Lucan, and Ovid, 3 each; Virgil, Juvenal, Statius, Seneca, and Horace, twice each; and Algazzali, Alfrogan, Augustine, Livy, Orosius, and Homer (at second hand), once. Of Greek he seems to have understood little; of Hebrew and Arabic, a few words. But it was not only in the closet and from books that Dante received his education. He acquired, perhaps, the better part of it in the streets of Florence, and later, in those homeless wanderings which led him (as he says) wherever the Italian tongue was spoken. His were the only open eyes of that century, and, as nothing escaped them, so there is nothing that was not photographed upon his sensitive brain, to be afterward fixed for ever in the *Commedia*. What Florence was during his youth and manhood, with its Guelphs and Ghibellines, its nobles and trades, its Bianchi and Neri, its kaleidoscopic revolutions, "all parties loving liberty and doing their best to destroy her," as Voltaire says, it would be beyond our province to tell even if we could. Foreshortened as events are when we look back on them across so many ages, only the upheavals of party conflict catching the eye, while the spaces of peace between sink out of the view of history, a whole century seems like a mere wild chaos. Yet during a couple of such centuries the cathedrals of Florence, Pisa, and Sienna got built; Cimabue, Giotto, Arnolfo, the Pisani, Brunelleschi, and Ghiberti gave the impulse to modern art, or brought it in some of its branches to its culminating point; modern literature took its rise; commerce became a science, and the middle class came into being. It was a time of fierce passions and sudden tragedies, of picturesque transitions and contrasts. It found Dante, shaped him by every experience that life is capable of, rank, ease, love, study, affairs, statecraft, hope, exile, hunger, dependence, despair; until he became endowed with a sense of the nothingness of this world's goods possible only to the rich, and a knowledge of man possible only to the poor. The few well ascertained facts of Dante's life may be briefly stated. In 1274 occurred what we may call his spiritual birth, the awakening in him of the imaginative faculty, and of that profounder and more intense consciousness which springs from the recognition of beauty through the antithesis of sex. It was in that year that he first saw Beatrice Portinari. In 1289 he was present at the battle of Campaldino, fighting on the side of the Guelphs, who there utterly routed the Ghibellines, and where, he says, "I was present, not a boy in arms, and where I felt much fear, but in the end the greatest pleasure from the various changes of the fight." (Letter of Dante, now lost, cited by Aretino.) In the same year he assisted at the siege and capture of Caprona. (*Inf.* xxi. 94.) In 1290 died Beatrice, married to Simone dei Bardi, precisely when is uncertain, but before 1287, as appears by a mention of her in her father's will, bearing date Jan. 15 of that year. Dante's own marriage is assigned to various years, ranging from 1291 to 1294; but the earlier date seems the more probable, as he was the father of 7 children (the youngest a daughter, named Beatrice) in 1301. His wife was Gemma dei Donati, and through her Dante, whose family, though noble, was of the lesser nobility, became nearly connected with Corso Donati, the head of a powerful clan of the *grandi* or greater nobles. In 1293 occurred

what is called the revolution of Gian Della Bella, in which the priors of the trades took the power into their own hands and made nobility a disqualification for office. A noble was defined to be any one who counted a knight among his ancestors, and thus the descendant of Cacciaguida was excluded. Della Bella was exiled in 1295, but the nobles did not regain their power. On the contrary, the citizens, having all their own way, proceeded to quarrel among themselves, and subdivided into the *popolani grossi* and *popolani minuti*, or greater and lesser trades, a distinction of gentility somewhat like that between wholesale and retail tradesmen. The *grandi* continuing turbulent, many of the lesser nobility, among them Dante, drew over to the side of the citizens, and between 1297 and 1300 there is found inscribed in the book of the physicians and apothecaries, *Dante d'Aldighiero, degli Aldighieri, poeta Fiorentino.* (Balbo, *Vita di Dante*, Firenze, 1853, p. 117.) Prof. de Vericour ("Life and Times of Dante," London, 1858, p. 80) thinks it necessary to apologize for this lapse on the part of the poet, and gravely bids us take courage, nor think that Dante was ever an apothecary. In 1300 we find him elected one of the priors of the city. In order to a perfect misunderstanding of every thing connected with the Florentine politics of this period, one has only to study the various histories. The result is a spectrum on the mind's eye, which looks definite and brilliant, but really hinders all accurate vision, as if from too steady inspection of a Catharine wheel in full whirl. A few words, however, are necessary, if only to make the confusion palpable. The rival German families of Welfs and Weiblingens had given their names, softened into Guelfi and Ghibellini—from which Gabriel Harvey (notes to Spenser's "Shepherd's Calendar") ingeniously, but mistakenly, derives elves and goblins—to two parties in northern Italy, representing respectively the adherents of the pope and of the emperor, but serving very well as rallying points in all manner of intercalary and subsidiary quarrels. The nobles, especially the greater ones, perhaps from instinct, perhaps in part from hereditary tradition, as being more or less Teutonic by descent, were commonly Ghibellines or imperialists; the bourgeoisie were very commonly Guelphs or supporters of the pope, partly from natural antipathy to the nobles, and partly, perhaps, because they believed themselves to be espousing the more purely Italian side. Sometimes, however, the party relation of nobles and burghers to each other was reversed, but the names Guelph and Ghibelline always substantially represented the same things. The family of Dante had been Guelphic, and we have seen him already as a young man serving two campaigns against the other party. But no immediate question as between pope and emperor seems then to have been pending; and while there is no evidence that he was ever a mere partisan, the reverse would be the inference from his habits and character.

Just before his assumption of the priorate, however, a new complication had arisen. A family feud beginning at the neighboring city of Pistoja, between the Cancellieri Neri and Cancellieri Bianchi (see the story at length in Balbo, *Vita di Dante*, cap. x.), had extended to Florence, where the Guelphs took the part of the Neri and the Ghibellines of the Bianchi.* The city was instantly in a ferment of street brawls, as actors in one of which some of the Medici are incidentally named, the first appearance of that family in history. Both parties appealed at different times to the pope, who sent two ambassadors, first a bishop and then a cardinal. Both pacificators soon flung out again in a rage, after adding the new element of excommunication to the causes of confusion. It was in the midst of these things that Dante became one of the 6 priors (June, 1300), an office which the Florentines had made bimestrial in its tenure, in order apparently to secure at least 6 constitutional chances of revolution in the year. He advised that the leaders of both parties should be banished to the frontiers, which was forthwith done, the ostracism including his relative Corso Donati among the Neri, and his most intimate friend the poet Guido Cavalcanti among the Bianchi. They were all permitted to return before long (but after Dante's term of office was over), and came accordingly, bringing at least the scriptural allowance of "seven other" motives of mischief with them. Affairs getting worse (1301), the Neri, with the connivance of the pope (Boniface VIII.), entered into an arrangement with Charles of Valois, who was preparing an expedition to Italy. Dante was meanwhile sent on an embassy to Rome (Sept. 1301, according to Arrivabene, *Secolo di Dante*, p. 654, but probably earlier) by the Bianchi, who still retained all the offices at Florence. It is the tradition that he said in setting forth: "If I go, who remains? and if I stay, who goes?" Whether true or not, the story implies what was certainly true, that the council and influence of Dante were of great weight with the more moderate of both parties. On Oct. 31, 1301, Charles took possession of Florence in the interest of the Neri. Dante being still at Rome (Jan. 27, 1302), sentence of exile was pronounced against him and others, with a heavy fine to be paid within two months; if not paid, the entire confiscation of goods, and, whether paid or no, exile; the charge against him being pecuniary malversation in office. The fine not paid (as it could not be without admitting the justice of the charges, which Dante scorned even to deny), in less than two months (March 10, 1302) a second sentence was registered by which he with others was condemned to be burned alive if taken within the boundaries of the republic.† From this

* Thus Foscolo. Perhaps it would be more accurate to say that at first the blacks were the extreme Guelphs, and the whites those moderate Guelphs inclined to make terms with the Ghibellines. The matter is obscure, and Balbo contradicts himself about it.

† That Dante was not of the *grandi* or great nobles (what we call grandees), as some of his biographers have

time the life of Dante becomes semi-mythical, and for nearly every date we are reduced to the "as they say" of Herodotus. He became now necessarily identified with his fellow exiles (fragments of all parties united by common wrongs in a practical, if not theoretic, Ghibellinism), and shared in their attempts to reinstate themselves by force of arms. He was one of their council of 12, but withdrew from it on account of the unwisdom of their measures. Whether he was present at their futile assault on Florence (July 22, 1304) is doubtful, but probably he was not. From the *Ottimo Comento*, written at least in part* by a contemporary as early as 1333, we learn that Dante soon separated himself from his companions in misfortune with mutual discontents and recriminations. (*Ott. Com. Parad.* xvii.) During the 19 years of Dante's exile, it would be hard to say where he was not. In certain districts of northern Italy there is scarce a village that has not its tradition of him, its *sedia*, *rocca*, *spelonca*, or *torre di Dante;* and what between the patriotic complaisance of some biographers overwilling to gratify as many provincial vanities as possible, and the pettishness of others anxious only to snub them, the confusion becomes hopeless.† After his banishment we find some definite trace of him first at Arezzo with Uguccione della Faggiuola; then at Sienna; then at Verona with the Scaligeri. He himself says: "Through almost all parts where this language [Italian] is spoken, a wanderer, well nigh a beggar, I have gone, showing against my will the wound of fortune. Truly I have been a vessel without sail or rudder, driven to diverse ports, estuaries, and shores by that hot blast, the breath of grievous poverty; and I have shown myself to the eyes of many who perhaps, through some fame of me, had imagined me in quite other guise, in whose view not only was my person debased, but every work of mine, whether done or yet to do, became of less account." (*Convito*, tratt. i. cap. 3.) By the election of the emperor Henry VII. (of Luxemburg, Nov. 1308), and the news of his proposed expedition into Italy, the hopes of Dante were raised to the highest pitch. Henry entered Italy, Oct. 1310, and received the iron crown of Lombardy at Milan, on the day of Epiphany, 1311. His movements being slow, and his policy undecided, Dante addressed him that famous letter, urging him to crush first the "Hydra and Myrrha" Florence, as the root of all the evils of Italy (April 16, 1311). To this year we must probably assign the new decree by which the seignory of Florence recalled a portion of the exiles, excepting Dante, however, among others, by name.* The undertaking of Henry, after an ill-directed dawdling of two years, at last ended in his death at Buonconvento (Aug. 24, 1313; Carlyle says wrongly Sept.), poisoned, it was said, in the sacramental bread, by a Dominican friar, bribed thereto by Florence. (See Carlyle's "Frederic," Harper's ed. vol. i. p. 112.) The story is doubtful, the more as Dante nowhere alludes to it, as he certainly would have done had he heard of it. According to Balbo, Dante spent the time from Aug. 1313, to Nov. 1314, in Pisa and Lucca, and then took refuge at Verona, with Can Grande della Scala (whom Voltaire calls, drolly enough, *le grande-can de Vérone*, as if he had been a Tartar), where he remained till 1318. Foscolo with equal positiveness sends him, immediately after the death of Henry, to Guido da Polenta† at Ravenna, and makes him join Can Grande only after the latter became captain of the Ghibelline league in Dec. 1318. In 1316 the government of Florence set forth a new decree allowing the exiles to return on conditions of fine and penance. Dante rejected the offer (by accepting which his guilt would have been admitted), in a letter still hot, after these 5 centuries, with indignant scorn. "Is this then the glorious return of Dante Alighieri to his country after nearly 3 lustres of suffering exile? Did an innocence patent to all merit this? This, the perpetual sweat and toil of study? Far from a man the housemate of philosophy be so rash and earthen-hearted a humility as to allow himself to be offered up bound like a schoolboy or a criminal! Far from a man the preacher of justice to pay those who have done him wrong as for a favor! This is not the way of returning to my country; but if another can be found that shall not derogate from the fame and honor of Dante, that I will enter on with no lagging steps. For if by none such Florence may be entered, by me then never! Can I not everywhere behold the mirrors of the sun and stars? Speculate on sweetest truths under any sky without first giving myself up inglorious, nay ignominious, to the populace and city of Florence? Nor shall I want for bread." Dionisi puts the date of this letter in 1315.‡ He

tried to make out, is plain from this sentence, where his name appears low on the list and with no ornamental prefix, after half a dozen *domini*. Bayle, however, is equally wrong in supposing his family to have been obscure.

* See Witte, *Quando e da chi sia composto l'Ottimo Comento*, &c. (Leipsic, 1847).

† The loose way in which many Italian scholars write history is as amazing as it is perplexing. For example: Count Balbo's "Life of Dante" was published originally at Turin, in 1839. In a note (lib. i. cap. 10) he expresses a doubt whether the date of Dante's banishment should not be 1303, and inclines to think it should be. Meanwhile, it seems never to have occurred to him to employ some one to look at the original decree, still existing in the archives. Stranger still, Le Monnier, reprinting the work at Florence, in 1853, within a stone's throw of the document itself, and with full permission from Balbo to make corrections, leaves the matter just where it was.

* Macchiavelli is the authority for this, and is carelessly cited in the preface to the Udine edition of the *Codex Bartolinianus* as placing it in 1312. Macchiavelli does no such thing, but expressly implies an earlier date, perhaps 1310. (See Macch. Op. ed. Baretti, London, 1772, vol. i. p. 60.)

† A mistake, for Guido did not become lord of Ravenna till several years later. But Boccaccio also assigns 1313 as the date of Dante's withdrawal to that city, and his first protector may have been one of the other Polentani to whom Guido (surnamed Novello, or the younger, his grandfather having borne the same name) succeeded.

‡ Under this date (1315) a 4th *condemnatio* against Dante is mentioned, *facta in anno* 1315 *de mense Octobris per D. Rainerium D. Zacharie de Urbeveteri, olim et tunc vicarium regium civitatis Florentiæ*, &c. It is found recited in the decree under which in 1342 Jacopo di Dante redeemed a portion of his father's property, to wit: *Una possessione cum vineu et cum domibus super ea, combustis et*

is certainly wrong, for the decree is dated Dec. 11, 1316. Foscolo places it in 1316, Troya early in 1317, and both may be right, as the year began March 25. Whatever the date of Dante's visit to Voltaire's great Khan* of Verona, or the length of his stay with him, may have been, it is certain that he was in Ravenna in 1320, and that on his return thither from an embassy to Venice (concerning which a curious letter, forged probably by Doni, is extant), he died on Sept. 14, 1321 (13th according to others). He was buried at Ravenna under a monument built by his friend, Guido Novello.† Dante is said to have dictated the following inscription for it on his deathbed :

JVRA MONARCHIÆ SVPEROS PHLEGETHONTA LACVSQVE
LVSTRANDO CECINI VOLVERVNT FATA QVOVSQVE
SED QVIA PARS CESSIT MELIORIBVS HOSPITA CASTRIS
AVCTOREMQVE SVVM PETIIT FELICIOR ASTRIS
HIC CLAVDOR DANTES PATRIIS EXTORRIS AB ORIS
QVEM GENVIT PARVI FLORENTIA MATER AMORIS.

Of which this rude paraphrase may serve as a translation :

The rights of Monarchy, the Heavens, the Stream of Fire, the Pit,
In vision seen, I sang as far as to the Fates seemed fit;
But since my soul, an alien here, hath flown to nobler wars,
And, happier now, hath gone to seek its Maker 'mid the stars,
Here am I Dante shut, exiled from the ancestral shore,
Whom Florence, the of all least-loving mother, bore.‡

If these be not the words of Dante, what is internal evidence worth? The indomitably self-reliant man, loyal first of all to his most unpopular convictions (his very host, Guido, being a Guelph), puts his Ghibellinism (*jura monarchiæ*) in the front. The man whose whole life, like that of selected souls always, had been a warfare, calls Heaven another camp—a better one, thank God! The wanderer of so many years speaks of his soul as a guest—glad to be gone, doubtless. The exile, whose sharpest reproaches of Florence are always those of an outraged lover, finds it bitter that even his unconscious bones should lie in alien soil.—*Personal Characteristics ; Anecdotes.* Giovanni Villani, the earliest authority, and a contemporary, thus sketches him : "This man was a great scholar in almost every science, though a layman ; was a most excellent poet, philosopher, and rhetorician; perfect, as well in composing and versifying as in haranguing; a most noble speaker. . . . . This Dante, on account of his learning, was a little haughty, and shy, and disdainful, and like a philosopher almost ungracious, knew not well how to deal with unlettered folk." Benvenuto da Imola tells us that he was very abstracted, as we may well believe of a man who carried the *Commedia* in his brain. Boccaccio paints him in this wise : "Our poet was of middle height; his face was long, his nose aquiline, his jaw large, and the lower lip protruding somewhat beyond the upper; a little stooping in the shoulders; his eyes rather large than small; dark of complexion; his hair and beard thick, crisp, and black; and his countenance always sad and thoughtful. His garments were always dignified, the style such as suited ripeness of years ; his gait was grave and gentlemanlike ; and his bearing, whether public or private, wonderfully composed and polished. In meat and drink he was most temperate, nor was ever any more zealous in study or whatever other pursuit. Seldom spake he, save when spoken to, though a most eloquent person. In his youth he delighted especially in music and singing, and was intimate with almost all the singers and musicians of his day. He was much inclined to solitude, and familiar with few, and most assiduous in study as far as he could find time for it. Dante was also of marvellous capacity and the most tenacious memory." Various anecdotes of him are related by Boccaccio, Sacchetti, and others, none of them verisimilar, and some of them at least 15 centuries old when revamped. Most of them are neither *veri* nor *ben trovati*. One clear glimpse we get of him from the *Ottimo Comento*, the author of which says (*Inf.* x. 85): "I, the writer, heard Dante say that never a rhyme had led him to say other than he would, but that many a time and oft (*molte e spesse volte*) he had made words say for him what they were not wont to express for other poets." That is the only sincere glimpse we get of the living, breathing, word-compelling Dante. —*The Posthumous Dante.* Looked at outwardly, the life of Dante seems to have been an utter and disastrous failure. What its inward satisfactions must have been, we, with the *Paradiso* open before us, can form some faint conception. To him, longing with an intensity

non combustis, posita in populo S. Miniatis de Pagnola. In the *domibus combustis* we see the blackened traces of Dante's kinsman by marriage, Corso Donati, who plundered and burnt the houses of the exiled Bianchi, during the occupation of the city by Charles of Valois. (See De Romanis, notes on Tiraboschi's Life of Dante, in the Florence ed. of 1830, vol. v. p. 119.)

* Voltaire's blunder has been made part of a serious theory by Mons. E. Aroux, who gravely assures us that, during the middle ages, Tartar was only a cryptonyme by which heretics knew each other, and adds: *Il n'y a donc pas trop à s'étonner des noms bizarres de Mastino et de Cane donnés à ces Della Scala.* (*Dante, hérétique, révolutionnaire, et socialiste*, Paris, 1854, pp. 118–120.)

† If no monument at all was built by Guido, as is asserted by Balbo (*Vita*, l. ii. cap. xvii.), whom De Vericour copies without question, we are at a loss to account for the preservation of the original epitaph replaced by Cardinal Bembo when he built the new tomb, in 1483. Bembo's own inscription implies an already existing monument, and, if in disparaging terms, yet epitaphial Latin verses are not to be taken too literally, considering the exigencies of that branch of literary activity. The doggerel Latin has been thought by some unworthy of Dante, as Shakespeare's doggerel English epitaph has been thought unworthy of him. In both cases the rudeness of the verses seems to us a proof of authenticity. An enlightened posterity with unlimited superlatives at command, and in an age when stone-cutting was cheap, would have aimed at something more befitting the occasion. It is certain, at least in Dante's case, that Cardinal Bembo would never have inserted in the very first words an allusion to the *De Monarchiâ*, a book long before condemned as heretical.

‡ We have translated *lacusque* by "the Pit," as being the nearest English correlative. Dante probably meant by it the several circles of his Hell, narrowing, one beneath the other, to the centre. As a curious specimen of English we subjoin Prof. De Vericour's translation: "I have sang the rights of monarchy; I have sang, in exploring them, the abode of God, the Phlegethon and the impure lakes, as long as destinies have permitted. But as the part of myself, which was only passing, returns to better fields, and happier, returned to his Maker, I, Dante, exiled from the regions of the fatherland, I am laid here, I, to whom Florence gave birth, a mother who experienced but a feeble love." (The "Life and Times of Dante," London, 1858, p. 208.)

which only the word *Dantesque* will express to realize an ideal upon earth, and continually baffled and misunderstood, the far greater part of his mature life must have been labor and sorrow. We can see how essential all that sad experience was to him, can understand why all the fairy stories hide the luck in the ugly black casket; but to him, then and there, how seemed it?

> Thou shalt relinquish every thing of thee,
> Beloved most dearly; this that arrow is
> Shot from the bow of exile first of all;
> And thou shalt prove how salt a savor hath
> The bread of others, and how hard a path
> To climb and to descend the stranger's stairs!
> (*Par.* xvii.)

Come sa di sale! Who never wet his bread with tears, says Goethe, knows ye not, ye heavenly powers! Our 19th century made an idol of the noble lord who broke his heart in verse once every 6 months, but the 14th was lucky enough to produce and not to make an idol of that rarest earthly phenomenon, a man of genius who could hold heartbreak at bay for 20 years, and would not let himself die till he had done his task. At the end of the *Vita Nuova*, his first work, Dante wrote down that remarkable aspiration that God would take him to himself after he had written of Beatrice such things as were never yet written of woman. It was literally fulfilled when the *Commedia* was finished 25 years later.—Scarce was Dante at rest in his grave when Italy felt instinctively that this was her great man. Boccaccio tells us that in 1329* Cardinal Poggetto (du Poiet) caused Dante's treatise *De Monarchiâ* to be publicly burned at Bologna, and proposed further to dig up and burn the bones of the poet at Ravenna, as having been a heretic; but so much opposition was roused that he thought better of it. Yet this was during the pontificate of the Frenchman, John XXII., the reproof of whose simony Dante puts in the mouth of St. Peter, who declares his seat vacant (*Parad.* xxvii.), whose damnation the poet himself seems to prophesy (*Inf.* xi.), and against whose election he had endeavored to persuade the cardinals, in a vehement letter. In 1350 the republic of Florence voted the sum of 10 golden florins to be paid by the hands of Messer Giovanni Boccaccio to Dante's daughter Beatrice, a nun in the convent of Santa Chiara at Ravenna. In 1396 Florence voted a monument, and begged in vain for the metaphorical ashes of the man of whom she had threatened to make literal cinders if she could catch him alive. In 1429† she begged again, but Ravenna, a dead city, was tenacious of the dead poet. In 1519 Michel Angelo would have built the monument, but Leo X. refused to allow the sacred dust to be removed. Finally, in 1829, 508 years after the death of Dante, Florence got a cenotaph fairly built in Santa Croce (by Ricci), ugly beyond even the usual lot of such, with 3 colossal figures on it, Dante in the middle, with Italy on one side and Poesy on the other. The tomb at Ravenna, built originally in 1483, by Cardinal Bembo, was restored by Cardinal Corsi in 1692, and finally rebuilt in its present form by Cardinal Gonzaga, in 1780, all three of whom commemorated themselves in Latin inscriptions. It is a little shrine covered with a dome, not unlike the tomb of a Mohammedan saint, and is now the chief magnet which draws foreigners and their gold to Ravenna. The *valet de place* says that Dante is not buried under it, but beneath the pavement of the street in front of it, where also, he says, he saw my lord Byron kneel and weep. Like every thing in Ravenna, it is dirty and neglected. In 1373 (Aug. 9) Florence instituted a chair of the *Divina Commedia*, and Boccaccio was named first professor. He accordingly began his lectures on Sunday, Oct. 3, following, but his comment was broken off abruptly at the 17th verse of the 17th canto of the *Inferno* by the illness which ended in his death, Dec. 21, 1375. Among his successors were Filippo Villani and Filelfo. Bologna was the first to follow the example of Florence, Benvenuto da Imola having begun his lectures, according to Tiraboschi, as early as 1375. Chairs were established also at Pisa, Venice, Piacenza, and Milan before the close of the century. The lectures were delivered in the churches and on feast days, which shows their popular character. Balbo reckons (but this is guess work) that the MS. copies of the *Divina Commedia* made during the 14th century, and now existing in the libraries of Europe, are more numerous than those of all other works, ancient and modern, made during the same period. Between the invention of printing and the year 1500 more than 20 editions were published in Italy, the earliest in 1472. During the 16th century there were 40 editions; during the 17th, a period, for Italy, of sceptical dilettantism, only 3; during the 18th, 34; and already, during the first half of the 19th, at least 80. The first translation was into Spanish, in 1428.* M. St. René Taillandier says that the *Commedia* was condemned by the inquisition in Spain, but this seems too general a statement, for, according to Foscolo ("Dante," vol. iv. p. 116), it was the commentary of Landino and Vellutello, and a few verses in the *Inferno* and *Paradiso*, which were condemned. The first French translation was that of Grangier, 1596, but the study of Dante struck no root there till the present century. Rivarol, who translated the *Inferno* in 1783, was the first Frenchman who divined the wonderful force and vitality of the *Commedia*.† The expressions of Voltaire represent very well the average opinion of cultivated persons in respect of Dante in the middle of the 18th century. He says: "The Italians call him divine; but it is a hidden divinity; few people understand his oracles. He has commentators, which, perhaps, is another reason for his not being understood. His reputation will go on

* He says after the return of Louis of Bavaria to Germany, which took place in that year. The *De Monarchiâ* was afterward condemned by the council of Trent.

† See the letter in Gaye, *Carteggio inedito d'artisti*, vol. i. p. 123.

* Saint René Taillandier, in *Revue de deux mondes*, Dec. 1, 1856.

† Ste. Beuve, *Causeries du Lundi*, tome xi. p. 169.

increasing, because scarce anybody reads him." (*Dict. Phil.*, art. "Dante.") To Father Bettinelli he writes: "I estimate highly the courage with which you have dared to say that Dante was a madman and his work a monster." But he adds, what shows that Dante had his admirers even in that flippant century: "There are found among us, and in the 18th century, people who strive to admire imaginations so stupidly extravagant and barbarous." (*Corresp. gén.*, *Œuvres*, t. lvii. pp. 80–81.) Elsewhere he says that the *Commedia* was "an odd poem, but gleaming with natural beauties, a work in which the author rose in parts above the bad taste of his age and his subject, and full of passages written as purely as if they had been of the time of Ariosto and Tasso." (*Essai sur les mœurs*, *Œuvres*, t. xvii. pp. 371–'2.) It is curious to see this antipathetic fascination which Dante exercised over a nature so opposite to his own. At the beginning of this century Châteaubriand speaks of Dante with vague commendation, evidently from a very superficial acquaintance, and that only with the *Inferno*, probably from Rivarol's version. (*Génie du Christianisme*, t. iv. cap. 14.) Since then there have been 4 or 5 French versions in prose or verse, including one by Lamennais. But the austerity of Dante will not condescend to the conventional elegance which makes the charm of French, and the most virile of poets cannot be adequately rendered in the most feminine of languages. Yet in the works of Fauriel, Ozanam, Ampère, and Villemain, France has given a greater impulse to the study of Dante than any other country except Germany. Into Germany the *Commedia* penetrated later. How utterly Dante was unknown there in the 16th century is plain from a passage in the "Vanity of the Arts and Sciences" of Cornelius Agrippa, where he is spoken of among the authors of lascivious stories: "There have been many of these historical pandars, of which some of obscure fame, as Æneas Sylvius, Dantes, and Petrarch, Boccace, Pontanus," &c. (Ed. Lond. 1684, p. 199.) The first German translation was that of Kannegiesser (1809). Versions by Streckfuss, Kopisch, and Prince John (now king) of Saxony followed. Goethe seems never to have given that attention to Dante which his ever-alert intelligence might have been expected to bestow on so imposing a moral and æsthetic phenomenon. Unless the conclusion of the second part of "Faust" be an inspiration of the *Paradiso*, we remember no adequate word from him on this theme. His remarks on one of the German translations are brief, dry, and without that breadth which comes only of thorough knowledge and sympathy. But German scholarship and constructive criticism, through Witte, Kopisch, Wegele, Ruth, and others, have been of preëminent service in deepening the understanding and facilitating the study of the poet. In England, the first recognition of Dante is by Chaucer in the "Hugelin of Pisa" of the "Monkes Tale,"* and an imitation of the opening verses of the 3d canto of the *Inferno* ("Assembly of Foules"). In 1417 Giovanni da Serravalle, bishop of Fermo, completed a Latin prose translation of the *Commedia*, a copy of which, as he made it at the request of two English bishops whom he met at the council of Constance, was doubtless sent to England. Later we find Dante now and then mentioned, but evidently from hearsay only,* till the time of Milton, who shows that he had read his works closely. Thenceforward for more than a century Dante became a mere name, used without meaning by literary sciolists. Lord Chesterfield echoes Voltaire, and Dr. Drake in his "Literary Hours" (2d ed., 1800) could speak of Darwin's "Botanic Garden" as showing the "wild and terrible sublimity of Dante"! The first complete English translation was by Boyd, of the *Inferno* 1785, of the whole poem 1802. There have been 6 other complete translations, beginning with Cary's in 1814, 4 since 1850, beside several of the *Inferno* singly. It is only within the last 20 years, however, that the study of Dante, in any true sense, became at all general. Even Coleridge seems to have been familiar only with the *Inferno*. In America, Prof. Ticknor was the first to devote a special course of illustrative lectures to Dante; he was followed by Longfellow, whose lectures, illustrated by admirable translations, are remembered with grateful pleasure by many who were thus led to learn the full significance of the great Christian poet. A translation of 10 cantos of the *Inferno* into quatrains by T. W. Parsons (1843) ranks with the best for spirit, faithfulness, and elegance. The entire *Inferno* is looked for soon from the same competent hand. In Denmark and Russia translations of the *Inferno* have been published, beside separate volumes of comment and illustration. We have thus sketched the steady growth of Dante's fame and influence to a universality unparalleled except in the case of Shakespeare, perhaps more remarkable if we consider the abstruse and mystical nature of his poetry. It is to be noted as characteristic that the veneration of Dantophilists for their master is that of disciples for their saint. Perhaps no other man could have called forth such an expression as that of Ruskin, that "the central man of all the world, as representing in perfect balance the imagination, moral and intellectual faculties, all at their highest, is Dante."—*The Works of Dante.* (*a.*) The *Vita Nuova*. The first remark to be made upon the writings of Dante is that they are all (with the possible exception of the treatise *De Vulgari Eloquio*) autobiographic, and that all of them, including that, are parts of a mutually

* It is worth notice, as a proof of Chaucer's critical judgment, that he calls Dante "the great poet of Itaille," while in the "Clerke's Tale" he speaks of Petrarch as a "worthy clerk," as "the laureat poete" (alluding to the somewhat sentimental ceremony at Rome), and says that his

> "Rhetorike sweete
> Enlumined all Itaille of poetry."

* It is possible that Sackville may have read the *Inferno*, and it is certain that Sir John Harrington had. See the preface to his translation of the *Orlando Furioso*.

related system, of which the central point is the individuality and experience of the poet. In the *Vita Nuova* he recounts the story of his love for Beatrice Portinari, showing how his grief for her loss turned his thoughts first inward upon his own consciousness, and, failing all help there, gradually upward through philosophy to religion, and so from a world of shadows to one of eternal substances. It traces with exquisite unconsciousness the gradual but certain steps by which memory and imagination transubstantiated the woman of flesh and blood into a holy ideal, combining in one radiant symbol of sorrow and hope the faith which is the instinctive refuge of unavailing regret, the grace of God which higher natures learn to find in the trial which passeth all understanding, and that perfect womanhood, the dream of youth and the memory of maturity, which beckons toward the for ever unattainable. As a contribution to the physiology of genius, no other book is to be compared with the *Vita Nuova*. It is more important to the understanding of Dante as a poet than any other of his works. It shows him (and that in the midst of affairs demanding practical ability and presence of mind) capable of a depth of contemplative abstraction, equalling that of a Soofi who has passed the fourth step of initiation. It enables us in some sort to see how, from being the slave of his imaginative faculty, he rose by self-culture and force of will to that mastery of it which is art. We comprehend the *Commedia* better when we know that Dante could be an active, clear-headed politician and a mystic at the same time. Various dates have been assigned to the composition of the *Vita Nuova*. The earliest limit is fixed by the death of Beatrice in 1290 (though some of the poems are of even earlier date), and the book is commonly assumed to have been finished by 1295; Foscolo says 1294. But Professor Karl Witte, a high authority, extends the term as far as 1300 (*Dante Alighieri's lyrische Gedichte*, Leipzig, 1842, *Theil* ii. pp. 4–9). The title of the book also, *Vita Nuova*, has been diversely interpreted. Mr. Garrow, who published an English version of it at Florence in 1846, entitles it the "Early Life of Dante." Balbo understands it in the same way (*Vita*, p. 97). But we are strongly of the opinion that "New Life" is the interpretation sustained by the entire significance of the book itself. (*b.*) The treatise *De Monarchiâ*. It has been generally taken for granted that Dante was a Guelph in politics up to the time of his banishment, and that out of resentment he then became a violent Ghibelline. Not to speak of the consideration that there is no author whose life and works present so remarkable a unity and logical sequence as those of Dante, Professor Witte has drawn attention to a fact which alone is enough to demonstrate that the *De Monarchiâ* was written before 1300. That and the *Vita Nuova* are the only works of Dante in which no allusion whatever is made to his exile. That bitter thought was continually present to him. In the *Convito* it betrays itself often, and with touching unexpectedness. Even in the treatise *De Vulgari Eloquio*, he takes as one of his examples of style: "I have most pity for those, whosoever they are, that languish in exile, and revisit their country only in dreams." We have seen that the one decisive act of Dante's priorate was to expel from Florence the chiefs of both parties as the sowers of strife, and he tells us (*Parad.* xvii.) that he had formed a party by himself. The king of Saxony has well defined his political theory as being "an ideal Ghibellinism" (comment on *Parad.* vi.), and he has been accused of want of patriotism only by those short-sighted persons who cannot see beyond their own parish. Dante's want of faith in freedom was of the same kind with Milton's refusing (as Tacitus had done before) to confound license with liberty. The argument of the *De Monarchiâ* is briefly this: As the object of the individual man is the highest development of his faculties, so is it also with men united in societies. But the individual can only attain that highest development when all his powers are in absolute subjection to the intellect, and society only when it subjects its individual caprices to an intelligent head. This is the order of nature, as in families, and men have followed it in the organization of villages, towns, cities. Again, since God made man in his own image, men and societies most nearly resemble him in proportion as they approach unity. But as in all societies questions must arise, so there is need of a monarch for supreme arbiter. And only a universal monarch can be impartial enough for this, since kings of limited territories would always be liable to the temptation of private ends. With the internal policy of municipalities, commonwealths, and kingdoms, the monarch would have nothing to do, only interfering when there was danger of an infraction of the general peace. This is the doctrine of the first book, enforced sometimes eloquently, always logically, and with great fertility of illustration. It is an enlargement of some of the *obiter dicta* of the *Convito*. The earnestness with which peace is insisted on as a necessary postulate of civic well-being, shows what the experience had been out of which Dante had constructed his theory. It is to be looked on as a purely scholastic demonstration of a speculative thesis, in which the manifold exceptions and modifications essential in practical application are necessarily left aside. Dante almost forestalls the famous proposition of Calvin, "that it is possible to conceive a people without a prince, but not a prince without a people," when he says: *Non enim gens propter regem, sed e converso rex propter gentem.* And in his letter to the princes and peoples of Italy on the coming of Henry VII. he bids them "obey their prince, but so as freemen preserving their own constitutional forms." He says also expressly: *Animadvertendum sane, quod cum dicitur humanum genus potest regi per unum*

supremum principem, non sic intelligendum est ut ab illo uno prodire possint municipia et leges municipales. Habent namque nationes, regna, et civitates inter se proprietates quas legibus differentibus regulari oportet. Schlosser the historian compares Dante's system with that of the United States (*Dante, Studien*, &c., 1855, p. 144). It in some respects resembled more the constitution of the Netherlands under the supreme stadtholder, but parallels between ideal and actual institutions are always unsatisfactory. (Compare also Spinoza, *Tractat. polit.* cap. vi.) The second book is very curious. In it Dante endeavors to demonstrate the divine right of the Roman empire to universal sovereignty. One of his arguments is that Christ consented to be born under the reign of Augustus; another, that he assented to its jurisdiction in allowing himself to be crucified under a decree of one of its courts. The atonement could not have been accomplished unless Christ suffered under sentence of a court having jurisdiction, for otherwise his condemnation would have been an injustice, and not a penalty. Moreover, since all mankind was typified in the person of Christ, the court must have been one having jurisdiction over all mankind; and since he was delivered to Pilate, an officer of Tiberius, it must follow that the jurisdiction of Tiberius was universal. He draws an argument also from the wager of battle to prove that the Roman empire was divinely permitted, at least, if not instituted. For since it is admitted that God gives the victory, and since the Romans always won it, therefore it was God's will that the Romans should attain universal empire. In the third book, he endeavors to prove that the emperor holds by divine right, and not by permission of the pope. He assigns supremacy to the pope in spirituals, and to the emperor in temporals. This was a delicate subject, and though the king of Saxony (a Catholic) says that Dante did not overstep the limits of orthodoxy, it was on account of this part of the book that it was condemned as heretical. (*c.*) The treatise *De Vulgari Eloquio*. Though we have doubts whether we possess this book as Dante wrote it, inclining rather to think that it is a copy in some parts textually exact, in others an abstract, there can be no question either of its great glossological value, or that it conveys the opinions of Dante. We put it next in order, though written later than the *Convito*, only because, like the *De Monarchiâ*, it is written in Latin. It is a proof of the national instinct of Dante, and of his confidence in his genius, that he should have chosen to write all his greatest works in what was deemed by scholars a *patois*, but which he more than any other man made a classic language. Had he intended the *De Monarchiâ* for a political pamphlet, he would certainly not have composed it in the dialect of the few. The *De Vulgari Eloquio* was to have been in 4 books. Whether it was ever finished or not, it is impossible to say, but only 2 books have come down to us. It treats of poetizing in the vulgar tongue, and of the different dialects of Italy. The Florentines have denied its authenticity, because it does not allow the supremacy of the Tuscan. From the particularity with which it treats of the dialect of Bologna, it has been supposed to have been written in that city, or at least to furnish an argument in favor of Dante's having at some time studied there. In lib. ii. cap. 2, is a remarkable passage in which, defining the various subjects of song and what had been treated in the vulgar tongue by different poets, he says that his own theme had been righteousness. (*d.*) The *Convito*. This also is imperfect. It was to have consisted of 14 treatises, but, as we have it, contains only 4. In the first he justifies the use of the vulgar idiom in preference to the Latin. In the other 3 he comments on 3 of his own *Canzoni*. It will be impossible to give an adequate analysis of this work in the limits allowed us. (A very good one may be found in the 6th volume of the Molini edition of Dante, pp. 391–433.) It is an epitome of the learning of that age, philosophical, theological, and scientific. As affording illustration of the *Commedia*, and of Dante's style of thought, it is invaluable. It is reckoned by his countrymen the first piece of Italian prose, and there are parts of it which still stand unmatched for eloquence and pathos. The Italians (even such a man as Cantu among the rest) find in it and a few passages of the *Commedia* the proof that Dante, as a natural philosopher, was wholly in advance of his age—that he had, among other things, anticipated Newton in the theory of gravitation. But this is as idle as the claim that Shakespeare had discovered the circulation of the blood before Harvey (see Field's "Theory of Colors"), and one might as well attempt to dethrone Newton because Chaucer speaks of the love which draws the apple to the earth. The truth is, that it was only as a poet that Dante was great and original (glory enough, surely, to have not more than two competitors), and in matters of science, as did all his contemporaries, sought the guiding hand of Aristotle like a child. Dante is assumed by many to have been a Platonist, but this is not true, in the strict sense of the word. Like all men of great imagination, he was an idealist, and so far a Platonist, as Shakespeare might be proved to have been by his sonnets. But Dante's direct acquaintance with Plato may be reckoned at zero, and we consider it as having strongly influenced his artistic development for the better, that, transcendentalist as he was by nature, so much so as to be in danger of lapsing into an oriental mysticism, his habits of thought should have been made precise and his genius disciplined by a mind so severely logical as that of Aristotle. This does not conflict with what we believe to be equally true, that the Platonizing commentaries on his poem, like that of Landino, are the most satisfactory. (*e.*) Beside the prose already mentioned, we have a small collection of Dante's letters, the recovery of the larger number of which we owe to Professor Witte. They are

all interesting, some of them especially so, as illustrating the prophetic character with which Dante invested himself. The longest is one addressed to Can Grande della Scala, explaining the intention of the *Commedia* and the method to be employed in its interpretation. The authenticity of this letter has been doubted, but is now generally admitted. (*f.*) The Poems. There is first a collection of minor poems, full of grace, and depth of mystic sentiment, and which would have given Dante a high place in the history of Italian literature, even had he written nothing else. They are so abstract, however, that without the extrinsic interest of having been written by the author of the *Commedia*, they would probably find few readers. All that is certainly known in regard to the *Commedia* is that it was composed during the 19 years which intervened between Dante's banishment and death. Attempts have been made to fix precisely the dates of the different parts, but without success, and the differences of opinion are bewildering. Foscolo has constructed an ingenious and forcible argument to show that no part of the poem was published before the author's death. The question depends somewhat on the meaning we attach to the word published. In an age of manuscript, the wide dispersion of a poem so long even as a single one of the 3 divisions of the *Commedia* would be accomplished very slowly. But it is difficult to account for the great fame which Dante enjoyed during the latter years of his life, unless we suppose that parts, at least, of his greatest work had been read or heard by a large number of persons. This need not, however, imply publication; and Witte, whose opinion is entitled to great consideration, supposes even the *Inferno* not to have been finished before 1314 or 1315. In a matter where certainty would be impossible, it is of little consequence to reproduce conjectural dates. In the letter to Can Grande before alluded to, Dante himself has stated the theme of his song. He says that "the literal subject of the whole work is the state of the soul after death simply considered. But if the work be taken allegorically, the subject is man, as by merit or demerit, through freedom of the will, he renders himself liable to the reward or punishment of justice." He tells us that the work is to be interpreted in a literal, allegorical, moral, and anagogical sense, a mode then commonly employed with the Scriptures,* and of which he gives the following example: "To make which mode of treatment more clear, it may be applied in the following verses: *In exitu Israel de Ægypto, domus Jacob de populo barbaro, facta est Judæa sanctificatio ejus, Israel potestas ejus.*† For if we look only at the literal sense, it signifies the going out of the children of Israel from Egypt in the time of Moses; if at the allegorical, it signifies our redemption through Christ; if at the moral, it signifies the conversion of the soul from the grief and misery of sin to a state of grace; and if at the anagogical, it signifies the passage of the blessed soul from the bondage of this corruption to the freedom of eternal glory." A Latin couplet, cited by one of the old commentators, puts the matter compactly together for us:

> *Litera* gesta refert; quid credas *allegoria;*
> *Moralis* quid agas; quid speres *anagogia.*

Dante tells us that he calls his poem a comedy because it has a fortunate ending, and gives its title thus: "Here begins the comedy of Dante Alighieri, a Florentine by birth, but not in morals."* The poem consists of 3 parts, Hell, Purgatory, and Paradise. Each part is divided into 33 cantos, in allusion to the years of the Saviour's life, for though the Hell contain 34, the 1st canto is merely introductory. In the form of the verse (triple rhyme) we may find an emblem of the Trinity, and in the 3 divisions, of the threefold state of man, sin, grace, and beatitude. Symbolic meanings reveal themselves, or make themselves suspected, everywhere, as in the architecture of the middle ages. An analysis of the poem would be out of place here, but we must say a few words of Dante's position as respects modern literature. If we except Wolfram von Eschenbach, he is the first Christian poet, the first (indeed we might say the only) one whose whole system of thought is colored in every finest fibre by a purely Christian theology. Lapse through sin, mediation, and redemption, these are the subjects of the 3 parts of the poem; or, otherwise stated, intellectual conviction of the result of sin, typified in Virgil (symbol also of that imperialism whose origin he sang); moral conversion after repentance, by divine grace, typified in Beatrice; reconciliation with God, and actual blinding vision of him—"the pure in heart shall see God." The model of the poem is that of the Christian basilica; the ethnic forecourt of those who know not God; the purgatorial middle space of repentance, confession, and absolution; the altar of reconciliation, beyond and over which hangs the emblem of the Mediator, of the divine made human, that the human might learn how to become divine. Here are general truths which any Christian may accept and find comfort in. But the poem comes nearer to us than this. It is the real history of a brother man, of a tempted, purified, and at last triumphant human soul; it teaches the benign ministry of sorrow, and that the ladder of that faith by which man climbs to the actual fruition of things not seen *ex quovis ligno non fit*, but only of the cross manfully borne. The poem is also, in a very intimate sense, an apotheosis of woman. Indeed, as Marvell's drop of dew mirrored the whole firmament, so we find in the *Commedia* the image of the middle ages, and the sentimental gyniolatry of chivalry, which was at best but skin-deep, is lifted in Beatrice to an ideal and universal plane. It is the same with Catholicism, with imperialism, with the scholastic philosophy; and nothing is more wonderful than the power of

* As by Dante himself in the *Convito.*
† Psalm cxiv. 1, 2.

* He commonly prefaced his letters with some such phrase as *exul immeritus.*

absorption and assimilation in this man, who could take up into himself the world that then was and reproduce it with such cosmopolitan truth to human nature, and to his own individuality, as to reduce all contemporary history to a mere comment on his vision. We protest, therefore, against the parochial criticism which would degrade Dante to a mere partisan, which sees in him a Luther before his time, and would clap the *bonnet rouge* upon his heavenly muse. Like all great artistic minds, Dante was essentially conservative, and, arriving precisely in that period of transition when church and empire were entering upon the modern epoch of thought, he strove to preserve both by presenting the theory of both in a pristine and ideal perfection. The whole nature of Dante was one of intense belief. There is proof upon proof that he believed himself invested with a divine mission. Like the Hebrew prophets with whose writings his whole soul was imbued, it was back to the old worship and the God of the fathers that he called his people; and not Isaiah himself was more destitute of that humor, that sense of ludicrous contrast, which is an essential in the composition of a destructive. In Dante's time, learning had something of a sacred character; the line was hardly yet drawn between the clerk and the possessor of supernatural powers; it was with the next generation, with the elegant Petrarch, even more truly than with the kindly Boccaccio, that the purely literary life, and that dilettantism which is the twin sister of scepticism, began. As a merely literary figure, the position of Dante is remarkable. Not only as respects thought, but as respects æsthetics also, his great poem stands as a monument on the boundary line between the ancient and modern. He not only marks, but is in himself, the transition. *Arma virumque cano*, that is the motto of classic song; the things of this world and great men. Dante says, *subjectum est homo*, not *vir;* my theme is man, not a man. The scene of the old epic and drama was in this world, and its catastrophe here; Dante lays his scene in the human soul, and his 5th act in the other world. He makes himself the protagonist of his own drama. In the *Commedia* for the first time Christianity wholly revolutionizes Art, and becomes its seminal principle. But æsthetically also, as well as morally, Dante stands between the old and new, and reconciles them. The theme of his poem is purely subjective, modern, what is called romantic; but its treatment is objective (almost to realism, here and there), and it is limited by a form of classic severity. In the same way he sums up in himself the two schools of modern poetry which had preceded him, and, while essentially lyrical in his subject, is epic in the handling of it. So also he combines the deeper and more abstract religious sentiment of the Teutonic races with the scientific precision and absolute systematism of the Romanic. In one respect Dante stands alone. While we can in some sort account for such representative men as Voltaire and Goethe (nay, even Shakespeare) by the intellectual and moral fermentation of the age in which they lived, Dante seems morally isolated and to have drawn his inspiration almost wholly from his own internal reserves. Of his mastery in style we need say little here. Of his mere language, nothing could be better than the expression of Rivarol: "His verse holds itself erect by the mere force of the substantive and verb, without the help of a single epithet." We will only add a word on what seems to us an extraordinary misapprehension of Coleridge, who disparages Dante by comparing his Lucifer with Milton's Satan. He seems to have forgotten that the precise measurements of Dante were not prosaic, but absolutely demanded by the nature of his poem. He is describing an actual journey, and his exactness makes a part of the verisimilitude. We read the "Paradise Lost" as a poem, the *Commedia* as a record of fact; and no one can read Dante without believing his story, for it is plain that he believed it himself. It is false æsthetics to confound the grandiose with the imaginative. Milton's angels are not to be compared with Dante's, at once real and supernatural; and the Deity of Milton is theologic, while nothing in all poetry approaches the imaginative grandeur of Dante's vision of God at the conclusion of the *Paradiso*. In all literary history there is no such figure as Dante, no such homogeneousness of life and works, such loyalty to idea, such sublime irrecognition of the unessential; and there is no moral more touching than that the contemporary recognition of such a nature, so endowed and so faithful to its endowment, should be summed up in the sentence of Florence: *Igne comburatur sic quod moriatur.*—In order to fix more precisely in the mind the place of Dante in relation to the history of thought, literature, and events, we subjoin a few dates: Dante born, 1265; end of crusades, death of St. Louis, 1270; Aquinas died, 1274; Bonaventura died, 1274; Giotto born, 1276; Albertus Magnus died, 1280; Sicilian vespers, 1282; death of Ugolino and Francesca da Rimini, 1282; death of Beatrice, 1290; Roger Bacon died, 1292; death of Cimabue, 1302; Dante's banishment, 1302; Petrarch born, 1304; Fra Dolcino burned, 1307; Pope Clement V. at Avignon, 1309; Templars suppressed, 1312; Boccaccio born, 1313; Dante died, 1321; Wycliffe born, 1324; Chaucer born, 1328.—The best authorities on the life and works of Dante are: Troya, *Il veltro allegorico* (Firenze, 1826); Arrivabene, *Il secolo di Dante* (Udine, 1827); Ugo Foscolo, *Discorso sul testo* (Lugano, 1827; and in 1st vol. Lond. ed. of Dante, 1843); Dante, edited with *Ottimo Comento* (Pisa, 1827–'29); ditto, edited by Ciarditti (5 vols. 8vo., Firenze, 1830; and 6 vols. 8vo., Molini, 1830); Rosetti, *Sullo spirito antipapale*, &c. (London, 1832); Colomb de Batines, *Bibliografia Dantesca* (Prato, 1845–'6); Balbo, *Vita di Dante* (Firenze, 1853); Witte, *Dante's lyrische Gedichte* (Leipsic, 1842); *Dante metrisch übertragen, etc., von Philalethes* [king of Saxony]

(2d ed., 3 vols. 4to., Dresden and Leipsic, 1849; containing the best notes and commentary hitherto); Wegele, *Dante's Leben und Werke* (Jena, 1852); Schlosser, *Studien*, &c. (Leipsic and Heidelberg, 1855); Bruce-Whyte, *Histoire des langues Romanes* (Paris, 1841, t. iii.); Aroux, *Dante, hérétique, révolutionnaire, et socialiste* (Paris, 1854); Fauriel, *Dante*, &c. (Paris, 1854); Ozanam, *Dante et la philosophie catholique*, &c. (3d. ed., Paris, 1855); Villemain, *Cours de littérature Français*, (Paris, 1855, t. i.); Quinet, *Les révolutions d'Italie*, &c., Paris, 1856; St. René Taillandier, in *Revue des deux mondes* for Dec. 1, 1856 (the best *resumé* of Dantean literature and criticism up to the present time); Carlyle, "Heroes in History" (London, 1841); Emerson, "Representative Men" (Boston, 1850); and Mariotti (Gallenga), "Fra Dolcino and his Times" (London, 1853). Of English translations, the most elegant is Cary's, though Dante is a little Miltonized in it. Cayley's preserves the original metre, the difficulty of which makes him sometimes obscure, often rugged; but, in parts, it is admirably Dantesque. John A. Carlyle has published a literal prose version of the *Inferno*, perhaps as good as any prose rendering of a poem remarkable for rhythm can be; his notes are good.

DANTON, Georges Jacques, a French revolutionist, born at Arcis-sur-Aube, Oct. 28, 1759, executed in Paris, April 5, 1794. A lawyer by profession, he became one of the most fervent champions of the revolution. He had some intercourse with Mirabeau, and while the latter was exercising his influence over the constituent assembly and the middle classes, he controlled the populace, whose affections he won by his fervid eloquence, energetic bearing, and cordial manners. One of the founders of the club of Cordeliers, in conjunction with Camille Desmoulins and Marat, he advocated the most violent measures. After the return of Louis XVI. from Varennes, Danton was one of the most ardent promoters of the petition for his deposition. This petition, presented for signature at a popular mass meeting, resulted (July 17, 1791) in the "slaughter of the Champ de Mars." Toward the end of the same year Danton was appointed a member of the administration of the Seine department, and assistant attorney of the common council of Paris. This official situation increased his ascendency, and he used it on every important occasion. He was foremost in organizing and conducting the attack of the people upon the Tuileries, Aug. 10, 1792; he eagerly participated in the fight; and a few days afterward he received, as a reward from the legislative assembly, his appointment to the ministry of justice. On the invasion of France by the Prussian army, which filled Paris with consternation, he showed such firmness and confidence that the assembly and the people were reassured; but at the same time he cried: "To stop the progress of the enemies, we must strike the royalists with terror!" A few hours later the mob broke into the prisons of Paris, and the dreadful "slaughters of September" ensued. Danton himself is said to have been instrumental in bringing about this bloody work; at any rate, it is certain he took no measure to prevent it. On being elected to the convention he resigned his office and became one of the leaders of that body. The death of the king was, in his eyes, a political necessity. "We have no right to be his judges, it is true," he said; "well, we will kill him." On his motion a levy of 300,000 men was ordered, and the revolutionary tribunal established, March 10, 1793. On the organization of the committee of public safety, April 6, he was appointed one of its members. Associating himself with Robespierre against the Girondists, he contributed to their fall, but he would willingly have spared their lives. In his opinion, the moment had come when rigor should yield to forbearance. Robespierre, however, did not agree with him, and availed himself of the occasion to rid himself of an ally whom he always had secretly hated. Branded as a *modéré*, Danton was seized at his house, March 31, 1794, and imprisoned at the Luxembourg. Some among the members of the convention desired to save him; but Robespierre, supported by St. Just, succeeded in obtaining from the assembly an indirect approval of the arrest; it was decreed that "in the name of virtue, terror was irrevocably the order of the day." Danton was arraigned with Camille Desmoulins, Lacroix, Fabre d'Églantine, and others of his friends, before the revolutionary tribunal; charged with having been the accomplice of all those enemies of the republic whom he had himself destroyed, he was not even allowed to put in a defence. He had himself instituted this tribunal, for doing which he now publicly begged pardon of God and man. "My object," said he, "was to prevent a new September, and not to let loose a scourge upon mankind. These Cains know nothing about government. I leave every thing in frightful disorder." The contempt with which he treated his judges hastened his sentence. On hearing it, he exclaimed: "We fall victims to some contemptible cowards, but they will not long enjoy their victory. Robespierre follows me; I drag him after me." On the road to the place of execution he preserved the most perfect composure, looking disdainfully at the mob that followed him with insults, and telling Camille to take no notice of such a vile rabble. Moved by the recollection of his wife, he shed a few tears, but immediately regaining his self-possession, said: "Be thyself, Danton; no weakness!" When he was about receiving the fatal blow, he said to the executioner: "You will show my head to the crowd; it is worth their seeing."

DANTZIC (Ger. *Danzig;* Pol. *Gdansk*), an administrative division of the province of West Prussia, extending about 100 m. along the Baltic, subdivided into 7 districts, containing 11 large and 6 small towns, and 1,875 villages; area, 3,222 sq. m.; pop. in 1855, 436,000. The principal river is the Vistula. The soil, sandy and

swampy in some parts, is generally productive. The area of woods and forests is estimated at 800,000 acres. The principal products are grain, fruits, and timber. The rearing of horses and cattle and the fisheries support a large number of the population. The chief manufactures are linen, woollen, leather, beer, and spirits.—The capital, DANTZIC, with a population in 1855 of 63,461, beside 8,800 soldiers, is an important fortress and commercial city, situated in lat. 54° 21′ N., long. 18° 39′ E., on the left bank of the principal arm of the Vistula, about 3½ m. from its mouth, with a circumference, including its 9 suburbs, of more than 12 m. The principal buildings are 3 citadels, the church of St. Mary, one of the largest in Europe, with a "Judgment Day" painted by Van Eyck; the *Catharinenkirche*, the council house, the government building, the old armory, the exchange, and 175 granaries and workshops on the Speicher (Granary) island, where no dwelling house is allowed, where no fire must be kindled, and where at night all streets are closed excepting one. There are 13 Protestant and 6 Catholic churches, a Mennonite church, and 5 synagogues. The city abounds with learned, charitable, and artistic institutions, and is celebrated for its monuments and antiquities, which have been recently (1857) described by Prof. Schultz. The harbor was excellent up to 1829 and 1840, when the Vistula broke above the city through the high ridge of the Downs, and formed a new outlet, reducing the depth of the old branch, so that a new port, Neufahrwasser, had to be built at its mouth, which is defended by 2 forts. The commerce of Dantzic was at an earlier period far more important than since the first partition of Poland, when the prohibitory tariff of Russia, the sound dues, the sufferings from the Napoleonic wars, the ascendency of Hamburg, Bremen, and Stettin, made it decline; but the last 10 years have given it a new impetus. The great staples are Polish and Prussian grain, especially wheat, and wood, leather, potash, wool, tallow, pitch, hemp, flax, butter, furs, beer, and liquors. In exports it is the first Prussian port; in imports, the second after Swinemünde. Ship-building is extensively carried on. Dantzic owns at present 115 sea-going vessels and 8 steamers, tonnage about 75,000. Entrances in 1854, 1,504; in 1855, 1,381; and in 1856, 1,429 vessels. Clearances in 1854, 1,500; in 1855, 1,305; and in 1856, 1,427 vessels. The value of the grain and seeds exported in 1856 is estimated at $2,700,000, and of the wood articles at $2,800,000. Of black beer 2,550 barrels, or 20,400 kegs, were shipped during the same year. The principal imports are coal (269 cargoes in 1856, against 190 in 1855), coffee, rice, guano, pepper, pimento, and herrings. Manufactures are gaining ground rapidly. Six steam sawing works, 2 oil mills, 30 distilleries of liquor (particularly *Danziger Goldwasser*), breweries, refineries of sugar, manufactories of tobacco, and other industrial establishments, are in a flourishing condition. The eastern Prussian railway connects Dantzic with Berlin and Königsberg, and a branch road with Posen, and new railroads are projected.—Dantzic was founded before the 10th century. In 1310 it fell under the sway of the order of Teutonic knights, and became a German city in the midst of a Polish population, and up to this day is not perfectly Germanized. In 1454 it subjected itself to the king of Poland, for the purpose of securing from him commercial privileges, became a free city with some very rich territory, and fell under the dominion of Prussia in 1793, after a struggle of 6 days. The siege by Lefèbvre, in 1807, after which it became a so-called free city under Napoleonic protection, with a strong French garrison, and the frightful siege in 1813 and 1814 (when Gen. Rapp made a famous defence of 12 months against the Prussians and Russians, and the city was half destroyed and the population half starved), the French war contributions and continental system, gave a severe blow to the prosperity of Dantzic; from which, however, it has since recovered, especially within the last few years, by the improvements in the river, by being made a station of the royal fleet, and above all by railway communication.

DANUBE (anc. *Danubius*, or, in its lower course, *Ister*; Ger. *Donau*), the largest river of Germany, and, next to the Volga, of Europe. It is formed by the confluence of 2 streams, Brege and Brigach, rising on the S. E. slope of the Black Forest, lat. 48° 6′ N., long. 8° 9′ E., about 24 m. from the Rhine, at an elevation of 2,874 feet above the level of the Black sea. In an air line the distance from the sources to the mouth of the Danube is nearly 1,020 m., while the length of its course is 1,770 m. The river system of the Danube and all its tributaries covers an area of 308,000 sq. m. In its course it traverses nearly 22° of longitude, and 8° of latitude. The elevation of its surface above the level of the sea is at Ulm, the head of steam navigation, 1,255 feet, at Donauwörth 1,160, at Ingolstadt 1,140, at Ratisbon 1,050, at Passau 800, at Linz 650, at Vienna 421, at Presburg 401, at Buda 348, near Zombor 272, at Moldova 200. Three principal divisions of the river basin are indicated by the character of the adjacent country, and the river itself: the upper course, terminating at Passau; the middle course, at Gladova; the lower one, at the mouth. In its upper course the Danube, flowing in an easterly direction, skirts the southern base of the sterile table-land of the Rough Alps (*Rauhe Alp*), the rapidity of its current being 5½ feet a second. Its breadth having increased to 230 feet, and its current slackened, it becomes navigable at Ulm. There, sweeping to the N. E., through the fertile Bavarian plain, it forms a curve, of which the northern apex is Ratisbon, and the eastern base Passau. On the N. side the Ludwigs-canal connects it with the Main and Rhine rivers. Near Passau the Bavarian forest on the one side, and the northern ranges of the Noric Alps on the other, approach the Danube, narrowing its bed in some places to 800 feet, while

in others it expands to a breadth of 5,000 feet. From Passau to Lintz the fall is 2¼ feet in a mile; from there to Vienna only 1¼ feet. In this portion of its course the scenery of the Danube fairly rivals that of the Rhine, and even excels it in sombre grandeur. Nearer Vienna the mountains recede from the banks, and the river enters a large plain, which, being but scantily protected by dikes, is subject to terrible inundations. Having once more passed between two mountain ranges, the Leytha on the southern and the lesser Carpathians on the northern bank, the Danube emerges into the fertile and well cultivated region of western Hungary. There, spreading out in several branches, it forms a great number of islands, among which the Great Schütt (50 m. long, and from 4 to 9 m. in width) and the Little Schütt (27 m. long) are the largest. Through a mountain defile, formed by the Neograd range of the Carpathians and the Bakony forest, the Danube enters the great Hungarian plain, turns abruptly to the S. near Waitzen, and slowly winds its course through vast level bottom lands and marshes, until it meets the Sirmian range, and, having received the waters of the Drave, is again deflected toward the S. E. It then skirts the plain on the S. till it arrives near Moldova, where it has to force its way through the Transylvanian granite hills and the Servian limestone range. This pass (Klysura), some 80 m. in length, offers the greatest obstacles to the navigation of the Danube. Narrowed down to 800 or 1,000 feet, less than one-half its former breadth, the river forms in 7 places between Alibeg and Gladova rapids and whirlpools, of which those in the so-called Iron Gate (*Demir Kapi*), below Old Orsova, are the most violent. There the river rages through a defile 7,200 feet long and 600 wide, with a fall of 16 feet, and a rapidity of 10 to 15 feet a second, over a number of reefs and ledges of rocks, defying, as it would seem, all efforts of man to subdue it. Still, after having been a terror to navigators for many centuries, the Iron Gate has at last been rendered navigable for steamers, a channel having been cut through the ledge by which vessels ply from Vienna to Galatz without a portage. In ancient times this portion of the river course was avoided by a canal, of which some vestiges still remain. Near Gladova the Danube leaves the mountains and enters the Bulgaro-Wallachian plains. From Cernetz to below Widin, it runs nearly S., then turns to the E. Slowly rolling its muddy waters round the extreme spurs of the Balkan, and forming numerous islands, it reaches a point only 32 m. distant from the sea, where it suddenly bends to the N. In this direction it flows upward of 100 m. to the junction with the Sereth; thence again eastward; at last, having been joined by the Pruth and divided into several branches, which sluggishly wind through a low and dreary alluvial country (the delta of the Danube), it empties into the Black sea by 3 principal channels (the Kilia, Sulina, and St. George's), and 4 lesser ones.—The most important tributaries of the Danube are, on the right or southern bank, the Iller, Lech, Isar, Inn, Traun, Enns, Leytha, Raab, Sárviz, Drave, Save, and Morava; on the left bank the Brenz, Warnitz, Altmühl, Naab, Regen, Itz, March, Waag, Neutra, Gran, Eypel, Theiss, Temes, Aluta, Ardshish, Jalomnitza, Sereth, and Pruth. The principal towns on its banks are, in Würtemberg, Ulm; in Bavaria, Ratisbon and Passau; in Austria proper, Lintz and Vienna; in Hungary, Presburg, Comorn, Gran, Buda, and Pesth; in the Military Frontier district, Peterwardein and Orsova; in Turkey, Belgrade, Widin, Nicopolis, Roostchook, Silistria, Hirsova, and Brahilov.—The Danube seems to be designed by nature as the connecting link of central Europe and the Orient, and has through all history been of great political importance. It was the channel through which the Mongolian element endeavored to overflow and suppress the feeble and not yet consolidated civilization of the Germanic races. For the Huns, the Avars, Bulgarians, Magyars, Tartars, and Turks, the Danube valley was the scene of their efforts to subdue the Occident. While the other great rivers of Europe, flowing in a northerly or southerly direction, formed barriers against the invasions of savage nations, the Danube, on the contrary, served as a highway from East to West. Hence, the ebb and flow of the great migration of nations subsequent to the downfall of the Roman empire were the strongest in the basin of the Danube, and for long centuries the fate of European civilization depended on the contest of races in that portion of the continent. The western nations having at last established their supremacy, the valley of the Danube was turned by them during the crusades into a highway toward the conquest of the Orient. But their progress in that direction was checked by the growing power of Mohammedanism, and for 2 centuries the countries bordering upon the Danube were again the theatre of a conflict, in which the Occident was frequently compelled to assume a defensive position. Within the last century the Mohammedan element has ceased to be dangerous to western Europe; but the Slavic element, occupying by its natural characteristics as well as geographically a middle position between the Occident and the Orient, has become formidable. Though baffled for the time being by the treaty of Paris (1856) in her designs against the countries adjacent to the lower course of the Danube, Russia has not ceased to exert her powerful influence on the Slavic races of Turkey and Austria. The difficulties in Montenegro and Bosnia, and the revolution in Servia (Dec. 1858), are the latest indications of the continuous pressure exerted by Russia in that direction. As yet, among the many races inhabiting the valley of the Danube, the German predominates as well in numbers as in intellectual culture. They occupy the entire upper basin, and portions of the middle and lower. The Slavic race, divided into many distinct tribes, and sub-

ject to different governments, is distributed along both banks of the middle course of the river. The Magyars also inhabit the central portion of the valley, while the Roumanians are the principal occupants of the lower regions. The entire population of the territory of which the Danube is the main artery is estimated at 40,000,000 (German 14,000,000, Slavic 12,000,000, Magyar 6,000,000, Wallachian 6,000,000, Italian, Turkish, Jewish, Armenian, gypsy, &c., 2,000,000).—The commercial importance of the Danube has scarcely begun to be developed. The rapidity of the current in its upper course, the reefs, rapids, whirlpools, sudden changes of the channel and banks, the shallowness of the river where it passes through the Hungarian plains, and its numerous windings, offered so many impediments to navigation, that up to a comparatively recent period it was limited to the scantiest intercourse between the provinces immediately adjoining the river. It is true that the physical obstacles to a successful navigation would have appeared less formidable if the political condition of the Danubian countries had been favorable to the development of a more extensive commerce. The application of steam as a motive power inaugurated a new era in the history of the Danube. Then the governments, becoming aware of the importance of the river, adopted a system of improvements. Reefs were removed, flats deepened by narrowing the channel, canals and cut-offs were constructed, and railroads built, in order to bring remote regions nearer this great artery of commerce. By the treaty of Paris (1856) the entire freedom of the navigation from tolls and dues was stipulated for; and in pursuance of this, the governments of the states through which the river flows agreed upon a convention (Nov. 7, 1857), by which vessels of all nations are allowed to ascend the Danube from its mouth to any point above, while the navigation between different points on the river is reserved to the subjects of the ripuarian states. The principal drawback to the importance of the Danube as a channel of commerce is the shallowness of its mouths. The 3 outlets enclosing the delta (or rather 3 flat islands, Chetal, Leti, and Moïshe, the highest elevation of which is not more than 6 or 7 feet above the level of the sea), the Kilia Boghasi, Sulina Boghasi, and Kediskeh Boghasi (St. George's channel), have a length of 72, 53, and 55 m. respectively. Formerly the St. George's channel was used almost exclusively; but having been choked with sand by the simultaneous occurrence of a strong freshet in the river and a violent gale from the sea, it was abandoned, and the Sulina channel resorted to. The Turkish government took good care to keep this channel open; but when, by the treaties of 1812 and 1829, the mouths of the Danube passed under the control of Russia, all efforts in that direction ceased; indeed, it was said that in order to benefit the commerce of Odessa, Russia rather increased than diminished the natural obstructions of the Sulina mouth. This, however, has been denied. The bar of the Sulina continues 1,000 yards outside of the mouth; it has a width of 2 to 3 m., and a depth of water varying from 10 to 14 feet. It is asserted that dredging can never permanently avail on a bar extending far into the sea, and that the erection of 2 large breakwaters from 5,000 to 6,000 yards long will prove the only means of effectually removing the obstruction. However this may be, the energetic efforts made by the Austrian government immediately after the retreat of the Russians (1854) have at last succeeded so far as to obtain an available average depth of 10 feet, while under Russian rule the depth had been reduced to 7½ feet. By the treaty of Paris an international committee was appointed for the regulation of the mouths of the Danube. The majority of this committee has concluded that it would be feasible to suppress or cut off 2 of the principal outlets, and, by leading their waters into the 3d, increase the volume and power of the current sufficiently to sweep away the mud and sand banks. A special committee, appointed by Austria, reported in 1857 that the St. George channel, if restored to its former condition, would, in all respects, offer the shortest and safest outlet, and that the cost of this improvement would not exceed 3,700,000 florins, nor the cost of keeping it in repair 65,000 florins per annum. It does not appear that as yet any thing has been done toward the realization of either scheme. Another scheme was started at the commencement of the last oriental war, viz.: the construction of a direct ship canal from that point of the Danube where it bends northward (Czernavoda) to the nearest point on the Black sea (Kustendji), thus substituting about 30 m. of artificial navigation for 185 m. of the river. This scheme was eagerly embraced by Austria, but it fell to the ground when a thorough exploration of the country proved the assumption on which the project was based to be erroneous. A sandstone ridge, 10 m. wide, and the lowest point of which is 164 feet above the level of the sea, extends along the belt of land which would have to be traversed by the canal. The Danube and its principal tributaries (the Inn, Drave, Theiss, Save) are navigated by steam vessels for an aggregate length of 2,400 m. The Bavarian Danube steam navigation company was established in 1838, that of Würtemberg in 1843. The Austrian Danube steam navigation company in 1857 employed 102 steamboats and 330 freight boats. Within the last 2 or 3 years, however, the net receipts of the company have not been sufficient to pay the interest on the capital, and the government has been obliged to cover the deficiency.

DANVERS, a post township of Essex co., Mass., with manufactories of railroad cars, coaches, leather, boots and shoes, carpets, &c.; capital employed in manufactures in 1855, over $150,000; hands employed, 3,000. In 1855 Danvers was divided by the incorporation of South Danvers as a separate town; pop. of the former in 1855, 4,000, of the latter 5,348. In 1852 Mr.

George Peabody of London, a native of this town, gave $20,000 (to which he afterward added $30,000) "for the promotion of knowledge and morality" among the inhabitants. With this donation the Peabody institute was founded, and enriched with a library; and a few years later the same gentleman appropriated $10,000 for the establishment of a branch library in North Danvers.

DANVILLE. I. A post borough and the capital of Montour co., Penn., on the North branch of the Susquehanna river, 12 m. above Sunbury, and 67 m. N. E. from Harrisburg; pop. in 1850, 3,302. It is actively engaged in the iron manufacture, for which it possesses every advantage, and contains one of the largest establishments for making railroad iron in the United States. Montour's ridge, extending nearly 21 m. along the river near this town, abounds in excellent iron ore, and in limestone, which is used as a flux in smelting. Rich mines of anthracite coal have also been opened in the vicinity, and the northern branch of the Pennsylvania canal affords means of transportation. The town contains 5 blast furnaces, 3 rolling mills, 2 founderies, 5 churches, an academy, a bank, and 2 weekly newspaper offices. A railroad from Philadelphia to Elmira, N. Y., passes through it. II. A post town, and the capital of Boyle co., Ky., on a small branch of Dick's river, 42 m. S. from Frankfort; pop. in 1854, about 2,650. Previous to 1792 it was the capital of the state. It is noted as the seat of the Danville (Presbyterian) theological seminary, which in 1857 had 4 professors and 36 students; of Centre college, founded in 1823, having in 1858, 5 professors, 180 students, and a library of 5,600 vols.; and of the state deaf and dumb asylum, containing about 70 inmates. A railroad connects it with Lexington.

DAPHNE, the name of a place near Antioch in Syria, containing a large and beautiful grove of laurels and cypresses, and a magnificent temple of Apollo. The grove was consecrated to this god by Seleucus Nicator. Antiochus Epiphanes built the temple, and other buildings sprung up around it. The most licentious scenes were enacted here, and the Roman general Cassius would not allow his soldiers to visit the place. When the emperor Julian came to Antioch the temple was almost deserted, and before he left the city it was consumed by fire, the work probably of some Christian incendiary. It was never rebuilt.

DAPHNE, a genus of ornamental plants, natives of the more temperate parts of Europe and Asia. Some are cultivated for beauty and fragrance, as the *D. odora;* others for a vivid green foliage, as the *D. laureola* of Britain; and others are useful in the arts. *D. mezereum*, a deciduous plant with white or purple fragrant flowers closely attached to the shoots, is the earliest blooming shrub of our gardens, the blossoms appearing in the beginning of April, before the leaves expand. This species, notwithstanding its beauty, has a dangerous reputation, the berries being used in Sweden to poison wild animals, and a very few of them when eaten by man are fatal. Its juice is acrid, and produces inflammation and even blisters upon the skin. The most curious property of the daphne is found in *D. lagetta*, or the lace tree of Jamaica, the inner bark of which, if macerated in water, is easily separated into thin layers, and has the texture and appearance of lace.

DAPHNEPHORIA (Gr. δαφνη, laurel), a Grecian festival celebrated every 9th year at Thebes, in honor of Apollo. For this a youth was chosen from one of the noble families of the city to be the daphnephorus or bearer of the laurel bough, and the priest of Apollo for that year. Behind him came a troop of maidens bearing boughs and singing hymns. The Delphians also had a custom of sending every 9th year a boy to pluck laurel boughs in the vale of Tempe, in commemoration of the purification of Apollo in that place after he had slain the Python.

DA PONTE, Lorenzo, an Italian poet, best known as the author of the lyrical dramas *Don Giovanni* and *Nozze di Figaro*, born at Ceneda, a small town in the Venetian states, March 10, 1749, died in New York, Aug. 17, 1838. His natural gifts having secured for him the protection of the bishop of his diocese, his education was well cared for. After filling for 2 years the office of professor of rhetoric in the seminary of Porto Guaro, he removed to Venice. Aspiring to an elective office in the state, he found an opponent in the celebrated Count Pisani, against whom he wrote a satirical sonnet, in consequence of which he was driven into exile. His next abode was in Vienna, where his merit procured for him the post of Latin secretary to the emperor Joseph II. He now commenced writing for the Italian theatres of Vienna and Prague, and produced the librettos of a number of operas for Salieri, Martini, and Mozart. After the death of the emperor Joseph, a green-room quarrel led to his second exile—this time to London. As poet and secretary of the Italian opera, then under the management of Taylor, he passed several years in the English metropolis; and "Kelly's Reminiscences" contains an interesting mention of him at this period of his life. In 1805 another turn in the wheel of fortune caused his emigration to America. Becoming naturalized in the United States, he thenceforth directed his energies to the diffusion of his native language and literature among the educated classes of New York. His efforts were crowned with success; and he was appointed, in his 80th year, to the professorship of his native tongue in Columbia college. He died in full communion with the Roman Catholic church. Beside various dramas, he is the author of memoirs of his own life, of a number of sonnets, and of translations of Byron's "Prophecy of Dante," and of Dodsley's "Economy of Human Life," all printed in New York. He also followed the precepts of his countryman Cornaro; he was a wise liver, and reaped his reward in a

long career of intellectual brightness, sustained to the last moment. Physically, he was powerfully constituted; possessing a tall and imposing form, and a head of antique beauty, with a profusion of flowing hair.—Lorenzo L., son of the preceding, and professor of belles-lettres in the university of New York, born in London in 1805, died in New York in 1841. He is the author of a valuable "History of the Florentine Republic" (2 vols. 8vo., New York, 1833).

DAPPES (*Vallée des Dappes*), a valley about 4 m. long and 2 broad in the Swiss canton of Vaud, on the S. W. slope of the Jura mountains. Its elevation above the level of the sea is 3,900 feet. A small stream from which the valley takes its name meanders through it. It is inhabited by 100 or 150 herdsmen. Without any value as a territorial possession, this valley has obtained some importance from the fact that it offers the most available military route from France to Savoy. In 1802 France annexed it, but Switzerland recovered possession in 1814 and maintained it, although the treaty of Vienna did not stipulate for its relinquishment by France. On several occasions France has endeavored to regain the valley, but has always been stoutly resisted by the Swiss confederation. The last of these conflicts occurred toward the end of 1858.

DARABGERD (Darab), capital of the district of the same name in the Persian province of Farsistan, lat. 26° N., long. 54° 50′ E.; pop. about 15,000. It was formerly a town of some extent, and there are many remains of antiquity, including the ruins of an aqueduct, some sculptured rocks, and a caravansary hollowed in the heart of a mountain. The town is situated at the foot of Mount Darakub, celebrated for producing *mumia nativa*, a species of liquid petroleum, which is believed by the Persians to possess a miraculous healing power.

D'ARBLAY, Madame. See Arblay, Madame d'.

DARCET, Jean, a French chemist, born in 1727, at Donazit (Landes), died in Paris, Feb. 13, 1801. From his earliest youth he studied chemistry, spent a fortune in the pursuit of his favorite science, and suffered for a time the privations of poverty while continuing his investigations. Having accepted the tutorship of the sons of Montesquieu, he became the intimate friend of that celebrated man, an associate in all his labors, and defended him in his last moments against the attacks of the Jesuits. After the death of Montesquieu he was induced to devote himself exclusively to chemistry. His experiments on the materials of porcelain and the modes of treating them in manufacture form an epoch in the history of the progress and improvement of the art, as practised at Sèvres. In 1770 he made his first communication to the academy of sciences, in which he explained his investigations into the chemical nature of precious stones, demonstrating the combustibility of the diamond. He discovered the method of extracting soda from marine salt; the means of manufacturing soap with any kind of grease or oil; the means of calcining calcareous earth; the means of improving various processes of dyeing; and also the means of more accurately assaying metals. He discovered what is called the "fusible alloy" of tin and bismuth. He also wrote an interesting paper on the means of extracting nutritive substances from bones. He was general inspector of the assay office of the mint at Paris, and of the manufacture of tapestry at the Gobelins. On the outbreak of the revolution he espoused its cause.

DARDANELLES, four castles or forts situated on the opposite shores of the Hellespont, or strait of the Dardanelles, which joins the archipelago to the sea of Marmora, and extends in a S.W. direction upward of 50 m. between lat. 40° and 40° 30′ N., and long. 26° and 27° E. The name is supposed to be derived from the ancient city of Dardanus. The Dardanelles are generally considered as the key of Constantinople, the access to which they are intended to command, but in several instances ships of war have passed them without serious injury. Thus in 1770 the Russian admiral Elphinstone, in 1801 Com. Bainbridge, in the American frigate George Washington, and in 1807 the British admiral Duckworth, sailed through the strait. The 2 castles at the entrance of the strait from the archipelago, Kumkale or Hissar Sultani on the Asian shore, and Sed-il-Bahr on the European shore, were built in 1658 by Mohammed IV.; they are in good repair, but inefficient in consequence of the width of the channel at that place (4¾ miles). The 2 old castles, Tchenekalessi or Boghaz Hissar, in Asia, and Kilid-il-Bahr in Europe, command the strait at a point where it is only 800 yards across, and may be closed by chains. The principal works of defence on the European side are 2 excellent coast batteries, Namasyah and Dagermen Burun. All the forts are well armed, though usually ill manned. Still, even if fully garrisoned, the castles and batteries, if unsupported by a field force, could hardly defend the passage of the strait. The bastions are open at the gorge, the batteries without casemates, and both are commanded by hills in the rear, thus requiring a strong movable column to repel a flank attack. Beside, a fleet stationed behind Cape Nagara would be indispensable in order to oppose the ships which might have succeeded in passing the forts and batteries. The town of Tchenekalessi is an indifferent place, containing about 2,000 houses. To the N. and E. from it a narrow strip of land projects into the sea. This is the site of the ancient Abydos, and a similar projecting point corresponds to it on the European shore. There Xerxes is supposed to have built his bridge uniting the 2 continents; there also Alexander the Great crossed into Asia; and there the crescent was for the second time planted on European soil by Solyman (1357). Here also Leander swam across the strait from Abydos to Sestos, to visit his beloved Hero, and Lord Byron and Lieut. Eckenhead swam the

same distance in 70 minutes (March 3, 1810). The Turkish government has always maintained the principle that no foreign vessel of war should be allowed at any time to pass the Dardanelles, and hence in the Egyptian war (1833) the British and French fleets were not permitted to enter the strait, though a Russian fleet from the Black sea was anchored at Buyukdereh. In 1841 the 5 great powers of Europe fully recognized this principle, and it was reaffirmed by the treaty of Paris in 1856. But in Nov. 1858, the U. S. frigate Wabash passed the Dardanelles and anchored at Constantinople, the commanding officer maintaining that the United States, being no party to the treaty of Paris, were not bound by its stipulations. Without acknowledging explicitly the correctness of this position, the Turkish government received the Wabash in a friendly spirit.—The so-called Lesser Dardanelles are 2 large castles situate on the capes Rhion and Antirrhion, in the gulf of Lepanto.

DARDANUS, according to the ancient legends, the ancestor of the Trojans. The Greek tradition was that he was a king in Arcadia, and that he went from that country to Samothrace, whence he afterward passed over into Asia Minor, and founded the town of Dardania. The Italian legend said that Dardanus was a native of Etruria, and from thence went to Samothrace and Phrygia.

DARDEN, Miles, probably the largest man on record, born in North Carolina in 1798, died in Henderson co., Tenn., Jan. 23, 1857. He was 7 feet and 6 inches high, and in 1845 weighed 871 lbs. At his death his weight was a little over 1,000 lbs. Until 1853 he was active and lively, and able to labor, but from that time was obliged to stay at home, or be hauled about in a two-horse wagon. In 1839 his coat was buttoned around 3 men, each of them weighing more than 200 lbs., who walked together in it across the square at Lexington. In 1850 it required 13½ yards of cloth, one yard wide, to make him a coat. His coffin was 8 feet long, 35 inches deep, 32 inches across the breast, 18 across the head, and 14 across the feet; and 24 yards of black velvet were requisite to cover its sides and lid. He was twice married, and his children are very large, though probably none of them will ever reach half the weight of their father.

DARE, Virginia, the first child of English parents in the new world, born at Roanoke in Aug. 1587, and named after the district of Virginia. She was the granddaughter of John White, who was governor of the colony sent by Sir Walter Raleigh to found an agricultural state, which sailed from Plymouth, April 26, 1587, and reached the shores of Virginia in July of the same year. White's daughter was married to Mr. Dare, who was one of the assistants of the governor, and Virginia was born about a month after the arrival of the expedition.

DARFOOR, Darfur, Darfour, Dar-Fur, or Dar-el-Fur, a country of central Africa, forming a large oasis in the S. E. corner of the great desert, bounded W. by Waday, S. by Fertit, and E. by a narrow strip of country inhabited by wandering Arabs, which separates it from Kordofan. It lies between lat. 11° and 16° N., long. 26° and 30° E., but its precise limits are not known; pop. estimated by Browne at 200,000, and by Mohammed Ebn-Omar-el-Tounsy at 3,000,000 or 4,000,000. The S. part of the country is hilly, and embraces many well-watered valleys; the N. consists chiefly of arid plains. The products of the soil are millet, rice, maize, sesamum, legumes, tobacco, medicinal plants, dye stuffs, and fruit. Cattle form the principal wealth of the people; camels, small elephants, and goats are numerous, and their flesh is used as food; horses and sheep are few and poor. The wild animals embrace the lion, leopard, hyena, wolf, jackal, rhinoceros, giraffe, hippopotamus, crocodile, and buffalo. Vultures, Guinea fowl, turtle doves, and chameleons are abundant. Among the mineral products are iron, copper, alabaster, marble, and nitre, the last of which is not used. The climate is excessively hot, and during the dry season the country is almost stripped of vegetation. The periodical rains last from the middle of June to the middle of September. The inhabitants are Arabs and negroes, professing the Mohammedan religion, but paying little regard to its stricter precepts; in morals and manners they are degraded to the lowest degree. They practise polygamy, and every species of labor except bearing arms is exacted of the women. The sovereign is a despotic sultan, whose court is encumbered with an absurdity of ceremonial seldom paralleled. He never speaks but through the mouth of an interpreter; when he spits, the spittle is gathered up by the hands of his attendants; if his horse stumbles while riding, or he loses his seat, every one of his retinue must do the same; and woe betide the courtier who when the sultan sneezes neglects to sneeze likewise. The royal body guard is composed of old women. Darfoor carries on some trade with upper Egypt in slaves, ivory, horn, ostrich feathers, gum, hides, drugs, copper, pimento, tamarinds, leathern sacks for water, parroquets, Guinea hens, and monkeys, in exchange for which it receives cotton cloths, glass ware, various trinkets and ornaments, coffee, spices, sugar, Indian merchandise, nails, metals, fruit, grain, firearms, other weapons, shoes, &c. The chief towns are Cobbe and Tendelty.

DARGAN, William, a public-spirited Irishman, born about 1801 in the county of Carlow, received a good education, was placed in a surveyor's office, and was afterward employed in various railway works. By his ability, industry, and integrity, he raised himself in the business of a railway contractor to a position of much influence, and to the possession of a great fortune. He is known to the public in consequence of his efforts in behalf of a national and universal exhibition of arts and manufactures at Dublin in 1853, in imitation of that at London in 1851. The money requisite for the execution of this project was advanced by Mr. Dargan, who at first

devoted £20,000 for the purpose, but at the time of the opening of the exhibition, May 12, his advances had reached nearly £100,000. He was to receive payment from the proceeds, but at the conclusion of the exhibition was left a loser to the extent of about £20,000. The queen offered him the honor of knighthood, which he declined.

DARIC, properly Daricus (Gr. Δαρεικος), an ancient Persian coin of pure gold, specimens of which are still preserved in several European collections, bearing on one side the image of a kneeling archer, on the other that of a royal palla. It was known to the Greeks, Romans, and Jews; the latter used it after the Babylonian captivity, under the reign of the Persians, and called it *adarcon* or *darkemon* (mentioned in the first book of Chronicles, by Esdras and Nehemiah). Its value was equal to 20 silver drachmæ, or 16*s.* 3*d.*; 3,000 being equal (according to Xenophon) to 10 talents. Its name is variously derived from that of King Darius Hystaspes, who regulated the Persian currency, and from several Persian words meaning king, palace, and bow. The so-called silver daries were not designated by this name in antiquity.

DARIEN, the capital of McIntosh co., Ga., on the left bank of the Altamaha river, 60 m. S. W. from Savannah, and 12 m. from the sea. It is a port of entry, and exports pine lumber. The shipping, June 30, 1852, was 306 tons registered, and 859 tons enrolled and licensed. Three vessels, tonnage 724, entered in 1852; clearances, 6 vessels, tonnage 1,359. It contains 5 churches and 1 academy. Pop. 600.

DARIEN, Colony of, had its origin in the energy of a Scotchman named Paterson, who, about the year 1680, set out on a visit to the new world. He was led in the course of his wanderings to the isthmus of Darien, where he met with Dampier and others of the buccaneers, then in the heyday of their glory. From their descriptions he obtained the notion of a country on the isthmus which had never been occupied by the Spaniards, fertile and arable, full of gold and precious metals, easy of access and defensible, with an excellent harbor, and rendered healthy and habitable to northern constitutions by a range of mountains which elevated it from the midst of the tropical heats into a delightful temperature. It was said also to occupy a situation where the passage between the oceans could be made in a day, and to be pointed out by nature for the highway of the commerce of the world. Hereupon he formed the plan of founding a colony there. His idea was to assemble under the protection of some powerful government an expedition large enough to acquire undisputed possession of the territory, and at the same time to carry with it the civil and religious institutions of the country from which they emigrated. In order to submit his project to the English government, he went to London, where he made the acquaintance of several eminent men, who found his ingenuity of advantage in framing the first law for establishing the bank of England; but in his own cause he met with less success, and his colonial project was discouraged. It was submitted successively to the Dutch, to Hamburg, and to the elector of Brandenburg; but finally, meeting with Fletcher of Saltoun, Paterson went on with him to Scotland, and there the project was adopted by the most powerful of the nobility. In June, 1695, a charter was procured from parliament, and ratified by the king, for a trading company to Africa and the new world, with power to plant colonies and build forts, with the consent of the inhabitants, in places not possessed by other European nations. Immediately people of all ranks and classes of society rushed to subscribe their names to the stock, and to obtain a share in the promising adventure. In a very short time the subscription amounted to £400,000, although at that time it was computed that there was not over £800,000 in cash in the whole kingdom of Scotland; and some gentlemen being deputed to receive subscriptions from abroad, £300,000 was taken by the English, and £200,000 by the Dutch. This flattering commencement, and the expectations excited by it, aroused the animosity of the East India company, through whose efforts some very severe measures against the enterprise were passed in the English parliament, and the Dutch, Hamburg, and London merchants withdrew their subscriptions. By the Scotch, however, this opposition, which was ascribed to envy, was looked upon as a more certain assurance of success. They took up the cause of the company unanimously as a nation, defended it by a powerful address to the king in parliament, and, although the poorest nation in Europe, proceeded to fit out the best appointed colony which had ever left the old world for the new. From the port of Leith 1,200 men sailed on July 26, 1698, in 5 stout ships, which it was almost impossible to disembarrass of the numbers who thronged on board anxious to join the expedition. They arrived at the isthmus in about 2 months. A large proportion of them were soldiers discharged from the wars of William III., under their own officers, and in a state of military discipline. Through the whole extent of Spanish America there was no force able to compete with them; but honorably and modestly adhering to their peaceful purpose, they commenced the foundation of a colony at a place called Acta, now marked on the map as Port Escoses, about 50 m. N. of the gulf of Darien. They gave it the name of New St. Andrew, and called the country New Caledonia. They began by purchasing lands of the natives, sent messages of amity to the nearest Spanish governors, and dug a passage for their ships across a neck of land to a safe harbor, while their first public act, adopted at the instance of Paterson, was to publish a declaration of freedom of trade and religion to all people. They had brought with them only a short supply of provisions, trusting to obtain what they needed from the Eng-

lish colonies. But the Dutch and English East India companies had united in procuring orders from the king forbidding any one to render them any assistance. Thus abandoned to the resources of the country, it was not long before disease made its appearance among them. In vain the hardy highlanders sought the coolest slopes of the mountains; in that fatal climate the colony was doomed. Paterson lingered for 8 months, waiting for assistance from Scotland, and not till almost all had died or departed did he consent to abandon the settlement, which he was himself the last to leave. In the mean time the efforts made in Scotland had brought together a reënforcement of 1,300 men, who were despatched in ignorance of the fate of the first party. The king of Spain had also presented at London his formal protest against the undertaking, and the Dutch had sent an address against it to King William. The second party, more hastily prepared than the first, was imperfectly organized; one of their vessels was lost at sea, many died on the passage, and those who arrived were dispirited by the original failure. They also brought with them 4 ministers appointed by the general assembly of Scotland to take charge of the souls of the colonists, and to set over them a faithful church, with its deacons, elders, and assembly, according to the national model. This work could not be carried out without interfering more or less with the government, and differences arose between the secular and ecclesiastical power, and the colonists became divided among themselves. The principal complaint made against the ministers was on account of the frequent days of fasting enjoined, and the length of the sermons and services, extending to 12 hours in the day. In addition to these domestic dissensions, foreign war came upon them. The attention of the Spanish government had been drawn to the danger of a successful settlement of another people and religion in the vicinity of their own territories, and within 3 months after their arrival the colonists received intelligence that a Spanish force of 1,600 men was waiting at Tubucantee for the arrival of a squadron of 11 ships, with which they were to be attacked. Luckily the last party which reached the colony was headed by a Capt. Campbell, who came in his own ship with a company of highlanders from his own estate, which he had commanded in Flanders. He was offered the command, and thinking the colony too feeble to await the attack, he set off the second day after his arrival, with a force of 200 men, for the Spanish camp, stormed it in the night, dispersed the hostile force, and was back again on the 5th day. But his expedition was in vain. On his return he found a Spanish squadron drawn up before the harbor, their troops landed, and all hope of retreat or aid cut off. The colonists endured, however, a siege of nearly 6 weeks, and were reduced to great extremities. When at last they capitulated, it was upon terms which not only obtained them the honors of war and inviolability of property, but even hostages for the performance of the conditions. Campbell, however, refused to be included in the capitulation to enemies whom he had injured so deeply, and succeeded in making his escape in his own vessel. He arrived safely in Scotland by way of New York, and his services were acknowledged by the present of a gold medal from the company. The rest of the colonists, worn out by labor and disease, were unable to weigh the anchor of the Rising Sun, their largest ship, which carried 60 guns. To their generous enemies they were indebted for this assistance, and again for preservation from shipwreck after they had gone ashore in getting out of the harbor. Their ships were so warped and leaky that the voyage toward home was long and distressed. Everywhere they received kindness from the Spaniards and inhospitality from their own kindred. The Rising Sun was wrecked on the bar of Charleston; only one small ship beside Capt. Campbell's was finally saved, and of the colony only about 30 survivors ever reached their native country. The destruction of this colony was a great blow to Scotland. Almost all the available resources of the nation had been embarked in it, and their loss for a long time made the national poverty more pinching. The manner in which it had been brought about, through the open and secret opposition of England and the Dutch, touched the national pride, and long embittered the feelings of the Scotch against their more opulent neighbor. Tales of the courage, of the disasters, and miserable fate of the colonists circulated in prose and verse over the country, and produced an appreciable effect among the causes of its subsequent unsettled state, and of the violent opposition to the union of the two kingdoms. Paterson himself, in whose brain the enterprise originated, was overcome by its failure. His labors and anxieties brought on a fever on his passage home, accompanied by alienation of mind. His native air, however, restored him, and, together with the directors of the unfortunate company, he made an effort to revive the attempt upon the footing of a joint stock company of £2,000,000, $\frac{4}{5}$ of which to be furnished by England and $\frac{1}{5}$ by Scotland. To this end he prepared an address and circular of great ability, setting forth the advantages of the project. It had the countenance of King William, but the obstacles in the way were too great to be overcome. An unsuccessful attempt was made to procure him some relief from the equivalent money finally paid at the time of the union by England to Scotland, in consideration of the losses of the Darien company.—See "Memoirs of Great Britain and Ireland," by Sir John Dalrymple, vol. ii., and Burton's "History of Scotland," London, 1853.

DARIEN, Gulf of, a portion of the Caribbean sea, on the N. coast of New Granada, in about lat. 9° N. and long. 78° W., bounded W. by the isthmus of Darien or Panama. It is about 26 leagues long from N. to S. by 9 from E. to W. Its shores are steep, generally inac-

cessible from shoals, and in some parts the anchorage is unsafe. It terminates at the S. in the bay of Choco, into which enters the river Atrato.

DARIEN, Isthmus of. See Panama.

DARIUS (Daryavesh in the Hebrew Scriptures; Darayavush in the Persian part of the great trilingual inscription at Behistun, on the western frontier of ancient Media). I. King of Persia, 521–485 B. C., was the son of Hystaspes, governor of Persis, of the royal race of the Achæmenidæ. He conspired with Otanes to dethrone the pseudo Smerdis, the Gomates of the Behistun inscription, who had been made by the magi king of Persia during the absence of Cambyses, and was, after the death of the usurper, the most fortunate of the 7 nobles of Persia who aspired to the throne, the choice having been decided, according to Herodotus, by the neighing of a horse. To strengthen himself on the throne, he married a daughter of Otanes, a daughter of Smerdis, and two daughters of Cyrus, one of whom, Atossa, attained great influence at his court. He was a monarch of great abilities, enterprising, despotic, and cruel, and may be regarded as the organizer of the Persian empire. He was a zealous adherent of the ancient Aryan or dualistic religion of his nation, and restored its prevalence over the rival creed of Magism. He divided Persia into 20 satrapies, determined the regular amount of their contributions, in produce or precious metals, for the government, army, and household of the king, and established regular communication by means of couriers between the 127 districts of the state, which extended from India to Ethiopia. One of his first military undertakings was a successful expedition to restore the island of Samos to Syloson, an ancient friend. The siege of Babylon, which revolted and defended its independence with the most desperate determination, lasted, according to Herodotus, 20 months; and it was conquered only by the savage self-sacrifice of Zopyrus, who having horribly mutilated his face went over into the besieged city, complained of the cruelty of the king, became the commander of the defending army, and betrayed it to Darius. The monarch wreaked his vengeance on the rebels, by impaling near 3,000 of the chief citizens, and destroying the gates and walls of the city (517). This narrative of the Greek historian, however, is not supported by the inscription of the monarch himself, according to which Babylon twice revolted from him. To chastise the Scythians around the northern shores of the Black sea, for ancient incursions to Asia, he started with 700,000 men from Susa, his capital, on an expedition to Europe, passed the Bosporus on a bridge built by a Samian Greek, traversed Thrace, crossed the Danube, following the nomads, who had only to retreat, driving their herds before them, and filling up the wells in their route, in order to conquer the invaders, without a battle, by famine and the hardships of an endless march through their inhospitable country. The greatest part of his army was lost when he returned, leaving the sick and the aged behind, and a body of troops under Megabazus in Thrace, which conquered the Pæones, and transplanted them to Phrygia. Thus a European country was annexed to the empire. Another expedition conquered a part of India, and the explorations down the Indus, and around the shores of the *Mare Erythræum*, under Scylax, a Carian Greek, even gained maritime glory for the monarch. The revolt of the Ionians, the support given them by the Athenians and Eretrians, and particularly the burning of Sardis (500), incited Darius to an expedition against Greece. After the conquest of Miletus, an army under Mardonius and a fleet were sent to subdue the Greeks; but the attacks of the Scythian tribes in Thrace, and tempests off Mount Athos, compelled both to return, and the Athenians rejected with scorn the demand for earth and water made by the heralds of the great king. Another army, sent with 600 vessels under the command of Datis and Artaphernes, conquered Naxos, but spared the sacred island of Delos (while the other Cyclades submitted without a struggle), destroyed the betrayed Eretria on the island of Eubœa, and landed in Attica. But the victory of the Athenians under Miltiades, at Marathon (490), defeated the army of Darius, though not his hope of subduing Greece. Arming again, and preparing the whole force of his empire, he was checked by a revolt in Egypt, soon after which he died, leaving the accomplishment of his designs of revenge to his son and successor Xerxes. Like Cyrus, Darius favored the Jews, and it was during his reign that they rebuilt the temple of Jerusalem. II. King of Persia, 423–405 B. C., called before his ascension to the throne Ochus, and surnamed by the Greeks Nothus, or the bastard. He became king by putting to death his natural brother Sogdianus, who had killed Xerxes II., the only legitimate son of Artaxerxes I. He was a weak prince, ruled by his queen Parysatis, a cunning and ambitious woman. His reign was disturbed by rebellions, among which that of Amyrtæus in Egypt was particularly successful. His governors in Asia Minor, Tissaphernes and Cyrus (the younger), his son, extended the influence of Persia in the affairs of Greece, which was distracted during his reign by the Peloponnesian war. His successor was his son Artaxerxes II. Mnemon. III. The last king of the ancient Persian monarchy (336–330 B. C.), raised to the throne by the eunuch Bagoas, after the murder of Arses, was a prince of mild and humane disposition, but inadequate to defend his empire against a conqueror like Alexander the Great, who shortly after his accession commenced the attack on Persia, passed the Hellespont, defeated the first army of Darius in the battle on the Granicus (334); the king himself at Issus (333), where his mother, wife, sister, and children were made captives, but treated with humanity; and, after the conquest of Syria and Egypt, in the battle of Arbela or Gaugamela in Assyria (331). The great armies of Persia were destroyed or scattered, and Da-

rius fled from province to province until he was overtaken by the Macedonians, when he was betrayed and mortally wounded by the faithless satrap Bessus. After having asked and received a draught of water, he expressed his gratitude to the giver, and to Alexander for the humane treatment of his kindred, and expired.

DARJEELING, or DARJILING, a British sanitary station in the territory of Sikkim, lieut. governorship of Bengal, situated near the junction of the rivers Runjeet and Teesta, at an elevation of 7,400 feet above the sea, 318 m. N. from Calcutta. It has a moist healthy climate, and is surrounded by fine mountain scenery. It was obtained from the rajah of Sikkim in 1835, and gave its name to a district which was enlarged in 1850 by the sequestration of adjacent tracts, and now comprises about 300 sq. m. In 1856 a company secured about 14,000 acres of land for the purpose of establishing a European agricultural settlement in this district.

DARKE, a W. co. of Ohio, bordering on Ind., intersected by 3 lines of railroad; area, 609 sq. m.; pop. in 1850, 20,274. The soil is fertile, and the surface generally level, occupied partly by prairies of no great extent, and partly by forests of beech, ash, walnut, hickory, and sugar maple. In 1850 the productions were 590,077 bushels of corn, 132,594 of wheat, 115,095 of oats, 11,519 tons of hay, and 390,443 lbs. of butter. There were 30 churches, 2 newspaper establishments, and 7,585 pupils attending public schools. The county was organized in 1809, and named in honor of Gen. William Darke. Capital, Greenville.

DARKE, WILLIAM, an American officer in the revolutionary war, born in Pennsylvania in 1736, removed in 1740 with his parents to Jefferson co., Va., and died there, Nov. 26, 1801. At 19 years of age he served with the Virginians in the battle of Braddock's defeat, and afterward in the war of the revolution. He was taken prisoner at the battle of Germantown, and was colonel commandant of the Hampshire and Berkeley regiments at the siege of Yorktown. At St. Clair's defeat he commanded the left wing of the army, and made two gallant and successful charges with the bayonet, in the second of which his youngest son, Capt. Joseph Darke, fell mortally wounded (Nov. 4, 1791). His father paused but a moment over him, and rushed with redoubled energy into the conflict. He was repeatedly a member of the Virginia legislature, and, as member of the convention of 1788, voted for the federal constitution.

DARLASTON, a town and parish of Staffordshire, England, with extensive mines of coal and iron, and manufactures of various articles of hardware. The ore obtained from the mines is here converted into iron of different kinds and of superior quality. Pop. of the parish in 1851, 10,590.

DARLEY, FELIX O. C., an American artist, born in Philadelphia, Penn., June 23, 1822. In boyhood he manifested a strong taste for art and an inclination to make it his profession. His parents, distrusting his ability to pursue such a career with success, placed him, when 14 years of age, in a large mercantile establishment, in the hope that his thoughts might be diverted into another channel. Darley, however, spent all his leisure hours in drawing, for which his predilection remained unaltered, and in which he made rapid improvement. Having shown some sketches of firemen, fishwomen, and other prominent types of city life, to the publisher of the "Saturday Museum," he was offered a handsome sum for them, and encouraged to rely wholly upon his pencil for support. For several years he was employed by large publishing houses in Philadelphia, and soon acquired a considerable reputation for the vigor and humor of his designs. The series published in the "Library of Humorous American Works" was very popular in the southern and western states. In 1848 he removed to New York, where he found ample occupation in illustrating the "Sketch Book," "Knickerbocker's New York," and various other publications. He had previously made a series of designs in outline from Judd's novel of "Margaret," without any definite intention of publishing them. The committee of the American art union having seen them, at once gave him a commission to illustrate in a similar style Irving's "Rip Van Winkle" for distribution among their subscribers. These designs, 6 in number, were followed the succeeding year by another set illustrating the same author's "Legend of Sleepy Hollow;" and the two series were recognized, both in the United States and England, as among the most creditable productions of the kind recently published. Offers were made to the artist to settle in London, which he declined. In 1856 his illustrations of "Margaret" were published in New York in a folio edition, amply confirming the expectations which had been raised by the long delay in their appearance. Of late years he has given much attention to the preparation of vignettes for bank notes, and is now engaged in illustrating an edition of Cooper's works in 32 vols., to contain upward of 500 designs. A large copy in crayons from one of these, representing the death of Scipio, in the "Red Rover," was in the exhibition of the American academy of design in 1858. His drawing of the massacre at Wyoming was published a few years ago, and 4 others, illustrating passages in American revolutionary history, are now in the hands of the engravers. For Irving's "Life of Washington" and Simms's novels he has also contributed many designs of this class of subjects. Among his last works is an illustration of the wedding procession in Longfellow's poem of the "Courtship of Miles Standish," which was published in New York in 1858–'9, in photographic form.

DARLEY, GEORGE, a British author, born in Dublin in 1785, died in London in 1849. He was graduated at Trinity college, Dublin, in 1811, went to London in 1825, and became attached to the "Literary Gazette" and "Athenæum" journals, in which his criticisms of poetry

and the fine arts gave him a favorable reputation in the literary world. He is the author of the "Labors of Idleness," "Silvia," and miscellaneous works of a mingled philosophical and poetic character. He was the editor of Moxon's edition of Beaumont and Fletcher, and also published an edition of Euclid, and other mathematical works.

DARLING, one of the principal rivers of central Australia. It is formed by the union of several small streams in the province of New South Wales, and during an irregular course through a barren country, receives the river Bogan from the S. E. Its waters are salt for a great distance above its mouth. It empties into Murray river.

DARLING, Grace, an English girl, celebrated for her heroic conduct in rescuing 9 persons from a shipwreck, born Nov. 24, 1815, at Bamborough, on the coast of Northumberland, died Oct. 20, 1842. Her father was keeper of the Longstone lighthouse, on one of the most exposed of the Farne islands. On the night of Sept. 6, 1838, the Forfarshire steamer, proceeding from Hull to Dundee, was wrecked upon one of the crags of the Farne group, with 53 persons on board, of whom 38 perished, including the captain and his wife. On the morning of the 7th the survivors were discovered by Grace clinging to the rocks and remnants of the vessel, and in imminent danger of being washed off by the returning tide. Grace, with the assistance, but against the remonstrances of her parents, who considered the undertaking desperate and hopeless, immediately launched a boat and succeeded in rescuing 9 of them, and 6 escaped by other means. Presents and demonstrations of admiration were showered upon her from all parts of the United Kingdom, and a public subscription to the amount of £700 was raised in her favor.

DARLING RANGE, a chain of granite mountains in western Australia, running parallel with the coast for a distance of 250 m. The highest summit has an elevation of 2,000 feet. The forests with which these mountains are clad contain sandal wood.

DARLINGTON, a N. E. district of S. C., in the alluvial region of the state, bounded N. E. by the Great Pedee, S. W. by Lynch's creek, and N. W. by Cedar creek; area, 800 sq. m.; pop. in 1850, 16,830, of whom 10,041 were slaves. Its river lands are of great fertility. The uplands are inferior, but occasionally well timbered. Large reclamations from the swamp borders of the Pedee, Lynch's, and Black river, have yielded vast bodies of the rich swamp lands to the hands of cultivation. The face of the country is undulatory, sometimes rising into hills of 300 feet. It has no mountains. The district is well watered. The Pedee is navigable by steamers its whole length, and Lynch's for 80 m. from its junction with the former river. Darlington, on Swift's creek, is the capital. It contains the usual public buildings, court house, gaol, &c., and about 1,500 inhabitants. The district is wholly agricultural; the staples are corn and cotton, and the productions in 1850 were 13,005 bales of cotton, 471,357 bushels of Indian corn, 61,916 of oats, and 119,283 of sweet potatoes. There were 14 grist and saw mills, 3 tanneries, 1 cotton factory, 26 churches, and 620 pupils attending public schools. The district is intersected by the Wilmington and Manchester railroad. It was settled by Virginians in 1750.

DARLINGTON, a municipal borough and market town of Durham, England, on the Skerne, 18 m. S. E. of Durham, and 235 m. by the great northern railway N. N. W. of London; pop. in 1851, 11,228. It is built in the form of a square, the centre being occupied by a market place, from which radiate several streets locally called gates. It is generally well built, and contains a Gothic church founded in 1160, two other churches, a number of chapels, a free grammar school, an academy founded by the society of Friends, a national school, a town hall, a central hall, several alms houses, a dispensary, a mechanics' institute, a public library, gas works, and a savings bank. The chief branches of industry are the carding and spinning of wool, flax spinning, and the manufacture of carpets, brass, and iron. There is an extensive market for sheep and cattle every fortnight. The town is governed by a bailiff appointed by the bishop of Durham, and gives the title of earl to the duke of Cleaveland.

DARLINGTON, William, M.D., LL.D., an American botanist and politician, born of Quaker parents in Birmingham, Chester co., Penn., April 28, 1782. His early education was limited to that of a common country school, and his youth was passed in agricultural pursuits, until at the age of 18 he commenced the study of medicine with Dr. John Vaughan, in Wilmington, Del. He received the degree of M.D. from the university of Pennsylvania in 1804, and after passing 2 years at his father's house, devoted to the study of languages and botany, but gaining little practice, he went to Calcutta as surgeon on a merchant ship. A sketch of his voyage, in the form of 10 "Letters from Calcutta," was afterward published in the "Analectic Magazine." He returned from India in 1807, married, and for several years practised medicine successfully at West Chester. Here he soon entered into politics, and during the agitation which preceded the war of 1812 his pen was actively employed in defending the policy of Mr. Madison. On the breaking out of hostilities he aided in raising an armed corps in his neighborhood, and after the sack of Washington in 1814 was chosen major of a volunteer regiment, and elected by the democratic party to the 14th and afterward to the 16th and 17th congresses, where he gained reputation less as a debater than as a useful committee man. He took an active interest in the affairs of West Chester, and founded there an academy, an athenæum, and a prosperous society of natural history. In 1813 he had begun making a descriptive catalogue of plants growing around West Chester. This was

published in 1826 under the title of *Florula Cestrica*, and was afterward merged in a larger and more valuable work, the *Flora Cestrica*, published in 1837, and rewritten and republished in 1853, containing a complete description and classification of every plant known to exist in the county. In 1843 he edited the correspondence of his friend the late Dr. William Baldwin, and accompanied it with a memoir, the whole appearing under the title of *Reliquiæ Baldwinianæ*. In 1853 the name of *Darlingtonia Californica* was given in his honor by Dr. Torrey, of New York, to a new and remarkable variety of pitcher plant found in California.

DARMSTADT, the capital of the grand duchy of Hesse-Darmstadt, and of a circle of its own name (pop. 54,800), in the province of Starkenburg, situated on the small river Darm, 16 m. by railway from Frankfort-on-the-Main, and 30 m. N. from Mannheim and Heidelberg; pop. 27,200, mostly Protestants. The new part of the town contains beautiful streets and squares, and fine pleasure grounds. The remarkable buildings are the ducal palace (with a library of 300,000 vols.), the chancery, the diet house, the stable of the grand duke, the mint, the Catholic church, and the theatre of the court. There are galleries of pictures, of statuary and coins, a museum of natural history, 2 colleges, a gymnasium, various schools, a botanic garden, a military academy, an extensive armory, and many scientific and artistic societies. Among the charitable institutions are 2 for the benefit of poor young girls, for orphans and widows, and a deaconess institute established in 1857. The manufacturing interest is limited to linen and woollen fabrics, carpets, wax candles, musical, surgical, and mathematical instruments, colored paper, starch, and coaches. Darmstadt, which contained toward the close of last century only about 7,000 inhabitants, is greatly indebted for its growth to the grand duke Louis I., whose statue adorns the *Luisenplatz*. The *Theaterplatz* has contained since 1852 statues of Philip the Generous and George I. A bank of commerce and industry was established in 1854, and the bank for southern Germany (*Zettelbank*) in 1856. Public conventions have been often held in Darmstadt, and a *Zoll* congress in 1854. The principal journal is the *Darmstädter Zeitung*. Liebig, the chemist, was born in this town.

DARNEL (*lolium perenne*, Linn.), the ray or rye grass, has been recommended to be sown among other grasses on poor cold soils, and is spoken of as a pretty good pasture grass. Sir Humphry Davy has shown that in 1,000 parts 39 are nutritive matter, which is rather more than the foxtail (*alopecurus pratensis*) contains. The *L. temulentum*, or bearded darnel, is a noxious weed, and even poisonous qualities are attributed to the accidental use of its seeds occurring among other grain. This, the only poisonous grass known, is distinguished by its two-sided spikes and one-valved glumes. Neither is indigenous in America; the former from Europe has become naturalized; the other is an adventitious weed.

DARNLEY, Henry Stuart, lord, the 2d husband of Mary, queen of Scots, born in England in 1546, killed near Edinburgh, Feb. 9, 1567. He was the son of the exiled earl of Lennox by Margaret Douglas, daughter of the earl of Angus by Queen Margaret, widow of James IV. and sister of Henry VIII., and was therefore cousin german of Queen Mary, and a cousin of Queen Elizabeth. On his father's side he was descended from the royal line of Scotland. When Mary announced her intention of contracting a second marriage, Darnley, who possessed a handsome person and was skilled in many of the accomplishments of the age, went to Scotland to urge his suit, and was accepted. His marriage with Mary took place at Holyrood house, July 29, 1565, on which occasion she proclaimed him king, and promised to induce the Scottish parliament to grant him a crown matrimonial. He repaid her kindness by petulance and insolence, and open profligacy and infidelity; and finally alienated her affections by his participation in the murder of her secretary, the Italian singer, Rizzio. A few days afterward he had the meanness to denounce his confederates in this act, and aided Mary in driving them from the kingdom. He might even after this have become reconciled with the queen, but his vices and follies continually widened the breach between them. In Jan. 1567, while at Glasgow, he was taken ill with the small pox, and during his convalescence was removed to a solitary house called the Kirk of Field, near Edinburgh, from an apprehension that, if taken to Holyrood, he might communicate his disease to the young prince, then a few months old. The queen visited him here several times, and seemed to manifest some tenderness for him. On the night of Feb. 9 the house was blown up with gunpowder, and the dead bodies of Darnley and his servant were found lying uninjured near the ruins. The earl of Bothwell was the chief actor in this tragedy, and it has long been a moot point whether the queen was privy to it.

DARTER, a bird of the order *anseres*, family *pelecanidæ*, and genus *plotus* (Linn.). The bill in this genus is longer than the head, straight, and very slender, with sides much compressed to the acute tip, and the lateral margins finely serrated; the nostrils are scarcely visible; the wings are long, the 2d and 3d primaries the longest; the tail is long, of 12 feathers, and broad toward the end, which is rounded; the tarsi are short and strong; the toes long, united by a broad web, with short, sharp, and curved claws. Four species are described by Gray: *P. anhinga* (Linn.), in the southern states of North America; *P. melanogaster* (Gmel.), in Asia; *P. congensis* (Lecah), in Africa; and *P. Novæ Hollandiæ* (Gould), in Australia. They are peculiar to warm climates, where they live in society on fresh-water rivers and lakes. The first named species, the anhinga, or snake bird, or black-bellied darter, may be taken as the type of

the genus. The bill of this bird is about 3¼ inches long, the length to end of tail 36 inches, extent of wings 44 inches, tail 11½ inches, tarsus only 1½ inches; weight 3¼ lbs. The head is small, the neck very long and slender, and the body elongated; at the base of the upper mandible, around the eye, and on the throat, the skin is bare, and at the latter part dilated as in the cormorant. The plumage of the head, neck, and body is close and silky, with oblong rounded feathers; from near the eye to half down the neck on each side is a series of long, narrow, loose feathers; the scapulars are elongated, pointed, compact, and stiff. The upper mandible is olive, the lower yellow, with greenish tips; around the eye greenish, sac on throat orange, iris bright carmine; the general color of the head, neck, and body, glossy dark green, and of the scapulars, wings, and tail, bluish black; the long neck feathers are purplish white or lilac; at the lower part of the neck behind are numerous oblong small white spots, forming 2 broad bands as they extend backward; similar rows of white spots are seen on the smaller wing coverts; the first row of small, and the secondary coverts, are white; the tail is tipped with a band of brownish red, fading into white. In the female, which is smaller, the upper part of the head and the hind neck are dull greenish brown, and the fore part of the neck pale reddish brown with a grayish tinge, extending over the breast and ending abruptly in a reddish chestnut band; otherwise the colors are as in the male, except that the spots are less distinct, and that the fore part of the back has a brownish tint. In appearance and habits the darter resembles the cormorant, especially in the structure of the feet, wings, and tail; the bill is like that of the heron, as also is the neck, which forms the same sudden curvature between the 7th and 8th vertebræ. According to Audubon, there are no external nostrils in the adult, though they are found of small size in the young. This bird is a constant resident in Florida, and the lower parts of Louisiana, Alabama, and Georgia; in the spring they go as far up as North Carolina, breeding along the coast; in these various localities it goes by the names of water crow, Grecian lady, and cormorant. They arrive in the Carolinas from March to April, and remain until November, preferring rivers, lakes, and lagoons in the interior, in low situations and secluded spots; though sometimes seen near the sea, they are not known to fish in salt water; they do not like rapid streams or clear water, but delight in the slimy and stagnant pools of inaccessible morasses, where a few large and naked trees in the centre afford good stands for taking their prey or observing an enemy. From the character of the water they prefer, which would prevent their seeing a fish beneath its surface, they do not dive from an eminence or on the wing, like the fish hawk and king-fisher, but drop silently from the trees into the water, swimming about and diving from the surface like the cormorant. They are excellent swimmers, very light on the water when not afraid, but sinking all but the head and neck on the approach of an enemy; when swimming in the latter manner, the sinuous motions of the head and neck resemble the movements of a snake, whence the common name of snake bird. After securing a fish, the bird comes to the surface, throws it into the air if not too large, and swallows it whole, head first. Its food consists of various small fishes, crawfish, shrimps, young reptiles, aquatic insects, eggs of frogs, young leeches, &c., and in confinement even boiled maize. The quantity of fish they will consume is enormous; but like other flesh and fish eating birds, they can remain several days without food with impunity. The flesh is tough, oily, and unfit for food, except the small pectorals of the female. They are gregarious in the winter, fishing entirely by day, and fond of returning nightly to the same roosting places, which are always over water; they are not very shy in their favorite haunts, where they are seldom molested. Their flight is swift, well sustained, and often at an immense height, where they sail about in graceful curves, especially in the love season; on land they walk and run well, much better than the cormorant, holding the tail up, and darting the head about continually, distending the pouch, and uttering rough guttural sounds. As a diver it is unsurpassed by fresh-water birds, disappearing with the utmost quickness, and swimming beneath the surface for a long distance by means of the feet, the wings partially spread and the tail expanded. Asleep, they stand with the body nearly erect, with the head under the scapulars. In East Florida they breed toward the end of February, in Louisiana in April or May, and in South Carolina in June; Audubon supposes the same birds may breed twice a year in widely separated localities. The nest is made of sticks, is flattened in form, generally in tall water-surrounded cypresses; the eggs are 3 or 4, 2½ inches long, of a light blue color, covered with a whitish chalky substance. They attain their full plumage during the first year, and retain it through life. When wounded, the sharp bill is rather a formidable weapon of defence. According to Audubon, the quills and tail feathers, as in the cormorant, have the shaft hollow, even to the tip, with transparent walls of the same nature as the barrel, which last is the same as in other birds.

DARTFORD, a market town of Kent, England, on the Darent, 17 m. by the North Kent railway S. E. of London; pop. in 1851, 5,763. It is situated in a valley at a ford in the river, from which it takes its name, and consists chiefly of one wide street on the Dover road. It has a large ancient church, a number of chapels, several schools, an alms house, the ruins of a nunnery founded in 1371, a large iron foundery and machine shop, grain, oil, powder, paper, and cotton mills, calico and silk printing works, and gas works. The first mill for rolling and slitting iron established in England was in the neighborhood of this town. The river is navi-

gable from this point to its junction with the Thames. Dartford is noted in history as the residence of Wat Tyler.

DARTMOOR, a desolate tract of land in Devonshire, England, extending from N. to S. about 22 m., and from E. to W. 14 m., at an elevation of 1,700 feet above the sea; area estimated at about 150,000 acres. The surface is alternately swamp and barrens, producing a coarse grass on which cattle and sheep find a subsistence during the summer months. Numerous hills of granite, called *tors*, break the surface of the plain, and rise to a considerable elevation, Yes tor being 2,050 feet, and Cawsand Beacon hill 1,792 feet above the surrounding level. Of these tors, 150 are enumerated in Carrington's poem on Dartmoor. In the centre of the moor is an extensive swamp, in which the rivers Dart, Teign, Taw, Erme, Yealm, and 50 smaller streams, take their rise. The climate is at all times cold and moist. Storms from the Atlantic sweep over the moor, and it is difficult to imagine a more desolate spot during winter. A few scattered hamlets, occupied by quarrymen, contain the only population. Dartmoor is chiefly noted as the site of a prison, built in 1809, at a cost of £127,000, for the custody of French prisoners of war. At one time it contained 10,000 inmates. On the breaking out of hostilities with the United States in 1812, 2,500 impressed sailors, claiming to be American citizens, and refusing to serve in the British navy against their country, were imprisoned in Dartmoor, where most of them were kept till the end of the war. Accounts of the harshness of their treatment reached the United States, and created much feeling. This was especially the case on an occasion when the guard fired upon the prisoners. Explanations, however, have shown that the occurrence was the result of a mistake. The Dartmoor prison enclosures occupy an area of 30 acres, encircled by a double line of lofty walls. In 1850 the prison was fitted for the reception of convicts. Experiments made in cultivating the moor by the labor of the convicts have proved satisfactory. Over 100 acres around the prison are now under crop. About one-half the annual expense of maintaining the institution is repaid by the industrial employments of the inmates.—Dartmoor offers considerable attraction to the tourist and naturalist. Druidical remains may be traced. The greater part of the tract was afforested under the name of Dartmoor forest by King John. Under Edward III. it was united to the duchy of Cornwall.

DARTMOUTH, a municipal and parliamentary borough, seaport, and market town of Devonshire, England, on the W. shore of a bay formed by the Dart at its entrance into the English channel, 32 m. S. W. of Exeter; pop. in 1851, 4,508. It is built on the side of a hill, which is so steep that the base of the houses in the upper street is but little below the chimney pots of those in the street below. The ascent is facilitated by flights of steps. The thoroughfares are dirty, irregular, and narrow, but are lighted with gas. Many of the houses are very old, and display some fine specimens of wood-carving. The town contains 3 churches, several chapels, schools, and alms houses, a market place, and remains of a castle supposed to be of the reign of Henry VII. The harbor, which is entered by a narrow channel between the fort and battery of St. Petrox and the old castle, is safe, convenient, and large enough to accommodate 500 ships. A great many vessels belonging to this port were formerly engaged in the Newfoundland fisheries, but this branch of industry has greatly declined. Ship building, rope making, and paper making are carried on to some extent; there is an export trade in woollen goods, cider, and barley, in exchange for wine, oil, salt, and fruit; and slate and limestone are quarried in the neighborhood. The number of vessels registered as belonging to the port, Dec. 31, 1856, was 398, tonnage 34,987; number of vessels entered during the year 757, tonnage 39,969; number of vessels cleared 391, tonnage 19,026. During the civil wars the town was twice captured, once by the royalists, and once by the parliamentarians. It returns one member to the house of commons, and gives the title of earl to the Legge family. It is one of the quarantine ports of the channel.

DARTMOUTH COLLEGE, a seat of learning in Hanover, N. H., which received its charter in 1769, and went into operation in the following year under the presidency of Eleazar Wheelock, D.D. It grew out of an earlier school established by the Rev. Mr. Wheelock in Lebanon, Conn., and designed for the education of Indian children. The idea of this school had been suggested to him by his success in educating a young Mohegan Indian, Samson Occom, who became a remarkable preacher. Other pupils from the Delaware tribe were afterward received, and the school became an object of public attention and interest. In 1754, a farmer named Joshua Moor gave a house and two acres of land for the purposes of the institution, which was from this time known as Moor's Indian charity school. Occom, accompanied by the Rev. Nathaniel Whitaker, visited England to collect funds; a sum of about £10,000 was subscribed, and a board of trustees was there organized, of which Lord Dartmouth, one of the subscribers, was made president. The school was so much resorted to by the native tribes that Dr. Wheelock determined to transfer it to some place nearer to them. Many proffers of situations were extended to him, but he selected the town of Hanover, on the Connecticut river, in the western part of the state of New Hampshire, and grants of about 44,000 acres of land were made to him. The institution was chartered by Gov. Wentworth under the name of a college, with all the privileges and immunities of any university within the British realm; and the name of Lord Dartmouth was adopted for it. Moor's school soon afterward obtained an independant charter, and still remains as an academical or preparatory

department. In 1770 Dr. Wheelock removed his family and school, consisting of 18 whites and 6 Indians, from Lebanon to the wilderness of Hanover, where the whole colony lived in log huts. In 1771 the first class of 4 students was graduated. President Wheelock retained his office till his death in 1779, and was succeeded by his son John Wheelock, who in 1782 was sent by the trustees to Europe to promote the interests of the college; and through introductions by Gen. Washington, Dr. Franklin, and John Adams, he obtained considerable sums of money, philosophical instruments, and other valuable donations. The prince of Orange was one of the donors. He returned in 1784, and after a presidency of 36 years, was removed from the office by the trustees in 1815. This act, which was occasioned chiefly by a local religious controversy, led to a conflict with the legislature of the state; that body claimed the right to amend a charter of which it was the guardian, and in 1816 passed acts creating a new corporation in which the property was vested, and changing the title of the college to Dartmouth university. The old trustees began a suit for the recovery of the college property, which was decided against them in the supreme court of the state. It was carried by appeal before Chief Justice Marshall in the supreme court of the United States, where the judgment was reversed, and the principle of the inviolability of chartered property fully established. It was by his elaborate argument in behalf of the plaintiffs in this case that Daniel Webster, at the age of 35, took rank among the most distinguished jurists in the country. "He opened his cause," says Mr. Ticknor, "with perfect simplicity in the general statement of its facts, and then went on to unfold the topics of his argument in a lucid order, which made every position sustain every other. The logic and the law were rendered irresistible. As he advanced, his heart warmed to the subject and the occasion. Thoughts and feelings that had grown old with his best affections rose unbidden to his lips. He remembered that the institution he was defending was the one where his own youth had been nurtured; and the moral tenderness and beauty this gave to the grandeur of his thoughts, the sort of religious sensibility it imparted to his urgent appeals and demands for the stern fulfilment of what law and justice required, wrought up the whole audience to an extraordinary state of excitement." Webster was associated in this case with Jeremiah Smith and Jeremiah Mason, and opposed to John Holmes of Maine, William Pinkney, and William Wirt. The question excited also a violent controversy in the local newspapers. Wheelock was raised to the presidency of the university by the new board, in Feb. 1817, but died within two months, and was succeeded by William Allen, D.D., who retained the office till the decision of the question in favor of the college by the supreme court, in 1819. Francis Brown, D.D., was the successor of Wheelock as president of the college, having been elected by the old board in 1815, and retained the office till his death in 1820. He was succeeded in the presidency by the Rev. Daniel Dana, who, after one year, was succeeded by Bennet Tyler, D.D.; upon whose resignation in 1828, Nathan Lord, D.D., the present incumbent, received the appointment. The college comprises also a medical school, and the Chandler scientific school, the latter of which went into operation in 1852, being founded by a donation of $50,000 from Abiel Chandler, to give instruction in the practical and useful arts of life, as mechanics, engineering, architecture, drawing, and the modern languages. In 1858–'9 there were 50 students in the medical school, and 44 in the scientific. The faculty of the college consists of the president and 16 professors. The whole number of alumni is 4,365, and the present number of undergraduates (1859) is 260. The different libraries connected with the college have an aggregate of about 34,000 volumes. An astronomical observatory, of excellent design and furniture, has lately been erected through the munificence of George C. Shattuck.

DARU, Pierre Antoine Noël Bruno, count, a French statesman and author, born at Montpellier, Jan. 12, 1767, died near Meulan, Sept. 5, 1829. He studied with excellent success under the Oratorians of Tournon, devoted himself to literature, producing poems and translations, most of which remain unpublished, and from 1784 to 1791 was commissary of war. Adopting the principles of the revolution, he served as ordnance commissary in the army of Brittany, but was suspected and imprisoned during the reign of terror, recovered his liberty on the 9th Thermidor, in 1796 entered into the ministry of war under Petiet, soon after became chief commissary, and during this period pursued his literary studies, publishing in 1797 a translation of Horace. After the return of Napoleon from Egypt, he was nominated inspector of the troops and secretary of the ministry of war, was elected tribune in 1802, and under the empire in 1805 and 1806 became counsellor of state, superintendent-general of the house of Napoleon, superintendent-general of the grand army, and member of the French academy. He was charged with the execution of the treaties of Marengo, Presburg, and Tilsit, was then sent as plenipotentiary to Berlin, and after the battles of Eckmühl and Wagram joined the emperor at Ratisbon, followed him to Vienna, and was there appointed to execute the treaty of Vienna and to administer the Austrian states. He opposed the alliance of the emperor by marriage with any of the royal families of Europe, maintaining that his throne was founded on different principles from theirs. In 1811, as minister of state, the whole administration of the empire rested upon him; and in the next year he strongly opposed the Russian campaign, in which as superintendent-general of the army he displayed all the resources of his courage and talent. He was one of the last to give adher-

ence to the restablished Bourbons, and was among the first who rallied about Napoleon when he reappeared from Elba. Retiring from public life after the battle of Waterloo, he composed at Bourges and on his estate near Meulan his *Histoire de Vénise* (7 vols., Paris, 1819; 3d ed., 1827), one of the most thorough and interesting works on the subject; and in 1819 was recalled from exile, entered the chamber of peers, took his place on the left, and until his death was an eloquent opponent of the reactionary tendencies of the government. He was as indefatigable in literature as in administrative affairs, and published several elegant poems and satirical epistles, *Éloges* of Sully, Volney, and Laplace, a *Histoire de Bretagne* (Paris, 1826), and reports on the rupture of the treaty of Amiens, the monetary system, public instruction, the right of petition, individual liberty, and the censorship of the press.—Two of his sons, Napoleon and Victor Paul, were prominent in French politics prior to the establishment of the present empire.

DARWAR, or Dharwar, a district of the Bombay presidency, British India, bounded N. by Belgaum, E. by the Nizam's territory and Bellary, S. by Mysore, and W. by North Canara; area, 3,837 sq. m.; pop. 754,385. The soil and climate are adapted to the growth of cotton, and in 1842 the New Orleans species of that plant was introduced with such success, that in 1851 nearly 43,000 acres of it were under cultivation. The cotton is shipped at Coomta, from which the principal marts are 80 or 100 m. distant. The district formed part of the ancient kingdom of Bejapoor, and was overrun by Sevajee in 1675, and by HyderAli in 1777. It is comprised in the region known as the South Mahratta country, but nearly all the inhabitants are Canarese. It was acquired by the British on the overthrow of the Peishwa in 1818.—Darwar, the chief town of the above district, is situated near the W. frontier, 70 m. E. from Goa, and 288 S. E. from Bombay. It is defended by a wall and ditch, and a fortress originally strong, but now much decayed. It is the seat of 3 government schools, one Mahratta, one Canarese, and one English. It was captured by Hyder Ali in 1778, and retaken by the British and Mahrattas in 1791.

DARWEN OVER, a town of Lancashire, England; pop. in 1851, 11,702. It is laid out with little regularity, but is well built, rapidly improving, and supplied with gas and abundance of water. The principal branches of industry pursued here are the cotton manufactures, paper making and staining, silk weaving, and carpet making. The cotton mills, which are the most extensive establishments of the town, contain 3,800 looms and 63,000 spindles.

DARWIN, Charles, an English naturalist, was engaged on board the Beagle, Capt. Fitzroy, in that officer's exploring expedition, 1832 to 1836. On his return he published several works, principally records of his experience, and of the geological and physiological results of his travels and observations. Among these are the "Voyage of a Naturalist;" "Journal of Researches into the Geology and Natural History of the various Countries visited by H. M. S. Beagle;" "Geological Observations on South America;" numerous papers on the islands of Polynesia and Australia, published in the "Proceedings of the Geological Society;" and a "Monograph of the Family Cirripedia," a work of extraordinary scientific ability, published by the Ray society, and distributed to their members in 1851–'53.

DARWIN, Erasmus, an English physiologist and poet, born at Elton, Nottinghamshire, Dec. 12, 1731, died at Derby, April 18, 1802. He studied at Cambridge, was graduated at Edinburgh, and settled as a physician at Lichfield. The work by which he is best known is the "Botanic Garden," a poem in 2 books, the first explaining the economy of vegetation, the 2d personifying "the loves of the plants." Gnomes, sylphs, nymphs, and salamanders were adopted to give machinery to the poem. He next published "Zoonomia, or Laws of Organic Life," a curious physiological essay. In 1800 he published "Phytologia, or Philosophy of Agriculture and Gardening;" also "Letters on Female Education," addressed to his daughters. A poem, entitled the "Temple of Nature," appeared after his death (1803). Darwin's writings had a large popularity in their day. Miss Seward, in 1804, published his memoirs.

DASH, N. Cisterne de'Courtiras de Saint Mars, viscountess, better known under the title of countess, a literary French woman, born in Paris about 1805, received an excellent education, was married at an early age, and subsequently, owing to pecuniary reverses, adopted literature as a profession. She has written about 40 novels, of which not fewer than 13 appeared between 1853 and 1857.

DASHKOFF, Ekaterina Romanovna, a Russian princess, born in 1744, died near Moscow, Jan. 4, 1810. She was the 3d daughter of Count Roman Woronzoff, received a literary education, and was at an early age attached to the person of the future empress, Catharine II. In her 16th year she married Prince Dashkoff, with whom she lived for some time in Moscow, and then returned to the court, where her sister Elizabeth had become the favorite of the new emperor, Peter III., while his wife Catharine was treated with insulting brutality. Indignant at the insolence of her sister, and the unworthy situation of her friend, whose ambition, passions, and love of study were congenial to hers, she became, at the age of 18, the soul of a conspiracy which deprived Peter of his throne and life, and made his German wife the autocrat of Russia. The means she employed to strengthen this conspiracy were often the opposite of pure; and at the execution, dressed in male costume and mounted on horseback, she commanded a body of soldiers. But the scanty rewards the empress bestowed upon her by no means answered the expectations of the princess; her request to receive the command of the imperial

guard was refused, and her independence of character and bluntness of manners soon deprived her of the imperial friendship and favor. Retired from court, she devoted herself to study and the society of scholars; and after the death of her husband, she travelled through the west of Europe, where she made the acquaintance of many celebrated men of the age. Among others, she visited Voltaire at Ferney in 1771. On her return to St. Petersburg in 1782, she met with a more favorable disposition on the part of the empress, who appointed her to the presidency of the academy of sciences, and in 1784 to that of the new Russian academy, established upon her proposition in imitation of the French academy. She took an active part in the elaboration of the great Russian dictionary, which was completed according to her plan. She also wrote plays, and contributions in prose and verse for periodicals, and edited a monthly magazine. After the death of Catharine (1796), she was commanded by her successor, Paul, who was no admirer of the acts of his mother, to retire to a poor village in the government of Novgorod, "where she could meditate on the events of 1762." The intercession of her friends finally released her from this exile, and she spent the last years of her life on an estate near Moscow. The "Memoirs of the Princess Daschkaw, Lady of Honor to Catharine II., edited from the Originals by Mrs. Bradford" (2 vols. 8vo., London, 1840), were written after a manuscript of the princess which has been destroyed.

DASYA, a beautiful genus of the red-seeded marine algæ, of which there are several species peculiar to this country. The pear-shaped spores or seeds are borne upon the smaller branches in ovate conceptacles. *D. elegans* is found upon the New England coasts.

DATCHET, a pleasant village of Buckinghamshire, England, on the Thames, opposite Windsor, much resorted to in summer by anglers and other pleasure seekers; pop. in 1851, 898. It is renowned as the scene of Sir John Falstaff's adventure with the "merry wives of Windsor" on Datchet mead.

DATE PALM, the *phœnix* of botanists, the Greek name of the date, probably from the word Phœnicia, from which country the best dates were brought. It grows abundantly in Egypt, Arabia, Persia, and the neighboring countries, contributing largely to the support of the inhabitants. *P. dactylifera* is a lofty palm. Scarcely any other vegetable enters so largely into the uses of man. A single date palm will bear upward of 1 cwt., and sometimes between 2 and 3 cwt., of dates in a season. Camels are fed upon the abortive fruit and the ground date stones. From the leaves are manufactured couches, baskets, bags, mats, brushes, &c.; from the trunk, fences for gardens, and fuel. The fibrous parts of the bases of the leaves afford thread to spin into ropes and rigging, and the sap is capable of fermentation for beverage. Even the young shoots are used as a delicate vegetable resembling asparagus, and the central pith yields a sort of starch of nutritive properties. Other species are known to botanists, but this is the most useful to man.

DATE PLUM (*diospyros*, Linn.), better known in the western states of this country as the persimmon. Like this, the fruit of all the date plums are small and at first astringent, but sweet and edible when ripe. *D. lotus* bears a fruit of the size of a cherry; *D. discolor* of the Philippine islands produces a fine fruit; and *D. Kaki* of Japan bears fruit of the size of an apricot, which is dried as a sweetmeat by the Chinese. Most of these plants are tropical.

DATISCA, a genus of plants related to the nettles, indigenous to the south of Europe. The *D. cannabina* is a large, coarse, perennial, herbaceous plant, its juices possessing a bitter, tonic property, and the fibres of its stalks resembling those of hemp. Its flowers are borne in clusters in the axils of the bracts, and are of no particular beauty.

DATIVE, in grammar, the 3d case in the declension of nouns, expressing the state or relation of a thing to which some other thing is attributed or conferred. It derives its name from the passive participle of the Latin verb meaning "to give," and designates a relation corresponding to that expressed in English by the prepositions *to* and *for*. Thus in the phrase, "to give peace to the republic," the word "republic" would in the classic languages be put in the dative case without a preposition.

DATURA, a genus of rank, poisonous, narcotic plants, having showy flowers, some of which possess fragrance as well as beauty. The word *datura* is said to be derived from the Arabic *tâtórah*, which indicates the oriental origin of the herb. The most common is an Asiatic or perhaps tropical American species known as thorn apple (*D. tatula*), found about waste grounds near dwellings. This is considered as a variety of *D. stramonium*, whose blossoms are white, and growing near the sea-shores. The leaves and the seeds of the stramonium are officinal. From the green capsules and ripe seeds an alkaline extract is obtained, called daturia, which crystallizes from its solution in alcohol or water into colorless, shining, aggregated prisms. This is very poisonous. Stramonium produces delirium, and even maniacal symptoms. The delirium is peculiar, disposing to ridiculous exhibitions. The dried leaves, when smoked like tobacco, have been recommended in the treatment of asthma, sometimes with benefit, and the plant has even acquired great reputation. *D. fastuosa* has a polished, purple stalk, large leaves, beautiful flowers, of a rich purple color outside, pure satiny white within, of an agreeable odor, sometimes also having semi-double blossoms. The odor of *D. Wrightii* is also pleasant; its flowers are large, of a creamy white, delicately tinted with violet as they fade. *D. arborea*, now *Brugmansia*, is one of the greatest ornaments of gardens; its flowers are trumpet-shaped, nearly a foot in length, coming out of the division of the branches, of a pale yellow-

ish color outside and white within, and diffusing a delightful fragrance in the open air. They are all raised from seeds or propagated by cuttings, and even the roots of the herbaceous kinds survive by protecting them from severe frosts.

DAUB, Karl, a German theologian, born in Cassel, March 20, 1765, studied in Marburg, and was professor of theology in Heidelberg from 1794 to his death, Nov. 22, 1836. He wrote *Theologumena* (Heidelberg, 1806) under the influence of Schelling's philosophy; "Judas Iscariot," a treatise on the origin of moral evil (Heidelberg, 1816); "Theological and Philosophical Lectures" (7 vols., Berlin, 1838–'44); and "Hypotheses in regard to the Freedom of the Will" (Altona, 1834), a valuable criticism on the different theories concerning the nature and freedom of the will.

DAUBENTON, Louis Jean Marie, a French naturalist, born at Montbar, Côte d'Or, May 29, 1716, died in Paris, Jan. 1, 1800. His father destined him for the church, and sent him to Paris to study theology; but he secretly devoted himself to medicine. The death of his father left him free to follow his inclination, and he took his medical degrees at Rheims in 1740 and 1741. Buffon, who had taken charge of the *jardin des plantes*, required at that time an assistant of an observing spirit and a skilful hand, content to occupy a secondary position, as it were the eye and hand of his governing mind; and such an assistant he found in his old schoolmate Daubenton. The prudence of the latter, added to the strength of his associate, gave to their joint work on quadrupeds a completeness and accuracy which could hardly have been expected at that time; as Cuvier says, Daubenton was useful to Buffon, not so much for what he did for him, as for that which he prevented him from doing. He went to Paris about 1742, and was made demonstrator and keeper of the cabinet of natural history in 1745; his salary was at first only $150 per annum, but by degrees it was raised to $800, with certain perquisites and free lodgings. While carrying out zealously the views of Buffon, he was also laying the foundation for his own fame as a naturalist. It is principally to Daubenton that France owes its cabinets of natural history at the *jardin des plantes*. Before his time this collection was little more than a drug-shop; in the course of a few years he increased the specimens in every department a hundred fold, arranged and named them; discovered and perfected processes for the preservation of organic matters; mounted birds and quadrupeds in the most natural manner, displaying every characteristic. The study and arrangement of these objects became the all-absorbing passion of his life; and toward the end of his career, when the victories of Napoleon brought a great accession of specimens, he was often seen in the museum; even in his 84th year, with bent body and gouty extremities, he was supported daily in his visit to the mineralogical cabinet, the only portion which remained in his charge under the new organization. In the "History of Quadrupeds" are given descriptions of the external and internal organs of 182 species, of which 58 had never before been dissected, and 13 not previously described; there are also external descriptions of 26 species, of which 5 were unknown; the arrangement and character of the descriptions are excellent; the innumerable new facts presented bearing upon internal structure may be considered as the first attempt in France to place comparative anatomy upon a basis of observation. The appearance of this work brought him great fame, and at the same time not a little annoyance. Réaumur at that time stood at the head of the list of naturalists, which position he deserved for his observations on insects; he was considerably alarmed, then, to find himself in danger of being eclipsed by these new rivals, whose novel views and captivating style excited the attention of the public. While Daubenton was receiving the homage of naturalists, Buffon was fêted and praised at court; and some of the flatterers of the latter persuaded him that he would do better to dispense with the services of his scientific associate. This advice Buffon followed in his 8vo. edition of the *Histoire naturelle* (13 vols.), from which he cut out all the anatomical details and descriptions of animals contributed by Daubenton; the history of birds and of minerals he also wrote alone. The regrets of naturalists at the inferior and inaccurate execution of these subsequent works of Buffon must have been a great consolation to Daubenton, who, beside the affront thus put upon him, lost an income of $2,400 a year. In order to retain his situation at the *jardin des plantes*, he forgot the insult and the loss, and quietly continued his labors. So completely indeed did he forget Buffon's injustice, that he contributed to many parts of the work, without attaching his name to his labors; and it is certain that Buffon used his manuscripts in his "History of Minerals." Their intimacy was afterward revived, and was interrupted only at the death of Buffon. During the 18 years of the publication of the 4to. edition of the "History of Quadrupeds," Daubenton contributed but little to the memoirs of the academy; but after that period he wrote much in the publications of the academy, of the institute, and of medical and agricultural societies. He discovered 6 new species of mammals common in France; he first applied his knowledge of comparative anatomy to the determination of fossil remains of quadrupeds; he gave the characteristic differences between man and monkeys; he made many valuable additions to the sciences of mineralogy and vegetable physiology; his contributions to agriculture and rural economy were so valuable, and made his name so popular among the masses, that he had no difficulty in retaining his position of director of the national museum through the stormy period of the revolution, which menaced even the life of many naturalists. In 1773, at his suggestion, one of the chairs of practical medicine in the college of France was changed into one of natural history, and he was appointed to

fill it in 1775; and in 1783 he lectured on rural economy at the veterinary college of Alfort. Disappointed under the old *régime*, he obtained from the national convention the conversion of the cabinets of the *jardin des plantes* into a special school of natural history, in which he was appointed professor of mineralogy; he discharged the duties of this office until his death, keeping fully up with the progress of this rapidly advancing science; even at the age of 80 he took delight in explaining to his classes the brilliant discoveries of Haüy, his former pupil. He gave a few lectures at the normal school during its brief existence, always exciting the greatest enthusiasm in his numerous audience. He contributed to the *Encyclopédie méthodique* the articles on quadrupeds, reptiles, and fishes, remarkable for their exactness and clearness; he was also engaged in editing the *Journal des savans*. With a feeble constitution, and always at work, he arrived at an advanced age without painful infirmities; this was owing to a careful study of himself, and the avoidance of all excesses of body or mind; his regimen was temperate and uniform; always enjoying the comforts of life, he cared not for fame or fortune, and was peculiarly free from that vanity and love of approbation which has been the stumbling block in the path of so many illustrious men. His studies were for him rather an amusement than a task; a portion of his time was daily devoted to reading with his wife romances and other light literature, which he called "putting his mind on diet." This relaxation from labor, and the regularity of his habits, contributed much to that amenity which rendered his society so agreeable. He had naturally a good opinion of his fellows; having had but little intercourse with the world, and absorbed in the contemplation of nature, his mind, so acute in the detection of scientific error, could never suspect falsehood in man when presented under a pleasing exterior. Chosen a member of the senate in Dec. 1799, Daubenton wished to perform the duties of his office; being obliged to change the routine of his simple habits and to expose himself at a rigorous season of the year, on his first meeting with the senate he was seized with apoplexy, and fell senseless into the arms of his colleagues; notwithstanding the most prompt and scientific medical assistance, he regained consciousness only for a few moments, during which he displayed the greatest calmness, indicating the progress of the paralysis which was soon to prove fatal. His funeral was attended by citizens of all ranks, ages, and professions, anxious to show the last tribute of respect to a public benefactor. His remains were interred in the *jardin des plantes*, which he loved so well, and which he may be almost said to have created; on the eastern slope of a hill near the conservatories is a granite column, supported on a base of other mineral products, which marks his grave.

DAUBENY, Charles Giles Bridle, an English natural philosopher, born in Gloucestershire, distinguished for his researches in chemistry, which have been especially directed to elucidate the phenomena exhibited by volcanoes and the growth of plants. One of his first publications was "An Essay on the Geology and Chemical Phenomena of Volcanoes" (1824). His principal work on the same subject is entitled "A Description of Active and Extinct Volcanoes" (2d edition, 1848). The subject led him to investigate the composition of mineral and thermal waters. He visited the United States in 1837, and directed his observations particularly to mineral springs, of which, and of the geology of North America, he published accounts in the papers of the Ashmolean society and of the British association in 1838. His papers upon the volcanoes of Italy, and the extinct volcanoes of central France, possess great geological interest, from the application of the principles enunciated to explain the changes taking place in the interior. He proposed the theory of the bases of the earths existing in a metallic state, and by their oxidation giving rise to the phenomena of volcanic fires. Those upon the chemical actions exhibited in the growth of plants display a similar talent in original investigation.

D'AUBIGNÉ. See Aubigné, Merle d'.

DAUDIN, François Marie, a French naturalist, born in Paris, March 25, 1774, died in 1804. His most valuable work is *Histoire naturelle générale et particulière des reptiles, pour faire suite à l'Histoire naturelle de Buffon* (8 vols. 8vo., 1802–'4).

DAULIS, a city of ancient Greece, in Phocis, near the confines of Bœotia, destroyed by the Persians during their second invasion of Hellas, and subsequently by Alexander the Great. But its strong position on the summit of a lofty hill rendering it important as a military station, it was rebuilt, and survived till the Christian era. Daulis is famous in mythology as the scene of the tragic events contained in the myths of Tereus, Procne, and Philomela. Its ruins are still to be seen near the modern village of Dhavlia.

DAUMAS, Melchior Joseph Eugène, a French general, born Sept. 4, 1803, distinguished for his military services in Algeria, and still more for the important part which his familiarity with the language and characteristics of the native population enabled him to take in the administration of the colonial government. After his return to France he was intrusted (April, 1850) with the direction of Algerian affairs in the ministry of war. He published in conjunction with M. Ausone de Chancel a comprehensive work on the southern portion of the French colonies in Algeria, *Le Sahara Algérien* (Paris, 1845); and in concert with M. Fabar (who died in 1849 during the siege of Rome), *La grande Kabylie, études historiques* (1847). He has also supplied the leading French reviews with valuable information on the same subject, and written many other works on Algeria, the most important of which are *Principes généraux du cavalier Arabe* (4th ed. 1855), trans-

lated into German; *Mœurs et coutumes de l'Algérie* (3d ed. 1857, 18mo.); and *Les chevaux du Sahara* (4th ed. 1857), translated into Spanish and German.

DAUMER, Georg Friedrich, a German poet and philosophical writer, born at Nuremberg, March 5, 1800, studied at the gymnasium of his native city, at that time under the direction of Hegel, and subsequently at the universities of Erlangen, where Schelling was his professor of philosophy, and of Leipsic, devoting himself first to theology, but soon after to philosophy. He officiated as professor at the gymnasium of Nuremberg, from about 1822 to 1830, when he was obliged to tender his resignation in consequence of ill health, and afterward devoted himself exclusively to literary labors. His works, some of which have appeared under the *noms de plume* of Amadeus Ottokar and Eusebius Emmeran, are less remarkable for their originality than for the boldness and anti-christian tendency of his theories, which are chiefly based upon the systems of Schelling and Hegel.

DAUMIER, Henri, a French artist, one of the contributors to the Paris *Charivari*, born in Marseilles in 1810. Among his best efforts are his illustrations of "Robert Macaire" and his caricatures of the politicians of 1848 (*Représentants représentés*, and *Idylles parlémentaires*).

DAUN, Leopold Joseph Maria von, count, generalissimo of the imperial troops in the 7 years' war, born in Vienna, April 25, 1705, died Feb. 5, 1766. He took a distinguished part in the war against the Turks (1737–'39) and in the Silesian wars (1740–'41 and 1744–'45). In the 7 years' war he won the battles of Collin (1757) and Hochkirch (1758), and captured in Saxony the Prussian general Fink, with 11,000 Prussians (1759). Laudon lost the same year the battle of Liegnitz, because Daun failed to relieve him; and Daun lost the battle of Torgau (1760), after having won it in the daytime, by Ziethen's cavalry attack at night, and was himself wounded.

DAUNOU, Pierre Claude François, a French scholar and politician, born at Boulogne-sur-Mer, Aug. 18, 1761, died at Paris, June 20, 1840. At 16 he entered the order of the Oratorians, and taught literature, philosophy, and theology in several of their colleges. In 1792 he was elected to the national convention by the department of Pas-de-Calais, in conjunction with Carnot and Thomas Paine. He denied the right of the convention to try Louis XVI., and voted for his detention only. On the fall of the Girondists he signed a protest against the illegal proceedings of May 31, in consequence of which he was arrested. He resumed his seat after the 9th Thermidor, and took a conspicuous part in the framing of the constitution of the year III. On the establishment of the directory, he entered the council of 500, of which he was the first president. In 1797 he went to Italy, where he participated in the organization of the Roman republic. He was reëlected to the council of 500 in 1798, and was a member of the committee appointed after the 18th Brumaire to prepare, in conjunction with the provisional consuls, the new constitution of the year VIII. He declined a seat in the council of state offered to him by Bonaparte, and became a member of the tribunate; but his independence of character caused him to be ejected from this body in 1802. In 1804 he was appointed keeper of the archives of the legislative body, and in 1807 of those of France, which office was taken from him in 1815 by the Bourbons, and restored to him in 1830 by Louis Philippe. In 1818 he was made professor of history and morals in the college of France, and elected to the chamber of deputies, and became a peer in 1839. His publications, which are mostly historical, are distinguished by thorough learning, keen criticism, and a perspicuous style. Among his principal works are his continuation of Rulhière's *Histoire de l'anarchie de Pologne; Essai historique sur la puissance temporelle des papes;* and *Cours d'études historiques*, an invaluable repertory of knowledge, published after his death. He was also an important contributor to the *Journal des savans*.

DAUPHIN, the title of the eldest son of the king of France, heir presumptive of the crown. The title descended also to his eldest son, as after the death of the grand dauphin, son of Louis XIV., but not to the king's brother. The official designation was: "By the grace of God, eldest son of the king of France, and dauphin of Viennois." It was first connected with the reigning family upon the cession of the province of Dauphiné, April 23, 1349, made by Humbert of Viennois (whose ancestors, according to some historians, early in the 12th century assumed the dolphin as their device or symbol, whence the title), to Charles (afterward Charles V.), grandson of Philip VI., on condition that the eldest sons of the king of France should thenceforth bear the title of dauphin. The last dauphin was Louis Antoine, duc d'Angoulême, who took the title on the accession of his father Charles X. to the throne. After the abdication of Charles X. he also abdicated in favor of his nephew the duc de Bordeaux. The seigneurs of the house of Auvergne were also called dauphins d'Auvergne, and formerly by colloquial usage the eldest son of any family was called a dauphin.

DAUPHIN, a S. E. co. of Penn., bounded W. and S. W. by the Susquehanna river, and drained by many small streams; area, 530 sq. m.; pop. in 1850, 35,754. The Kittatinny or Blue mountain crosses the middle of the county, and several parallel ridges extend on each side of it, while South mountain runs along the S. border. Between these ranges there are fertile valleys, those of the S. being of limestone formation and especially fruitful. The N. part is rich in anthracite coal, and iron ore is also found. The productions in 1850 were 340,755 bushels of Indian corn, 308,879 of wheat, 370,027 of oats, 115,827 of potatoes, 27 814 tons of hay,

and 575,668 lbs. of butter. There were 37 grist mills, 19 saw mills, 2 coal mines, 4 iron furnaces, 2 foundries, 2 forges, 1 rolling mill, 1 powder mill, 8 manufactories of agricultural implements, 5 woollen factories, 15 tanneries, 7 newspaper offices, 84 churches, and 6,223 pupils attending public schools. The Susquehanna canal passes along the W. border, and the county is crossed by the Union canal, and by the east Pennsylvania, Cumberland valley, and northern central railroads. Organized in 1785, and named in honor of the dauphin of France. Capital, Harrisburg.

DAUPHINÉ, an ancient province in the S. E. part of France, bounded N. and W. by the Rhone, E. by the Alps, S. by Provence. Its surface is highly varied and picturesque, intersected by branches from the Alps. Dauphiné became one of the provinces of France in 1349, when the eldest son of the king assumed the title of dauphin. The people proved faithful to their new prince, but maintained their provincial rights and privileges with unfailing firmness. This spirit of independence broke out on the eve of the revolution, and the provincial estates of Dauphiné were the first to urge on the royal government the necessity of summoning the states-general of the kingdom. The province now forms the departments of the Isère and Hautes-Alpes, and part of the Drôme, with an aggregate population of 1,000,000. Grenoble was its capital.

DAVENANT, Sir William, an English dramatist, born at Oxford in 1605, died April 17, 1668. Shakespeare on his journeys from London to Stratford was in the habit of stopping at the tavern kept by his father at Oxford; and there is a scandalous story that he was the natural son of the great dramatist, which does not seem, however, to rest on any good authority. But this much is certain, that a striking resemblance existed between him and Shakespeare, and that the latter took considerable notice of the youth, who, at the age of 10 years, penned a sonnet "in remembrance of Master William Shakespeare." Leaving college without completing the usual academic course, he became page to the duchess of Richmond, and afterward to Lord Brooke, who, himself a man of letters, took pleasure in encouraging his page's poetic talents. About 1628 he began to be known by his masques, which were played at court by the nobility of both sexes. In 1638, on the death of Ben Jonson, he was appointed poet laureate. During the civil wars he remained faithful to the royal cause, for which the king knighted him, and also made him a lieutenant-general of artillery. He was once arrested as a royalist, but effected his escape to France. While at the court of the queen-mother Henrietta he conceived the project of leading a colony of French artisans to Virginia. The ship, however, was captured by a parliamentary cruiser, and he was carried prisoner to England. After 2 years' imprisonment he was released, on the intercession, it is said, of the poet Milton. Being without means of support, and plays being now out of fashion, he composed a number of entertainments of a moral cast, which proved successful. At the restoration he obtained the privilege of forming a new company of comedians, and being in favor with the reigning powers, was enabled to show his gratitude to Milton by interesting himself in his behalf. He contributed much, as manager of the court theatre in the reign of Charles II., to improve theatrical performances. He introduced movable scenery, richer costumes, and closer attention to the accessories generally. His works consist of fugitive pieces of versification, dramas, of which the best is the "Siege of Rhodes," masques, and an unfinished epic somewhat ponderous in style, entitled "Gondibert."—Charles, an English political writer, eldest son of the preceding, born in 1656, died Nov. 14, 1714. He was graduated as doctor of civil law at Oxford, and was a member of parliament in 1685, 1698, and 1700. In 1685 he was appointed inspector of plays, in conjunction with the master of the revels, and from 1703 to the time of his death he officiated as inspector-general of exports and imports. In his youth he composed a tragedy, called "Circe," in which he himself acted. A selection of his political and commercial works was published by Sir Charles Whitworth (London, 5 vols. 8vo.).

DAVENPORT, a city and the capital of Scott co., Iowa, on the right bank of the Mississippi, just below the upper rapids, opposite Rock Island, Illinois, and 55 m. E. from Iowa City; pop. in 1840, 600; in 1850, 1,848; in 1856, 11,500; in March, 1858, 16,677. Of the last number 50 per cent. were Americans, 20 per cent. Germans, and 12 per cent. Irish. In the township outside of the city there were beside about 1,500 inhabitants. The city is built at the foot of a bluff rising gradually from the river, and enclosed on the land side by an amphitheatre of regular hills half a mile in the rear. The back country is a rich farming region. The city presents the aspect of a prosperous commercial and manufacturing mart. It has direct communication with Chicago by the Chicago and Rock Island railroad, which terminates at Rock Island, and with Iowa City by the Mississippi and Missouri railroad, finished as far as the state capital, and designed to extend to the W. border of the state. A magnificent railroad bridge across the Mississippi connects the 2 cities of Davenport and Rock Island. It is 1,582 feet long, has 5 arches, and rises 21 feet above high-water mark. On the Iowa side there is a draw for steamboats, but the work has been much complained of, as an obstruction to navigation, particularly by citizens of St. Louis, and a legal decision has lately been rendered against the bridge. It was commenced in 1854 and finished in 1856. Davenport is regularly laid out, and beside the county buildings, contains many imposing edifices. It is the seat of Iowa col-

lege, opened in 1848, and now occupying a handsome limestone building, 3 stories high, erected on an eminence in 1855 at a cost of $22,000. It ha a library of 1,800 volumes, and numbers about 100 students, of whom ⅓ are young ladies. The other educational establishments include the Mount Ida female college, a commercial college, 7 public schools, with an aggregate average attendance of 988 pupils, and numerous private seminaries. There are 17 religious societies, viz.: 3 Presbyterian, 1 Congregational, 2 Episcopal, 2 Methodist, 1 Lutheran, 2 Baptist, 3 Roman Catholic, 1 Disciples', 1 Free Thinkers' association, and 1 German congregation. One monthly, 4 weekly, 1 tri-weekly, and 2 daily newspapers are published, and the city contains 1 book publishing house, 8 banking houses, 15 hotels, 5 flour mills, 5 saw and planing mills, 3 breweries, 7 brick yards, 5 iron works, 3 marble works, 9 manufactories of coaches and wagons, 1 of locomotives and railroad cars, 4 of agricultural implements, 4 of soap and candles, and 1 of piano fortes, 1 tannery, gas works, &c. The statistics of the chief branches of trade for the year ending Dec. 31, 1857, show an aggregate of business amounting to $14,485,812 24. The imports amounted to 53,099 tons, and the exports to 34,157 tons, most of which were transported by railroad. The receipts of lumber were 22,213,216 feet, about ⅔ of which came by river, and the principal receipts by railroad were as follows: shingles, 3,370,000; railroad iron, 1,593 tons; coal, 13,095; oats, 33,843 bushels; Indian corn, 75,834; wheat, 183,297; pork, 362,285 lbs.; machinery, 183,436. Exports by river and railroad: wheat, 94,008 bushels; barley, 20,667; flour, 106,319 bbls.; coal, 5,647 tons; lumber, 16,048,112 feet; shingles, 5,890,000. The first settlement at Davenport was made in 1836, the site having been purchased the year before by a company for $2,000. It was organized as a town in 1839, and as a city in 1851.

DAVENPORT, John, 1st minister of New Haven, Conn., born in Coventry, England, in 1598, died in Boston, Mass., March 15, 1670. He was educated at Oxford, and became an eminent preacher among the Puritans in London, and minister of St. Stephen's church. About 1630 he was engaged in the project of purchasing the church lands in England in the hands of laymen, for the benefit of poor congregations, and great progress was already made in the execution of the plan when it was interrupted by Bishop Laud, who was apprehensive that it would turn to the profit of the nonconformists. Soon becoming one himself, Mr. Davenport was obliged to resign his pastoral charge, and retired to Holland in 1633. There he became engaged in a controversy, taking sides against the general baptism of children, as was then practised, and in about 2 years returned to London. Seeing a letter from Mr. Cotton, containing a favorable account of the Massachusetts colony, he went to Boston, where he arrived June 26, 1637. There he took part in the synod held soon after, and on March 30, 1638, sailed with a company for Quinnipiac, or New Haven, to found a new colony. The first Sabbath after their arrival, April 15, he preached under an oak. He was minister there for 30 years, and aided in establishing the system of civil polity, which began by the declaration that "all of them would be ordered by the rules which the Scriptures held forth to them." On June 4, 1649, holding their constituent assembly in a barn, the "free planters" resolved that church members only should be burgesses, and Davenport was chosen one of the "seven pillars" to support the ordinance of civil government. He exhorted the governor to judge justly, and the "cause that is too hard for you to bring it to me." Annual elections were ordained, and God's word established as the only rule in public affairs. In his carefulness in regard to the admission of members to the church, he held in reality also the keys of all political power. Such was his reputation abroad, that he was invited with Hooker and Cotton, by the assembly of divines at Westminster, to take a seat among them. When the messengers of the king, who had come to New England in pursuit of Goffe and Whalley, the regicide judges of Charles I., approached New Haven, he hid the fugitives in his house, and preached to his congregation from Isaiah xvi. 3 and 4: "Hide the outcasts: bewray not him that wandereth. Let mine outcasts dwell with thee, Moab: be thou a covert to them from the face of the spoiler." After the death of Wilson, the pastor in Boston, in 1667, he was called and removed there to succeed him.

DAVEZAC. See Avezac.

DAVID, the 2d king of Israel, was the youngest of the 7 sons of Jesse of Bethlehem in Judah, and was still tending the flocks of his father when he was chosen by the prophet Samuel as the future king of his nation. He was even then remarkable for beauty, valor, and skill as a player on musical instruments. Having been brought to the court of Saul to soothe the melancholy of the king by his harp, and distinguished himself by challenging and slaying the Philistine giant Goliath, he won the friendship of Saul's son Jonathan, and the love of his daughter Michal, as well as the admiration of the people; but he at the same time drew upon himself the jealousy, and finally the fury of the unhappy king, who repeatedly attempted to kill him, though he gave him his daughter in marriage. Saved by the devotion of his wife and her brother, and protected by the favor of Samuel and the priests, David escaped to Philistia, and afterward collected a band of outlaws and malcontents in the southern part of Judah, at whose head he baffled every attempt of Saul to capture him, and even twice found opportunities of taking revenge on his pursuer, but on each occasion dismissed him without injury. Living mostly on booty from the hostile neighbors of the Hebrews, he continued a roving life till the death of Saul and Jonathan in the battle of Mount Gilboa (1055 B. C.), when he was acknowledged as king by his native tribe, and

made Hebron his residence, while Abner, the general of Saul, proclaimed Ishbosheth, the son of the latter, as the legal successor to the throne. The rivalry of the 2 houses lasted for 7 years, and ended, after the assassination of Abner by Joab, the general of David, with that of Ishbosheth by 2 obscure persons. David, now king of the whole nation, conquered the citadel of Zion from the Jebusites, made Jerusalem his capital and the seat of the national worship, which he organized with the aid of priests, prophets, poets, and musicians, entered into friendly relations with Phœnicia, and defeated the Philistines, the Moabites, the Syrians, the Edomites, and the Ammonites, thus making the limits of his country to extend from the Euphrates to the Mediterranean, and from Damascus to the Arabian gulf. The military power of the state attained its highest pitch during his reign, and a corresponding development of prosperity, culture, and literature was at least prepared. But the prophet Nathan prohibited him from building the temple, which he intended, because of the blood he had shed in war. The later years of his life were embittered by the consequences of polygamic disorder in his house, and the passions and ambition of some of his sons, by revolts, conspiracies, and a dreadful pestilence. His son Absalom, having taken a bloody revenge on his half brother Amnon for the rape of his sister Tamar, and lived for some years in exile, was reconciled with his father, but afterward conspired against him and brought about an almost general insurrection, which, but for his own blunders and the devotion and courage of a part of the army, would have proved fatal to David. Absalom fell by the hands of Joab; Sheba, a Benjamite, who immediately after him raised the standard of rebellion, was subdued by Amasa, the successor to Joab in command; a conspiracy of Adonijah, another of David's sons, was baffled by the speedy proclamation of Solomon, son of Bath-sheba, as heir and king. Shortly afterward the aged monarch died (1015). His graceful elegy on Saul and Jonathan is one of the most admirable of his poems, but it is principally the "Psalms," that have immortalized his name. (See Psalms.)

DAVID, Félicien, a French composer, born at Cadenet, in Vaucluse, March 8, 1810. His earliest instruction in music was acquired at Aix, where he sang in the choir of the cathedral, and whence at the age of 20 he went to Paris, and entered the conservatory. Soon after he joined the St. Simonians, for whom he composed the music of the choruses sung at their establishment at Ménilmontant, and with some of whom, on the dissolution of the sect, he travelled in Egypt and the East. The fruits of his travels were seen in the *Désert*, a choral symphony, published in 1844, several years after his return to Paris. On this piece, which aims at giving impressions of the physical aspects of the East, and which abounds in melodic and harmonic beauties, his reputation mainly rests. He has written a number of operas, of which the *Perle du Brésil*, produced in 1851, has proved the most successful, and has recently finished a 5 act opera, entitled *La fin du monde*.

DAVID. I. Jacques Louis, a French painter, born in Paris, Aug. 31, 1748, died in Brussels, Dec. 29, 1825. His taste for painting was fostered by his uncle Buron, the architect, and further developed in the studio of the historical painter Vien, the same who subsequently presided over the French academy at Rome. David, having succeeded in 1775 in obtaining the great prize for one of his paintings, followed his master to Rome, and there imbibed that love for classical art which afterward caused him to be hailed in France as the great reformer who had wrought the same change in painting which Corneille had introduced into the drama. His first important work, the "Plague of St. Roch," was executed by him at Rome for the lazaretto of Marseilles. This was followed, after his return to Paris in 1780, by "Belisarius" and "Andromache lamenting the Death of Hector." In 1784 he returned to Rome, and there finished his great picture of the "Horatii," which was greeted with enthusiasm in Italy and France. In 1787 he produced the "Death of Socrates;" in 1788, the "Loves of Paris and Helen;" and in 1789, his famous "Brutus," which had been ordered by Louis XVI. as a pendant to the "Horatii." In 1793 we find him in the convention as one of the representatives of the city of Paris, and voting for the death of the same monarch who had previously been his patron. But although actively engaged in politics, he was far from neglecting his art, and beside the "Oath of the Tennis Court," and the "Entry of Louis XVI. into the Assembly," executed in 1790 for the constituent assembly, he found in the tragical incidents of the reign of terror abundant elements for the exercise of his genius, as evidenced by his pictures of the assassination of Le Pelletier and of Marat. At the same time he became the great oracle on all public occasions in reference to the arrangement of festivals and the costumes of civil and military officers—a task peculiarly congenial to him, and at the same time enhancing his popularity with the people of Paris, who delighted in mimicking the manners of the republicans of antiquity. The same Grecian and Roman predilection which he brought to bear upon his paintings swayed his mind in these arrangements, and also appeared in his occasional political speeches. After the downfall of his favorite hero Robespierre, he was put in prison, released after 4 months, through the intercession of his pupils, but soon after rearrested and detained until the promulgation of the amnesty of Oct. 24, 1795. While in prison, he commenced his celebrated picture of the "Sabines," which he finished in 1799. He was engaged upon a picture of Leonidas at Thermopylæ, when his services were put in requisition by Napoleon, for whom he executed a series of works during the consulate and empire, of which the "Coronation" and the "Dis-

tribution of Eagles" pleased the emperor best; while the picture in which Bonaparte is represented upon an impetuous horse, on Mount St. Bernard, pointing out to his soldiers the path to glory, which is now in the Berlin museum, was the most popular. Expelled from France soon after Napoleon's downfall, he betook himself to Brussels, but not without having before his departure from Paris given another proof of his patriotism by refusing to execute the portrait of the duke of Wellington. In his exile at Brussels he produced "Cupid and Psyche," the "Farewell of Telemachus and Eucharis," the "Wrath of Achilles," and "Mars disarmed by Venus," which were exhibited all over Belgium for charitable purposes; while a copy of his "Coronation of Napoleon," also executed by him at Brussels, made a successful tour through Great Britain and the United States. In his later pictures we find the classical rigidity of his previous works softened to some extent by a greater infusion of sentiment. He excelled also in portrait painting, his heads of Marat and Pius VII. constituting his most remarkable achievements in this branch of art. Girodet, Gros, Gérard, Drouais, Ingres, Isabey, David d'Angers, and many others who have become eminent artists, were among his pupils, and became the disciples of the new school which he inaugurated. His body was buried at St. Gudule, in Brussels, and his heart in Père la Chaise, where his family have erected a monument to his memory. II. Pierre Jean, a French sculptor, commonly called David d'Angers, after the town of Angers, where he was born, March 12, 1789, died in Paris, Jan. 4, 1856. He was not a relative of the famous painter of his name, although he was his pupil and married his niece. When only 20 years old he obtained a medal of encouragement from the academy of fine arts, and in 1811 his bass-relief of Epaminondas, which is in the museum of his native town, gained the first prize for sculpture, and along with it a pension to finish his education in Italy, his struggles with poverty having previously been relieved by an annual allowance of $50 from his townsmen of Angers, and by his celebrated namesake, who gave him gratuitous instruction. He passed 5 years at Rome; then visited London, where, although in indigence, he rejected an advantageous offer to execute a monument commemorative of Waterloo; and on his return to Paris established his reputation by his statue of Condé, which is at Versailles, and by one in marble of King René of Anjou, for the town of Aix. He was elected a member of the academy of fine arts, Aug. 5, 1826, and appointed professor, Dec. 6, 1826. In 1828 he went to Weimar, where he modelled a bust of Goethe in marble, and presented it to that town; he also executed it in bronze for the city of Munich. In 1834 he revisited Germany, executing at the latter city a bust of Schelling, at Dresden one of Tieck, and at Berlin one of Rauch and one of Humboldt. From 1835 to 1837 he was employed upon his sculptures of the Pantheon, now the church of St. Geneviève, at Paris, which constituted the great work of his life. His other productions embrace bass-reliefs for the palace of Fontainebleau; "Christ," the "Virgin," and "St. John," for the cathedral of Angers; "St. Cecilia singing the Praise of God," for the church of St. Maurice of Angers; "A Shepherd Beholding Himself in the Water," for the museum of the same place; the "Battle of Fleurus," and the "Battle of Heliopolis," for the triumphal arch at Marseilles, beside a great number of kindred works of art. He also executed medals, busts, and statues of celebrities of all countries, including Washington and Lafayette, in the house of representatives at Washington; Jefferson and Fenimore Cooper, in New York; Berzelius in Copenhagen; Bentham in England; Lady Sydney Morgan in Ireland; Gutenberg at Strasbourg; Corneille at Rouen; Racine at La Ferté-Milon; Cuvier at Montbéliard, and at the *jardin des plantes* in Paris; Talma, Mlle. Mars, and Joseph Chénier, at the *théâtre Français* in Paris; Henry II. at Boulogne; Francis I., Louis XVI., Bernardin de St. Pierre, and Casimir Delavigne, at Havre; Fénelon at Cambray; Châteaubriand, Lamartine, Walter Scott, Canning, Victor Hugo, Béranger, Hahnemann, Arago, Lamennais, Madame de Staël, André Chénier, Rossini, Paganini, in Paris; Börne, General Foy, St. Cyr, Suchet, Gobert, and many other monuments, at Père la Chaise. The mausoleum of Marco Bozzaris at Missolonghi, presented by him as a token of his sympathy with the Grecian struggles for national independence, is one of his best productions. His last work, the statue of Dr. Bichat, was placed in the great court of the medical school of Paris on July 16, 1857. In politics he was an ardent republican. He was a representative of the people of his native department of Maine-et-Loire in the constituent assembly of 1848, invariably voting and exerting his influence and pen in favor of the republican party. After the *coup d'état* of Dec. 2, 1851, his name, which was endeared to the people and in the same proportion obnoxious to Louis Napoleon, appeared in one of the earliest lists of the proscribed. He took refuge at Brussels, and was not permitted to return to France until after nearly 3 years of exile, during which time he visited Greece. David excelled more by his immense capacity for labor than by originality and greatness of genius, many of his productions aiming rather at effect than at fidelity to nature. The universal regard in which his name is held by the best minds of France was evident at his funeral at Père la Chaise on Jan. 8, 1856, when an extraordinary crowd of eminent men attended, headed by the veteran poet Béranger, while Cavaignac was one of the pall bearers, both of whom have since followed him to the grave.

DAVIDSON. I. A W. central co. of N. C.; area, 630 sq. m.; pop. in 1850, 15,320, of whom 2,992 were slaves. The Yadkin river washes its western border, and several smaller streams

intersect it. The surface is diversified by hills and valleys, and nearly all of the land is fertile. Gold has been found in the southern part of the county. The productions in 1850 were 82,424 bushels of wheat, 507,961 of corn, 174,085 of oats, and 932½ bales of cotton. There were 5 saw mills, 4 tanneries, and 41 churches. Formed from Rowan county in 1822, and named in honor of Gen. William Davidson. II. A N. central co. of Tenn., divided into 2 nearly equal parts by the Cumberland river; area, 750 sq. m.; pop. in 1850, 38,881, of whom 14,175 were slaves. The surface is slightly uneven; the soil is good and well watered, and agriculture is in a forward state. The limestone found here is of excellent quality. In 1850 the productions were 1,598,463 bushels of corn, 162,315 of oats, 108,351 of sweet potatoes, 261,304 lbs. of butter, 38,322 of wool, and 1,277 bales of cotton. There were 61 churches, and 1,493 pupils attending public and other schools. The Cumberland river in this part of its course is navigable for steamboats, and 8 good turnpike roads, leading to different parts of the state, meet in this county. Nashville, the capital of the state, is the seat of justice.

DAVIDSON COLLEGE, a post village of Mecklenburg co., N. C., and the seat of Davidson college, an institution founded in 1840, and having about 100 students, and a library of 5,000 or 6,000 volumes.

DAVIDSON, Lucretia Maria, an American poetess, born at Plattsburg, N. Y., Sept. 27, 1808, died Aug. 27, 1825. She wrote verses at 4 years of age, having taught herself in secrecy to copy the letters from printed books. The earliest of her productions which are preserved were written when she was 9 years old. When she was 16 she was placed, through the care of a friend, at a young lady's school in Troy, where her application soon undermined her health. She was still allowed to continue her studies, even when weakened by medical treatment, and even to increase her labor to prepare for a public examination, the result of which was a hectic consumption from which she died. Although a great part of her compositions were destroyed, 278 pieces remain, some of which were published in 1829, with a memoir by Mr. S. F. B. Morse, afterward republished with a life by Miss Sedgwick. The volume produced a remarkable sensation, and was noticed by Southey in the "Quarterly Review" with the observation: "In our own language, except in the cases of Chatterton and Kirke White, we can call to mind no instance of so early, so ardent, and so fatal a pursuit of intellectual advancement."—Her sister, Margaret Miller, born March 26, 1823, died Nov. 25, 1837, had the same sensibility and precocity, and began to write at 6 years of age. At 10 she wrote and acted in a passionate drama in society at New York; and notwithstanding the warning of her sister's fate, her intellectual activity seems to have been tolerated rather than restrained. But both of them possessed such influence, through characters of almost angelic loveliness, as to make it impossible to deny them the pleasure which they enjoyed and conferred by their compositions. Margaret's poems were introduced to the world under the auspices of Washington Irving, and the works of both sisters were published together in 1850.

DAVIDSON, William, an American general in the war of the revolution, born in Lancaster co., Penn., in 1746, fell in the battle of Cowan's ford, N. C., Feb. 1, 1781. His parents removed to Rowan co., N. C., when he was 4 years old, and he was educated at the Queen's museum, afterward styled Liberty Hall academy, at Charlotte. He took up arms at the outbreak of the revolution, was major of one of the first regiments raised in Carolina, was appointed brigadier after the battle of Camden, and in 1781 was despatched by Greene to prevent Cornwallis from passing the Catawba at Cowan's ford. With his death in the battle which ensued, and with the dispersion of his troops, began the pursuit of Greene by Cornwallis.

DAVIE, a W. central co. of N. C.; area, about 250 sq. m.; pop. in 1850, 7,866, of whom 2,171 were slaves. It has a rough, hilly surface. Yadkin river and Hunting creek are the principal streams. In 1850 the productions were 29,076 bushels of wheat, 301,010 of corn, and 79,029 of oats. The county was organized in 1836, and named in honor of Gen. William R. Davie. Capital, Mocksville.

DAVIE, William Richardson, an American revolutionary officer, born in England, June 21, 1756, died at Camden, S. C., Nov. 8, 1820. He was brought to North Carolina when he was 6 years old, and was graduated at Princeton, N. J., in 1776. He returned to North Carolina, and began to study the law, but soon entered the revolutionary army, and obtained a captaincy in Pulaski's legion. At the time of Gates's defeat he expended the last shilling of an estate bequeathed him by his uncle, William Richardson, in equipping the company which he commanded. He rose to be colonel and commissary, served throughout the war, and was a favorite officer under Sumter and Greene. At the peace he returned to his profession, and was a member of the convention to form the U. S. constitution in 1787, and advocated its acceptance in the convention of North Carolina. Through his influence the university of North Carolina was established. He was elected governor of that state in 1799, and soon after appointed by President Adams envoy to France, being joined with Chief Justice Ellsworth and Mr. Murray. After his return he lived in South Carolina.

DAVIES, Charles, LL.D., an American mathematician, born at Washington, Litchfield co., Conn., Jan. 22, 1798. While yet a lad he emigrated with his father to St. Lawrence co., N. Y., and settled on the shores of Black lake, then little else than a wilderness. Here he pursued the usual occupations of a farmer till he was sent to the military academy at West Point, which he entered as a cadet in 1814. From that in-

stitution he was graduated with the rank of lieutenant in the light artillery. After a brief but active service with his regiment, he was transferred to the corps of engineers, and assigned to duty at the academy to assist as teacher in a course of instruction through which he had but recently passed as a pupil. In 1816 he relinquished the line of army promotion for that of the academy, and after filling in succession the offices of assistant professor of mathematics and natural philosophy, succeeded to the charge of the mathematical department, and was commissioned professor in 1823. In addition to the arduous duties incident to his new position, he undertook the preparation of a series of text books upon his favorite study. In this he sought to give to his pupils, by a connected course of mathematical training, the free and ready use of their mental powers, rather than a collection of detached propositions, which, however valuable as elements of knowledge, are too often wanting in logical connection as a means of education. While engaged in the execution of this project, his health gave way. A bronchial affection suspended for a while his labors, forced him to resign his post at West Point, and in 1837 to visit Europe. The change had, as was supposed, the desired effect, and soon after his return he accepted the professorship of mathematics in Trinity college, Hartford, Conn., and resumed his labors as teacher and author. But the disease of the throat again threatened, and he relinquished this position for that of paymaster in the army, and treasurer of West Point academy. These posts he resigned in 1845, and, believing his health firmly restored, resumed his favorite occupation of the lecture room and the desk in the university of New York, where he took the direction of the departments of mathematics and natural philosophy. Shortly afterward he retired to the country to seek in rural pursuits the health and repose essential to the realization of his educational plans, and at his residence near Fishkill Landing, on the Hudson, completed his series of text books. Not long after he resumed his professional duties, first in the normal school at Albany, and afterward in Columbia college, of which latter institution he now directs the mathematical studies. His works, which are numerous, are characterized by great perspicuity and clear logical arrangement, and, considered as a series, present a natural order of sequence which makes them a valuable contribution to the educational resources of the country. They consist of a "Primary Arithmetic and Table Book;" "First Lessons in Arithmetic;" "Intellectual Arithmetic;" "New School Arithmetic," with key; "University Arithmetic," with key; "Grammar of Arithmetic;" "Elementary Algebra," with key; "Elementary Geometry and Trigonometry;" "Practical Mathematics;" "University Algebra," with key; "Bourdon's Algebra," with key; "Legendre's Geometry;" "Elements of Surveying;" "Analytical Geometry;" "Differential and Integral Calculus;" "Descriptive Geometry;" "Shades, Shadows, and Perspective;" "Logic of Mathematics;" and a "Mathematical Dictionary."

DAVIES, Sir John, an English poet, born in Tisbury, Wiltshire, in 1570, died in 1626. He studied at Oxford and at the Middle Temple, from which he was expelled for his unruly temper, and during his exclusion wrote most of his poems. In the reign of James I. he was attorney-general and speaker of the commons in Ireland; sat in the English parliament, and at the time of his death had just been made lord chief justice. His principal work was a didactic poem entitled *Nosce Teipsum*, or the "Soul of Man, and the Immortality thereof" (London, 1599), which, though showing no passion and little fancy, is remarkable for its condensation of thought and felicitous precision of style.

DAVIES, Samuel, D.D., an American divine, president of the college of New Jersey, born in New Castle co., Del., Nov. 3, 1724, died at Princeton, N. J., Feb. 4, 1761. He received a careful religious education at home, studied the classics, sciences, and also theology, at Mr. Blair's school at Fogg's Manor, and was licensed to preach in 1746. Ordained in the next year, he was at his request appointed to officiate at different places of worship in Hanover co., Va., where, the Episcopal church being then the established church of Virginia, dissenters were obnoxious to the civil authorities. His labors were highly successful, and led to a controversy between him and the king's attorney-general as to whether the act of toleration which had been passed in England for the relief of Protestant dissenters extended also to Virginia. The ultimate decision of the question was in the affirmative. In 1753 Mr. Davies was sent with Gilbert Tennent to England to solicit funds for the college of New Jersey, was received with favor as a preacher in England and Scotland, and was successful in the object of his mission. He resumed his pastoral labors on his return, amid the excitement of the French and Indian war, and after the defeat of Braddock preached a sermon, which was published, in a note to which occurs the passage: "... . that heroic youth, Col. Washington, whom I cannot but hope Providence has hitherto preserved in so signal a manner for some important service to his country." The first presbytery in Virginia was established through his exertions in 1755; and in 1758 he was chosen to succeed Jonathan Edwards as president of the college of New Jersey. This appointment he declined, but it was renewed the next year, when in accordance with the judgment of the synod he accepted it. A collection of his sermons was published after his death, in 3 vols., and passed through several editions in Great Britain and in America.

DAVIESS, the name of 3 counties in the United States. I. A N. W. co. of Ky., bordering on Ind.; area, about 400 sq. m.; pop. in 1850, 12,361, of whom 2,889 were slaves. The Ohio river bounds it on the N., and Green river,

a navigable stream, touches it on the W. The surface is level and the soil generally good. Coal has been found in large quantities. The productions in 1850 were 739,860 bushels of corn, 21,953 of wheat, 81,301 of oats, 3,426,633 lbs. of tobacco, 20,319 of wool, and 14,217 of flax. The county was organized in 1815, and since 1850 has been divided to form McLean county. Named in honor of Col. Joseph H. Daviess, who fell at the battle of Tippecanoe. Capital, Owenborough. II. A S. W. co. of Ind., area 423 sq. m., between the E. and W. forks of White river, which unite at its S. W. angle; pop. in 1850, 10,352. The greater part of the land is level or rolling, and fertile. There are large beds of bituminous coal in the county. In 1850 the productions were 643,685 bushels of corn, 30,200 of wheat, 59,944 of oats, and 3,938 tons of hay. There were 17 churches, and 1,124 pupils attending public schools. Organized in 1817. Capital, Washington. III. A N. W. co. of Mo., intersected by Grand river; area, 576 sq. m.; pop. in 1856, 7,970, of whom 401 were slaves. The surface is moderately uneven and most of the soil fertile. Cattle and swine are raised in considerable numbers. In 1850 the county produced 212,536 bushels of corn, 19,168 of wheat, 45,936 of oats, and 742 tons of hay. It contained 2 churches, and there were 300 pupils in the public schools. Capital, Gallatin.

DAVILA, Enrico Cattarino, an Italian historian, born near Padua, Oct. 30, 1576, murdered near Verona in July, 1631. He is the author of the celebrated "History of the French Civil Wars during the Reigns of Francis II., Charles IX., Henry III., and Henry IV." This work is perspicuous and trustworthy, and has been accepted as a standard authority and translated into several languages. Protestant writers have objected to the favorable view taken in this work of Catharine de' Medici. In this opinion Catholics either do not agree, or find excuse in the circumstance that Queen Catharine was the patron of his family and himself. The work is divided into 15 books, containing a record of the events from the death of Henry II. in 1559, till the peace of Vervins, 1598. Davila was the youngest son of Antonio Davila, whose ancestors, for 100 years, had been constables of Cyprus, from which position the elder Davila was driven impoverished, when the island was taken by the Turks. Having sought refuge at the court of France, Catharine de' Medici, as well as her husband King Henry II., took him into favor. He thereon sent for his young son Arrigo, whom he named Enrico Cattarino, in honor of the king and queen, and devoted him to their service. The boy commenced life as the king's page; at 18 entered the army, and distinguished himself at the sieges of Honfleurs and Amiens. Having retired from the French service and returned to Italy, he devoted himself to study, and became a member of the society of the Innominati. A duel with a poet who lampooned him, and whom he run through the body, caused him to flee to Venice. That republic was then raising troops for one of its frequent wars. Davila offered to enlist 300 men, which he did, and with them joined several expeditions; continuing to rise in the service, until he held commands successively in Friuli, Candia, Dalmatia, and elsewhere. The dedicatory epistle of his history is dated from Brescia, where he was governor. For these services he received a pension, as well as restoration to his hereditary rank of constable of Cyprus. The circumstances of his death were curious. Being appointed governor of Crema, he stopped with his family and attendants at the hamlet of S. Michele, near Verona, to demand a relay of horses. This was refused by the postmaster, who, on being reproved for his insulting conduct, shot Davila dead with an arquebuse. His companions then fell upon the party, killed the chaplain, and wounded several others. Davila's son, Antonio, killed the postmaster on the spot, and his accomplices were all hanged. Lord Bolingbroke calls Davila's history a noble writing, in many respects equal to that of Livy. It was first published by Baglioni, the printer (Venice, 1630). The best editions are those issued from the royal press (Paris, folio, 1644), and by Apostolo Zeno in 2 vols. folio (Venice, 1733), the latter with a biography of Davila.

DAVIS. I. A S. E. co. of Iowa, bordering on Mo.; area, about 480 sq. m.; pop. in 1856, 11,528. Fox river flows through it, and it is drained by the sources of Wyaconda and Fabius rivers. It has an undulating surface and a rich soil, but timber is scarce. In 1856 the productions were 1,056,735 bushels of Indian corn, 95,212 of wheat, 273,226 of oats, 28,236 of potatoes, 13,738 lbs. of butter, and 3,215 tons of hay. The county was named in honor of Garrett Davis, former member of congress from Kentucky. Capital, Bloomfield. II. A N. co. of Utah; area, more than 1,000 sq. m.; pop. in 1850, 1,134. It lies on the E. shore of Great Salt Lake, and is traversed by the Wahsatch mountains. Productions in 1850, 17,675 bushels of wheat and 16,033 lbs. of butter. Capital, Farmington.

DAVIS, Andrew Jackson, an American clairvoyant, born at Blooming Grove, Orange co., N. Y., Aug. 11, 1826. While yet very young, he was taken into the employment of a neighboring farmer, and up to his 12th year spent most of his time in leading cattle to and from the pasture, and watching them in the fields. In Sept. 1838, he removed, with his father's family, to Poughkeepsie, where, up to the year 1843, he was employed mostly as a shoemaker's apprentice. Early in 1843, Mr. William Levingston of Poughkeepsie succeeded, by mesmeric passes, in throwing him into a state of magnetic somnambulism, and developing in him surprising phenomena of clairvoyance. Owing to the extreme poverty of his parents, he had been left in a state of almost entire ignorance, the whole term of his school tuition not exceeding some 5 or 6 months; and

in his normal state he displayed no great degree of natural talent. The magnetic passes, however (as is asserted by the numerous persons who were intimate with him at this time), seemed to transform him into a totally different being, and enabled him to discourse on medical, psychological, and general scientific subjects, employing their technical terms and phrases with the facility of a learned professor. Soon after this, he associated himself with Mr. Levingston, his magnetizer, and commenced the treatment of the diseased, giving diagnoses and prescriptions while in the magnetic trance. In this he was regarded as eminently successful, and by the mental phenomena which he exhibited while in this state, many were attracted to him as to an oracle of superior wisdom. On March 7, 1844, without the assistance of the mesmeric passes, he fell, into a singular trance, during which, while mysteriously hiding himself from his friends for 16 hours, he held converse, as he asserts, with invisible beings, and received intimations and instructions concerning the position he was subsequently to occupy as a teacher from the interior state. In the summer of 1845 he left his first magnetizer, Mr. Levingston, and associated himself with Dr. S. S. Lyon, then of Bridgeport, Conn., but who soon, by direction received from him while in the trance, removed with him to New York. There, in Nov. following, he induced the Rev. William Fishbough (then of New Haven) to join him as an amanuensis, and commenced the dictation, in the clairvoyant trance, of his first and most considerable work, entitled "The Principles of Nature, her Divine Revelations, and a Voice to Mankind." The matter composing this octavo of nearly 800 pages was dictated in 157 essays. These, as declared by the amanuensis and numerous witnesses, were written word for word as they were enunciated, and subsequently printed in strict fidelity to the ideas and technical terms, the very phraseology being preserved as far as possible, though much grammatical revision was found to be necessary. The book embraces a wide range of subjects, ontological, cosmical, theological, spiritual, and social, which are presented in the aspect of a unitary system, the pervading *animus* of which is a kind of attenuated and semi-spiritual naturalism, which ignores and repudiates any special divinity or sacredness attaching to the teachings of the Bible. After the completion of this book, Mr. Davis ceased to submit himself to magnetic manipulations, but has written several other works, while more or less illuminated, as he claims, by the influence of invisible spirits. These works are severally entitled the "Great Harmonia," 4 vols.; the "Approaching Crisis," the "Penetralia," the "Present Age" and "Inner Life," the "Magic Staff" (his autobiography); beside which he has published a few minor productions. The philosophical and theological portions of these works are regarded by Mr. Davis's friends as little more than repetition of his first work, interspersed with startling asseverations concerning things in heaven and earth that admit of no direct verification. As a writer, Mr. Davis has been more successful than as a public lecturer, though in this latter capacity he has had some influence; and to his general instrumentality that modern movement known as "spiritualism" partly owes its inauguration.

DAVIS, Charles Henry, an American mathematician, born in Boston, Mass., Jan. 16, 1807, the son of the late Hon. Daniel Davis, for many years the solicitor-general for Massachusetts. He entered the U. S. navy in 1823, and received in 1854 the commission of commander, which he now holds. From 1844 to 1849 he was an assistant in the U. S. coast survey, under the superintendence of Prof. A. D. Bache. In the years 1846–'49, he was engaged in a careful survey of the waters about Nantucket, in the course of which he discovered the "new south shoal," and several smaller shoals, directly in the track of ships sailing between New York and Europe, and of coasting vessels from Boston. These important discoveries were thought to account for several wrecks and accidents before unexplained, and they called forth the special acknowledgments of insurance companies and merchants. When Commander Davis left the survey, for the purpose of taking charge of the "American Ephemeris and Nautical Almanac," Prof. Bache addressed a letter to the secretary of the treasury, lamenting his loss and complimenting him in very high terms ("Coast Survey Report," 1849, p. 72). During and since his connection with the coast survey, Commander Davis has been appointed on several commissions to examine the state of the harbors of Boston, New York, Charleston, &c. These investigations led him to the study of the laws of tidal action. See his important "Memoir upon the Geological Action of the Tidal and other Currents of the Ocean" ("Memoirs of the American Academy," new series, vol. iv.), and the "Law of Deposit of the Flood Tide" ("Smithsonian Contributions," vol. iii., art. 6). The "American Nautical Almanac" owes its foundation directly to Commander Davis's patriotic efforts, which were begun and sustained in spite of a very general scepticism with regard to its success. He was appointed the first superintendent of the work in 1849, and the organization devised for it by him at the very beginning is the same, in every important particular, as that under which it still continues to be executed. He continued at the head of this establishment till the autumn of 1856, when he was ordered to naval service in the Pacific, as commander of the sloop of war St. Mary's, and from this post he has not yet (Jan. 1859) returned. Commander Davis is the author of an English translation of Gauss's *Theoria Motus Corporum Cœlestium* (Boston, 1858), and of some shorter translations and articles in the departments of mathematical astronomy and geodesy.

DAVIS, Edwin Hamilton, an American physician and archæologist, born in Ross co.,

Ohio, Jan. 22, 1811. He was educated in the Scioto valley, so renowned for the number and magnitude of its ancient earthworks. Residing in the same county, and cognizant of the labors of Atwater and other pioneer explorers in this department of science, his attention was directed at a very early age to the subject of American antiquities. From 1829 to 1833, while a student of Kenyon college, he conducted a series of explorations in the mounds of that vicinity, an account of which was given in a paper read before the philomathesian society, afterward (by request of the professors) enlarged, and delivered as a literary performance at the commencement of 1833. In 1833 he had several interviews with the late Daniel Webster, then making a tour of the West. This great statesman, who was deeply interested in western antiquities, was pained to witness their rapid disappearance, and suggested the formation of a society to purchase and preserve some of the most remarkable works of the mound-builders. The opinion of such a man was well calculated to stimulate the youthful mind of Dr. Davis to continue these researches. For 15 years he diligently studied the subject, and the results of his researches are embodied in the "Monuments of the Mississippi Valley," which forms vol. i. of the "Smithsonian Contributions to Knowledge." Dr. Davis received his medical degree at Cincinnati in 1837, after which he settled and practised his profession in Chillicothe until 1850, when, on the establishment of the New York medical college, he was called to fill the chair of materia medica and therapeutics, which he still holds. He has been an occasional contributor to some of the scientific and medical journals, beside being for a time one of the conductors of the "American Medical Monthly." During the spring of 1854 he delivered a course of lectures on archæology before the Lowell institute in Boston.

DAVIS, Henry, an American divine and scholar, born at East Hampton, N. Y., Sept. 15, 1770, died at Clinton, March 7, 1852. He was graduated at Yale college in 1796, then became tutor successively at Williams and at Yale colleges, and in 1806 professor of Greek at Union college. In 1809 he was chosen to the presidency of Middlebury college, Vt., and in 1817 accepted that of Hamilton college, N. Y., having in the year preceding declined the same situation at Yale college, offered him on the death of President Dwight. He continued at the head of Hamilton college until 1833, and was meanwhile active in the establishment of the theological seminary at Auburn, and the American board of commissioners for foreign missions. He possessed considerable merit as an orator, and was the author of various occasional sermons. In 1829 and 1830 no students were graduated at the college because of a long and bitter dispute between the president and trustees upon a case of discipline. After his resignation in 1833 he published a "Narrative of the Embarrassments and Decline of Hamilton College."

DAVIS, Jefferson, an American soldier and statesman, born June 3, 1808, in that part of Christian co., Ky., which now forms Todd co. Soon after his birth his father, Samuel Davis, a planter, who served during the revolutionary war in the mounted force of Georgia, removed with his family to Mississippi, and settled near Woodville, Wilkinson co. Young Davis received an academical education, and was sent at the usual age to Transylvania college, Ky., which he left in 1824 to enter the U. S. military academy at West Point, where he was graduated in 1828, and was appointed brevet 2d lieutenant. He remained in the army 7 years, and served as an infantry and staff officer on the N. W. frontier in the Black Hawk war of 1831–'32, with such distinction that, March 4, 1833, he was promoted to a 1st lieutenancy of dragoons, in which capacity he was employed in 1834 in various expeditions against the Comanches, Pawnees, and other hostile Indian tribes. He resigned his commission, June 30, 1835, returned to Mississippi, and became a cotton planter, living in retirement till 1843, when he began to take an active part in politics on the democratic side, and in 1844 was chosen one of the presidential electors of Mississippi to vote for Polk and Dallas. In Nov. 1845, he was elected a representative in congress, and took his seat in December of that year. He bore a conspicuous part in the discussions of the session on the tariff, on the Oregon question, on military affairs, and particularly on the preparations for war against Mexico and on the organization of volunteer militia when called into the service of the United States. While in congress, in July, 1846, the 1st regiment of Mississippi volunteers, then enrolled for service in Mexico, elected him their colonel. He promptly left his seat in the house, and overtaking his regiment at New Orleans on its way to the seat of war, led it to reënforce the army of Gen. Taylor on the Rio Grande. He was actively engaged in the attack and storming of Monterey, Sept. 1846; was one of the commissioners for arranging the terms of the capitulation of that city; and highly distinguished himself in the battle of Buena Vista, Feb. 23, 1847, where his regiment, attacked by an immensely superior force, maintained their ground for a long time unsupported, while Col. Davis himself, though severely wounded, remained in the saddle until the close of the action, and was complimented for his coolness and gallantry by the commander-in-chief in his despatch of March 6, 1847. At the expiration of the term of its enlistment, in July, 1847, the Mississippi regiment was ordered home; and Col. Davis while on his return received at New Orleans a commission from President Polk as brigadier-general of volunteers, which he declined accepting on the ground that the constitution reserves to the states respectively the appointment of the officers of the militia, and that consequently their appointment by the federal executive is a violation of the rights of the states. In Aug. 1847, he was appointed by the

governor of Mississippi U. S. senator to fill a vacancy, and at the ensuing session of the state legislature, Jan. 11, 1848, was unanimously elected to the same office for the residue of the term, which expired March 4, 1851. In 1850 he was reëlected for the ensuing full term. In the senate he was chosen chairman of the committee on military affairs, and took a prominent part in the debates on the slavery question, in defence of the institutions and policy of the slave states, and was a zealous advocate of the doctrine of state rights. In Sept. 1851, he was nominated candidate for governor of Mississippi by the democratic party, in opposition to Henry S. Foote, the candidate of the union party. He resigned his seat in the senate on accepting the nomination, and was beaten in the election by a majority of 999 votes; a marked indication of his personal popularity in his own state, for at the "convention election" 2 months before, the union party had a majority of 7,500. After his defeat Col. Davis remained in retirement until the presidential contest of 1852, when he took the stump in behalf of Gen. Pierce in Mississippi, Tennessee, and Louisiana, where he rendered essential service to the democratic party. In 1853 he was appointed by President Pierce secretary of war, which post he held till the accession of President Buchanan in 1857. His administration of the war department was marked by ability and energy, and was highly popular with the army. He proposed or carried into effect, among other measures, the revision of the army regulations; the introduction of camels into America; the introduction of the light infantry or rifle system of tactics; the manufacture of rifled muskets and pistols and the use of the Minié ball; the addition of 4 regiments to the army; the augmentation of the seacoast and frontier defences of the country; and the system of explorations in the western part of the continent for geographical purposes, and for the determination of the best route for a railroad to the Pacific ocean. Having been previously reelected, on his retirement from the war department Col. Davis reëntered the senate for the term ending March 4, 1863. In the sessions of the 35th congress he has been conspicuous in the discussions on the French spoliation bill, which he opposed, and on the Pacific railroad for the southern route, of which he is a zealous and most influential advocate.

DAVIS, John, an English navigator, born at Sandridge, in Devonshire, died in 1605. He was early inured to a sea-faring life, and distinguished himself by 3 voyages between 1585 and 1587 for the discovery of the north-west passage. He discovered in 1585 the strait which bears his name, and in the following year navigated along the coast of Greenland as far northward as lat. 72°. In 1591 he went as second in command with Cavendish in his unfortunate voyage to the South sea. He afterward made 5 voyages to the East Indies, and was killed in the strait of Malacca by Japanese pirates. He invented a quadrant which was in use for taking the sun's altitude at sea till it was superseded by Hadley's sextant, and published accounts of two of his voyages, and curious works entitled the "World's Hydrographical Description" (1595), and the "Seaman's Secrets" (1595).

DAVIS, John, LL.D., an American jurist, born at Plymouth, Mass., Jan. 25, 1761, died in Boston, Jan. 14, 1847. He was graduated at Harvard college in 1781 with reputation, especially as a poet and mathematician; engaged for a time as teacher in the family of Gen. Joseph Otis of Barnstable, a brother of the revolutionary orator; completed his legal studies in Boston, and began the practice of law in Plymouth in 1786. His first public office was as delegate to the state convention on the question of adopting the federal constitution. He was the youngest of the members of that convention, and lived to be the last survivor. For several years he was representative in the state legislature, was elected senator from Plymouth county in 1795, and in that year was appointed by Washington comptroller of the treasury of the United States. Resigning this office after one year, he soon received the appointment of United States attorney for the district of Massachusetts, and removed to Boston. In 1801 President Adams appointed him judge of the district court, and he fulfilled the duties of this office for more than 40 years. Judge Story thus bears witness to his judicial ability in dedicating to him one of his works: "Your judgments have stood the test of time, and are destined to be laid up among the *responsa prudentium* for professional instruction in future ages." Throughout his official career, from which he retired in 1841, he continued his studies in the classics, sciences, and poetry; and his character is revealed in his favorite quotation from Malebranche: "Truth loves gentleness and peace." Especially interested in the history and antiquities of New England, he was a member of the historical society of Massachusetts from the year of its organization (1791), and its president from 1818 to 1843. Among his publications are a "Eulogy on George Washington;" an "Attempt to Explain the Inscription on Dighton Rock," in which he ingeniously supposes the figures designed to commemorate exploits of Indian hunting; and an edition of "Morton's New England Memorial," to which he added copious marginal notes, and an appendix replete with curious information.

DAVIS, John, an American statesman, born at Northborough, Mass., Jan. 13, 1787, died at Worcester, April 19, 1854. His father was a New England farmer, in moderate circumstances. His early days were spent on his father's farm. He was graduated at Yale college in 1812, and was admitted to the bar of Worcester co. in 1815. In March, 1822, he married Eliza, the eldest daughter of the Rev. Dr. Bancroft of Worcester. In 1824, on no other nomination than the newspaper suggestion of an unknown friend, he was elected a member of congress, and continued to hold that office by successive reëlections until Jan. 1834,

when, having been elected governor of Massachusetts, he resigned his seat. In March, 1835, having been elected to the U. S. senate, he resigned the office of governor, but reassumed it in 1841, and continued to discharge its duties till Jan. 1843. In March, 1845, he was again elected to the U. S. senate, and remained there until March, 1853, when he declined a reëlection, and retired to private life. In the early part of his professional career Mr. Davis was identified with the federal party; but, beyond writing occasionally for the local journals, had little to do with politics. His practice was extensive. His reputation as a man of sound learning, of practical sagacity, and of sterling integrity, made him essential to one or the other litigant in every important cause in his county. This left him little leisure for public affairs. His first entrance on public life was on the floor of congress. Coming from a quarter of the country already interested in manufactures, and from a district noted for the mechanical skill and industry of its population, he naturally became an advocate for protection to American industry. The tariff of 1824 had not given satisfaction to the manufacturing interests, and the people from all parts of the northern and middle states were petitioning congress to interpose legislative aid to protect the wool growers and manufacturers. Mr. Davis was a protectionist in advance of public opinion in New England. He thought that government should so lay the import duties which were necessary for revenue, that the industry of the country should be expanded, and its labor made more productive and more profitable. He advocated these views on the floor of congress with zeal and power. The speeches delivered by him in the sessions of 1828, 1830, and 1832, in reply to Mr. McDuffie, Mr. Cambreleng, and others, were regarded by the protectionists as the best statements and defences of their theories. During his first term in the senate, that body was mainly occupied with the controversy with Gen. Jackson's administration, of which he was a consistent opponent. He took a prominent part in the opposition to the expunging resolutions, and, it is understood, drafted a part, if not the whole, of the famous protest against them. He also acted with the whig party in opposing the administration of Mr. Van Buren, and contributed, in a short speech against the sub-treasury in 1840, the most efficient electioneering pamphlet for the canvass of that year. It was computed that more than one million copies of this speech were circulated among the voters. Before this time, the long public service and incorruptible integrity of Mr. Davis had gained for him the popular appellation of "Honest John Davis," a title which clung to him through life. During his second term as governor, the so-called Dorr rebellion took place in Rhode Island. He was urged by each side to render it aid, but refused to abandon the neutrality which he said Massachusetts ought to observe. For this, and for an imprudent act of one of his military staff, he failed of a reëlection by the people, and the legislature after a protracted struggle supplanted him by a democrat. During his absence from the senate, the protective tariff of 1842 had gone into operation, and upon his return he found a democratic administration about to substitute for it the revenue scale of 1846. In the discussion of this measure he resumed in the senate the place in the protectionist ranks which he had formerly held in the house. Mr. Davis opposed the Mexican war from the beginning. He was one of the two senators who voted that the war did not exist by the act of the republic of Mexico. He supported the treaty of Guadalupe Hidalgo in opposition to his colleague and other whig senators. In the great controversy which followed, as to the disposition to be made of the territories of the United States, he was decided and earnest in favor of excluding slavery from them. He supported what is known as the Wilmot proviso during the administration of Mr. Polk, and he was one of the most decided opponents of what were known as the compromise acts during the administration of Gen. Taylor and Mr. Fillmore. He had no fear of a dissolution of the union. He retired from public life just as the passage of the compromise acts had completed the dissolution of the whig party, with which he had acted during his whole career. For a brief period, surrounded by friends whom he loved and respected, his favorite agricultural pursuits afforded occupation for his leisure hours. But his constitution was undermined, and a short but painful illness soon terminated his life.

DAVIS, John A. G., professor of law in the university of Virginia, born in that state in 1801, died Nov. 14, 1840. He was educated at William and Mary college, and commenced the practice of law in the county of Albemarle. He was also for a time editor of a journal published at Charlottesville. In 1830 he was appointed to the law professorship in the university, and performed its duties with great promise and success. He was for some time chairman of the faculty. Hearing one night the report of a pistol before his door, he went out to ascertain the cause, and found there a student masked, who slowly retreated before him, and deliberately discharged a pistol at him. He died in consequence. He published a volume on criminal law for the use of justices of the peace, the copyright of which was purchased by the legislature from his family for $12,000.

DAVIS, Matthew L., an American writer, born in 1766, died at Manhattanville, N. Y., June 21, 1850. He was originally a printer by trade, and acquired in the course of that business a desultory education and considerable skill as a writer. He early attached himself in politics to the fortunes of Aaron Burr, and was an advocate of his elevation to the presidency, at the time when the balance hung so long undecided between him and Jefferson. For many years he was the correspondent at Washington of the "New York Courier and Enquirer," under the signature of "The Spy in Washington." For the "London

Times" also he wrote under the name of the "Genevese Traveller." During many years before the death of Aaron Burr Mr. Davis was apparently his only attached friend, and the most important of his writings is his "Memoirs of the Life of Aaron Burr." Burr's diary was also edited by him.

DAVIS'S STRAIT, an arm of the North Atlantic ocean, communicating with Baffin's bay, and separating Greenland on the east from Cumberland island on the west. It stretches north from Cape Farewell, about lat. 60° N., to Disco island, near lat. 70° N. Its narrowest part, where it is cut by the arctic circle, is 220 miles wide; its greatest breadth is about 600 miles. Its coasts are high, rocky, broken by numerous bays and inlets, the largest of which are Northumberland inlet and Hudson's strait, almost barren, and peopled by tribes of Esquimaux. Notwithstanding its dangerous currents and vast icebergs, it is a favorite resort for whalers, the whale being found here in greater number than in any other polar waters.

DAVITS, the projecting arms of wood or iron upon which boats are hoisted and hung over the sides or stern of ships. They are rigged with sheaves or blocks for that purpose.

DAVOUST (or more correctly DAVOUT), LOUIS NICOLAS, a French general, born at Annoux, in Burgundy, May 10, 1770, died in Paris, June 1, 1823. A schoolmate of Bonaparte at the military school of Brienne, he was, when only 15, appointed 2d lieutenant in a cavalry regiment. In 1791 he served as major in the army commanded by Dumouriez, and was a brigadier-general as early as 1793, while Bonaparte was but a major. In that capacity he was employed for 3 years in the armies on the Moselle and the Rhine, where he gained the esteem of Moreau, who intrusted him with important commands. He accompanied Bonaparte to Egypt, and greatly contributed to the victory at Aboukir. On his return to France he was appointed division-general in 1800, chief commander of the consular guard in 1801, and in 1804 marshal of the empire. He took a distinguished part in the victories of Ulm and Austerlitz; and on the same day that Napoleon conquered the Prussians at Jena (Oct. 14, 1806), he won over them the victory of Auerstadt, and received as a reward the title of duke of Auerstadt. In 1809 he was made prince of Eckmühl, for his part in the battle of that name. After Wagram he was appointed military commander in Poland, which country he ruled with an iron hand. In the Russian campaign he defeated Bagration at Mohilev, and was wounded at the battle of the Moskwa (Borodino). After the disastrous retreat from Russia, he took up his head-quarters at Hamburg, where he was soon besieged by the victorious allied armies. He boldly opposed their forces; and it was only in April, 1814, that he consented to deliver the city into the hands of Gen. Gérard, a commissioner of Louis XVIII. Napoleon, on his return from Elba, appointed him minister of war. After the defeat at Waterloo, he was placed in command of all the troops in and around the capital, and was ready for the contest when he received positive orders from the provisional government to negotiate with the allies. In consequence of this order, he signed, July 3, 1815, at St. Cloud, the capitulation of Paris. A few days later he consented to a mere acknowledgment of the new government, and retired from active life. On the trial of Marshal Ney, he boldly declared that he would not have signed the capitulation of Paris if it had not, in his opinion, guaranteed the safety of all the military men then in that city. The firmness of his conduct was not palatable to the Bourbons; he was not fully reinstated in his position until 1818.—His only son, born in 1818, was a member of the chamber of peers, and for some time connected with the army, but became afterward insane, and died Aug. 18, 1853.

DAVY, SIR HUMPHRY, an English chemist, born at Penzance, Cornwall, Dec. 17, 1778, died at Geneva, Switzerland, May 29, 1829. He was the eldest son of Robert and Grace Davy; he was a healthy, active, and forward child, fond of sports and stories, of retentive memory, and of a remarkably affectionate disposition. He made rapid progress at his first school; at the grammar school, kept by an incompetent teacher, he followed no particular course of study, but studied what and when he pleased, and during his stay there gave no indication of the great powers he exhibited in after life; he acquired, however, a good knowledge of Latin and Greek, and appears always to have stood at the head of his class. Among his boyish tastes was that of fishing, the relish for which he never lost, and which was the subject of his delightful book "Salmonia." At the age of 9 he went to live with Mr. John Tonkin, a friend of his mother, who from regard to her in a manner adopted the young Humphry, when his family removed to Varfell, about 2½ miles from Penzance. At the age of 14 he went to Dr. Cardew's school at Truro, where he remained nearly a year at the expense of his kind friend, Mr. Tonkin, to whose house in Penzance he returned in Dec. 1793; his school education was now at an end, and his self-education, to which he owed almost every thing, was about to commence. The next year was passed in desultory study, in active sports with gun and rod, and in occasional dissipation; this was a most dangerous period of his life, but he resisted the temptations which beset him, and began to study again in earnest. The death of his father in Dec. 1794, and the narrow circumstances of his family, gave fixedness to his vacillating purposes, and it was determined that he should study the art of medicine; accordingly, in Feb. 1795, he was apprenticed to Mr. Borlase, a surgeon and apothecary of Penzance, who was afterward distinguished as a physician. His studies were now followed with great zeal; his note books show that he gave attention to a great variety of subjects beside those coming within the strict line of his profession, such as the modern languages, mathematics, metaphys-

ics, and especially chemistry and physics; he grappled with some of the highest problems of metaphysical theology and mental philosophy, and at one time seemed lost in the perplexities of materialism. While cultivating the intellect his imaginative powers were not neglected, as is proved by his love of poetry and by the composition of verses of considerable merit; his chosen subjects of study were illustrated by the reading of the best works within his reach. From physics his attention was naturally turned to chemistry, which he took up with ardor toward the end of 1797, at the commencement of his 19th year, though only in reference to his medical progress; the reading of Lavoisier's "Elements of Chemistry" first led him to the experimental study of the science in which he was destined to work such remarkable changes; his apparatus was of the rudest kind, his materials such as are most commonly used in medicine, and his first experiments very simple; yet so rapid was his progress that in 4 months he had sent to Dr. Beddoes, an Oxford ex-professor of chemistry, a new theory on "Heat and Light," to which the latter became a convert; this was his first publication, which appeared in 1799. The young chemist's mental activity was favored by the acquaintance of Mr. Gregory Watt, a son of the famous James Watt, who came to reside at Penzance in the winter of 1797 for the benefit of his health; in the society, conversation, and sympathy of this young man, Davy found the stimulus he needed in the development of his intellectual powers. He also became acquainted with Mr. Davies Gilbert, a scientific and highly educated man, afterward his successor as president of the royal society of London. The mineralogical and geological structure of the surrounding country, abounding in tin and copper mines, the lithological characters of the cliffs and headlands, and the ever-changing air and sea of that tempestuous climate, invited him to the investigation of the operation of natural causes; his very first original experiments, at the age of 18, were to determine the kind of air which filled the vesicles of the common sea weeds thrown upon the shore, and he demonstrated that the marine plants act upon the air in precisely the same way as the terrestrial, by decomposing, under the influence of the sun's rays, carbonic acid, in order to obtain the carbon necessary for their growth, and the oxygen for their respiration. The state of chemical science, too, was favorable to his rapid advance, as its boundaries were small, its theories ill-defined, most of its departments little developed, and vast unexplored regions waiting for the coming of a master spirit. His medical studies must have been zealously pursued, as in their 4th year he was considered by Dr. Beddoes competent to take charge of his pneumatic institution at Clifton, in which pulmonary diseases were treated by the inhalation of different gases. Mr. Borlase kindly released him from his apprenticeship, and early in Oct. 1798, he left Penzance, before he was 20 years old, to commence his public career at Clifton, near Bristol. In the year 1799, while resident at Clifton, he made his experiments on the protoxide of nitrogen (laughing gas), and published the results in 1800; he described its effects, which were much like those since produced by the inhalation of sulphuric ether; he also experimented with carburetted hydrogen, carbonic acid, and nitrogen, thereby seriously injuring his health. About the same time he had taken up the subject of galvanism, which afterward led to some of his greatest discoveries in decomposing the alkalies and alkaline earths. The pneumatic institution soon became very popular under his management, and some of the most obstinate diseases were benefited by the new remedies; the nitrous oxide was found very beneficial in many cases of palsy. The royal institution had just been founded after a plan of Count Rumford, with the intention of diffusing a knowledge of science in its applications to the common purposes of life; Davy received and accepted the invitation to become lecturer on chemistry, and in March, 1801, he took up his abode in London, and in May, 1802, he was formally appointed professor in the institution. His lectures at once became exceedingly popular; his youth, simple manners, eloquence, his knowledge of his subject, and his brilliant experiments, excited the attention of the highest ranks in London; his society was courted by all, and he seemed in danger of becoming a votary of fashion rather than of science. During the 11½ years that he spent in the rooms of the royal institution, his bachelor apartments were furnished in the simplest manner; in the adjoining laboratory he spent most of his time, preparing for his lectures, and conducting his investigations on the fixed alkalies, on astringent vegetables in connection with the art of tanning, on the composition of mineral substances, on agricultural chemistry, on galvanism, and on electro-chemical science, which may be said to have sprung chiefly from his researches. His observations on tanning were published in the "Philosophical Transactions" for 1803; his lectures before the board of agriculture, which were delivered until 1813, were published under the title of "Elements of Agricultural Chemistry," a work which has passed through many editions, and has been translated into almost every European language. His important researches in electro-chemical science had been commenced at Clifton, and the results are published in the "Philosophical Transactions" from 1808 to 1812, and in the early "Bakerian Lectures" of 1806–'7, the base potassium having been discovered on Oct. 6, 1807, and sodium a few days after, by decomposing moistened potash and soda by several voltaic batteries; his delight was most extravagant but excusable when he saw the globules of potassium appear and take fire as they entered the air. The mental labor of his experiments and the excitement of his discoveries threw him into a typhoid condition, which threatened his life for

a period of several weeks; on his recovery he experimented with a battery of 2,000 plates, discovered the base boron, showed the simple nature of chlorine, sulphur, and phosphorus, the compound nature of ammonia, and many other important facts. In 1803 he was elected a fellow, and in 1807 one of the secretaries of the royal society, which appointment he held for 5 successive years, an honorable and acceptable office to him, as it brought him into friendly intercourse with scientific men. The medical profession, which he had laid aside on coming to London, seems now to have been resumed for a short time; but the claims of science had too great an attraction, and he gave up medicine as he had previously declined an invitation to enter the church. So great was his reputation as a lecturer that he was invited to deliver courses before the Dublin society in 1810 and 1811, for which he received about $6,000, and was made doctor of civil law by Trinity college. He was knighted in April, 1812, by the prince regent, and in the same month married Mrs. Apreece, the widow of Shuckburgh Ashby Apreece, Esq., who brought him a considerable fortune; he was afterward created baronet. In the autumn of 1813, by express permission of the French government, granted on account of his scientific reputation, he visited the continent during the war, in company with Mr. Faraday "as his assistant in experiments and in writing;" the assistant has proved the peer of his master. While in Paris, where he spent 2 months, he became acquainted with the most eminent men of science, as Cuvier, Laplace, Gay-Lussac, Humboldt, and Vauquelin; during this brief period he discovered that iodine is a simple substance, analogous in its chemical relations to chlorine. He remained on the continent until the spring of 1815, visiting the south of France, Italy, and Switzerland, devoting special attention to the volcanic regions, and pursuing his chemical researches on colors, the iodine compounds, and oxymuriate salts, which were published in the "Philosophical Transactions" for 1815. As one of the results of his journey, he states in a letter to his mother that "England is the only country to live in, however interesting it may be to see other countries." Already in the front rank of scientific men, his next discovery placed him among the greatest benefactors of his race. In 1812 a terrific explosion of gas took place in a coal mine, causing the death of more than 100 men; and after many other such disasters, a committee of proprietors of mines waited upon Davy to see if his knowledge could devise any way of preventing similar accidents in future. He began by analyzing the gas, and ascertaining in what proportions its mixture with air rendered it most explosive, and the degree of heat necessary to ignite it; from observing that the combustion did not take place through tubes of small dimensions from the refrigerating effect of the metallic mass, he gradually reduced the length of the tubes till he found that a simple fine metallic gauze was sufficient so to cool the burning gas in its passage through it as not to ignite the great explosive mass on the outside; he accordingly covered the lamps with a wire tissue, whose interstices were of the thickness proper to cool the burning gas which passed through it to a degree to prevent combustion, being permeable to air and light, but not to flame. This simple contrivance constituted the miner's safety lamp, and has saved the lives of thousands; the dangerous gas may burn within the gauze, and thus give timely warning, and may at last extinguish the lamp, but even then a suspended platina spiral will remain glowing in the midst of the explosive gas, and by its illumination enable the miner to see as long as the air is fit for respiration. His attention was first drawn to the subject in Aug. 1815, and in December his lamp was completed; urged by a friend to take out a patent for his invention, he nobly replied: "No, my good friend, I never thought of such a thing; my sole object was to serve the cause of humanity; and if I have succeeded, I am amply rewarded in the gratifying reflection of having done so." In May, 1818, he left England on a second continental journey, visiting Germany, Hungary, and Italy, and returning to England in June, 1819. On the death of Sir Joseph Banks in 1820, Sir Humphry Davy was almost unanimously elected president of the royal society of London, an office to which for 7 years afterward he was annually elected without opposition; thus the poor boy of Penzance by the strength of his own intellect had attained the highest honor to which a man of science in England can aspire, and the learned body over which he presided lost nothing of its ancient reputation during his official connection with it. The last term of his scientific labors extends from 1823 to the summer of 1826, during which time he communicated to the royal society 3 papers on the preservation of metals by electro-chemical means, and the Bakerian lecture for 1826, "On the Relation of Electrical and Chemical Changes." As in the case of the safety lamp, it was to remedy a practical evil that these papers were prepared. His attention was directed by the commissioners of the navy to the corrosion of the copper sheathing on the bottoms of vessels by the sea water; he ascertained that the popular notion that impure copper is soonest corroded is an error, and that the corrosion is owing to the joint action of the air and the saline ingredients in the water; he succeeded in preserving the copper sheathing from corrosion by rendering it negatively electrical by small pieces of tin or zinc, or iron nails, these metals making a surface of copper from 200 to 300 times their own size so electrical as to have no action on sea water; the very perfection of the protection rendered this method practically inapplicable where speed was requisite, as shells and sea weeds adhered to the non-corroded surface. This principle of galvanic protection has been successfully applied to various important uses in the arts and sciences. In 1824 he

made a journey to Norway, Sweden, Denmark, Holstein, and Hanover, admiring the scenery, fishing and hunting, and communicating with their eminent men, among whom were Berzelius, Oersted, Gauss, Olbers, and Schumacher. In 1825 he began to experience considerable indisposition, which ever after affected his ordinary elasticity of spirits, depressed also by the illness and death of his mother in 1826. He had suffered for more than a year with numbness and pain in his right arm, when toward the close of 1826 he had a paralytic attack, affecting the right side of the body; his mental faculties were not impaired, and while confined to his room he corrected the proof sheets of his "Discourses to the Royal Society," published in Jan. 1827. In this month he had so far recovered as to start on a journey to the continent, going through France, over Mt. Cenis into Italy, where he occupied himself in hunting, fishing, and observations on natural history and chemical science, for about 3 months; he then journeyed through various parts of southern Germany and Switzerland, returning in October, with health and strength slightly improved, to England, where he remained until March, 1828. "Salmonia, or Days of Fly-fishing," is a kind of dramatization of the most interesting parts of his journal in these last travels, rendered doubly valuable by his observations in natural history, and glowing with the most exalted ideas of God drawn from nature. Finding no permanent improvement in his health, he left London again in March, 1828, for the Alpine regions of southern Austria, where he passed the summer, spending the winter in Italy; during this journey he wrote the "Consolations in Travel," his last writing, which Cuvier calls the work of a dying Plato. On Feb. 20, 1829, he experienced at Rome a sudden and severe paralytic attack, which ultimately proved fatal, though he so far improved as to quit Rome on the last of April for Geneva, where he arrived May 28; he dined at 5 P.M. and retired at about 9½ o'clock; at 2½ the following morning he was taken alarmingly ill, and in a few moments expired; he was buried, in accordance with his expressed wish, where he died, in the city of Geneva, on June 1. His brother believed that the paralysis was caused by softening of the brain, which, with some enlargement of the heart, was the cause of his death. Sir Humphry Davy was of middle stature, 5 feet 7 inches in height, well proportioned and muscular, and able to endure considerable fatigue; of sanguine temperament, warm in his feelings, of cheerful disposition, fond of company, persevering and observing; he devoted himself assiduously to science, keeping aloof from political strife. He was chosen a member of the French institute in 1817; he was also connected with most of the great academies of Europe, and was by universal consent considered without a superior, if he had an equal, among the chemists of his time. His memory is dearly cherished at Geneva, where his widow founded a prize in his honor, to be given every 2 years for the most original and important discovery in chemical science. Beside the life by his brother, there is one by John Ayrton Paris, M.D. (2 vols. 8vo., London, 1831).—Davy, John, M.D., a younger brother of the preceding, and the writer of his biography. After taking his degree of doctor of medicine at the university of Edinburgh in 1804, he was attached to the English army, and travelled extensively in the East. He was the author of several works of merit, the principal of which, beside the life of his brother, in 2 vols. 8vo., are: "An Account of the Interior of Ceylon and of its Inhabitants, with Travels in that Island" (4to., London, 1821; this work is especially valuable for its details on the natural history of Ceylon); "Researches, Physiological and Anatomical" (2 vols. 8vo., London, 1839); "Notes and Observations on the Ionian Islands and Malta, with some Remarks on Constantinople and Turkey" (2 vols. 8vo., 1842). Dr. Davy has spent most of his life in the foreign army service of his country, but was the travelling companion and physician of his illustrious brother during the last period of his life. He has published many important papers in the "Philosophical Transactions," several of which are collected, with illustrations, in his "Researches, Physiological and Anatomical." In 1858 he published a volume entitled "The Fragmentary Remains of Sir Humphry Davy."

DAWES, Rufus, an American poet, born in Boston, Jan. 26, 1803. He entered Harvard college in 1820, but did not graduate on account of a charge of participating in some disturbance. The charge was afterward disproved, and furnished the occasion for his first published poem, directed against the Harvard faculty. He was admitted to the bar, but has never practised. He was a contributor to the "U. S. Literary Gazette," and conducted for a time the "Emerald," a journal printed at Baltimore. He published in 1830 the "Valley of the Nashaway and other Poems;" and in 1839, "Geraldine, Athenia of Damascus, and Miscellaneous Poems," comprising descriptions of natural scenery, songs, and odes. The next year he published "Nix's Mate," a historical romance. Mr. Dawes is a Swedenborgian, and has frequently officiated in the pulpits of that denomination.

DAWSON, George, an English clergyman and lecturer, born in London in 1821, was educated at the university of Glasgow, and became in 1844 the pastor of the Baptist Mount Zion chapel in Birmingham. His independence of character and disregard of the conventional usages of the denomination caused a separation in the congregation and a new chapel to be built for the minister, which was opened in 1847 under the name of the "church of the Saviour." He has been very successful as a lecturer, and is a proprietor of the "Birmingham Daily Press."

DAX, an arrondissement and town in the S. W. of France, department of Landes; pop. of the former in 1856, 113,794, and of the latter 6,125. The town is situated on the left bank of the Adour, about 30 m. S. W. from Mont-de-

Marsan, and is a principal station on the railway from Bordeaux to Bayonne. The most remarkable building is the cathedral, built in 1646 after the design of Vauban. It has manufactories of liquors and delft, and some trade is carried on in grain, wine, timber, vegetables, wax, and honey; and the town is a considerable entrepot of goods exported from France to Spain. It is of ancient origin, and has hot mineral springs, whence it was called by the Romans Aquæ Tarbellicæ, afterward by the French Villa d'Acqs, and then simply Dax.

DAY, the period of the earth's rotation on its axis. This is not, however, the most common meaning of the word, which cannot be exactly expressed without preliminary explanations. The motion of the earth upon its axis is supposed to be perfectly uniform. If, therefore, a star were so distant that its apparent position could not be affected by the earth's annual motion in its orbit, the successive returns of that star to the meridian would be at equal intervals; and the fixed stars are all so distant, that they may practically be used for determining these intervals, which are called sidereal days. The sidereal day is usually considered as the time between the successive passages of the vernal equinox over the meridian, but the precession of the equinoxes is so slow that a single sidereal day thus measured does not differ sensibly from a true sidereal day. This time is, however, only of use in observatories; for civil life we need the solar day, measured by the return of the sun to the meridian. The solar day is, from a variety of causes, variable in its length. That it must be nearly 4 minutes longer than a sidereal day is manifest when we consider that the sun apparently travels eastward among the stars about twice his own breadth each day, in the accomplishment of his annual journey. But this motion is due east only at the solstices, and varies more or less at other seasons from the direction of the earth's rotation. Moreover, when the sun is nearer the poles (at the solstices), an equal amount of motion will carry him through more degrees of right ascension than when he is near the equator. Yet further, his motion is apparently most rapid when we are nearest to him, slowest when we are most distant. The solar day is thus variable in length, since it differs by a variable amount from the constant sidereal day. Clocks and watches are therefore regulated to run to the average length of the solar day, and must, of course, be sometimes faster and sometimes slower than the sun. Clock time is called true time, or mean solar time; while the time which is measured by the sun is called apparent time. The difference between the time by the clock and the time by sun, that is, between the hour of mean and of apparent time, is called the equation of time. Four times a year the equation of time is reduced to nothing, and twice a year it amounts to about 16 minutes. Mean solar time might be supposed to be measured by a fictitious sun travelling uniformly in the equator, and coming to the vernal equinox at the same instant with a second fictitious sun travelling uniformly in the ecliptic and coming to the perigee (between Christmas and new year's) at the same instant with the real sun. A day usually signifies a mean solar day. A sidereal day is 23h. 56m. 4.09s. of solar time. In astronomy the solar day begins at noon, but in civil life at midnight. In all countries the astronomical hours are numbered from noon up to the following noon, from 1 to 24; but in most countries the civil day is divided from midnight to noon, and again from noon to midnight, each period into 12 hours. There is another use of the word day as opposed to night, when it designates the time during which the sun is above the horizon. In this sense of the word, the length of the day varies greatly with the latitude of the observer, and with the season of the year. On the equator, the day is always a few minutes more than 12 hours in length; but as we proceed north its length increases in summer, and decreases in winter, until we reach the arctic circle, where the longest day is more than 24 hours, the sun not setting at all for a day or two about June 20; while the longest night is nearly 24 hours, the sun barely showing himself in the southern horizon at noon, for a few days about Christmas. At the poles, the day is a little over 6 months in length, and the night nearly as long.

DAY, Jeremiah, D.D., LL.D., late president of Yale college, born in New Preston, Conn., Aug. 3, 1773; entered Yale college in 1789; on account of infirm health was not able to go on with the class to which he at first belonged; but after an absence of several years resumed his college studies, and was graduated with high honor in 1795. This was the year of Dr. Dwight's accession to the presidency of the college, on whose removal from Greenfield Mr. Day was invited to take charge of the school in that village, which had flourished so greatly under the care of the former. This invitation he accepted, and continued there for a year, when he was elected a tutor in Williams college, where he remained till he was chosen tutor in Yale college, in 1798. Having early made choice of the profession of theology, while acting as tutor he began to preach as a candidate for the ministry; but before taking charge of any parish, he was, in 1801, elected to the professorship of mathemathics and natural philosophy in Yale college. His health, however, still being feeble, he was not able to enter on its duties till 1803; but after that continued in them till 1817, when, on the death of Dr. Dwight, he was elected his successor in the presidency. In July of the same year he was formally inaugurated, and on the same day was ordained as a minister of the gospel. In 1817 he received the degree of LL.D. from Middlebury college, and in 1818 the degree of D.D. from Union college, and the latter also from Harvard college in 1831. He continued in the presidency of Yale college till 1846, when, on account of feeble health, he resigned; and though that venerable institution

has been deemed peculiarly fortunate in its presidents, it may with truth be said that it has at no time been more prosperous than under the presidency of Dr. Day. His learning and talent, united to great kindness of heart, soundness of judgment, and urbanity of manner, secured alike the respect and love of his thousands of pupils, all of whom looked upon him more as a father and friend than as a mere teacher and guide in the ways of knowledge. Dr. Day has always been distinguished as a mathematician, and as a close and vigorous thinker on all subjects to which he turned his attention. His well-known "Algebra," first published in 1814, has passed through numerous editions; and a new and much improved and extended edition of it was issued in 1852, by the joint labors of himself and Prof. Stanley. His work on the "Mensuration of Superficies and Solids" was published in 1814, his "Plane Trigonometry" in 1815, and his "Navigation and Surveying" in 1817. These works, like his "Algebra," have gone through numerous editions, and are adopted extensively as standard works in the colleges and seminaries of the land. In 1838 Dr. Day published an "Inquiry on the Self-Determining Power of the Will, or Contingent Volition," and a second edition of the same in 1849. In 1841 he published an "Examination of President Edwards's Inquiry as to the Freedom of the Will." He has also published a number of occasional sermons, and contributed papers to the "Journal of Science," the "New Englander," &c. He still lives in New Haven, in the possession of all his faculties, and the enjoyment of a ripe old age, respected and esteemed by the entire community, as well as by thousands in every part of the land whom he has aided in training for respectability and usefulness.

DAY, John, an English printer, born at Dunwich, in Suffolk, in 1522, died July 23, 1584. He improved the Greek types then in use, was the first who printed in Saxon characters in England, and was 4 times elected warden of the stationers' company, and in 1580 master of the same. In 1544 he carried on printing in London, a little above Holborn conduit, in partnership with William Seres. In 1549 he removed to Aldersgate street, near St. Anne's church. Beside this printing office, he kept several shops where his books were sold. In 1562 he printed the first edition of John Fox's "Acts and Monuments," with cuts representing the execution of Huss, Cobham, Tyndal, Lambert, and other martyrs. Of this work no perfect copy is known to exist. His publications materially aided the reformation.—Of his 13 children, John, born in 1566, died in 1627, at Thurlow, in Suffolk, became a popular preacher; and Richard, who officiated for some time as minister at Ryegate, in Surrey, translated into English the *De Christo Triumphante Comœdia* of Fox, and followed afterward his father's business as printer, which for many years he carried on in the same place.

DAY, Mahlon, a publisher of New York, born in Morristown, N. J., Aug. 27, 1790, lost on board the steamer Arctic, Sept. 20, 1854. He was a member of the society of Friends, commenced his career in New York as a journeyman printer, but soon accumulated from his savings enough to embark in business on his own account, in which he took up a department previously neglected, that of the publication of story books and toy books for children. He also commenced and published as long as he continued in business "Day's Bank Note List and Counterfeit Detector." This was the first periodical of the kind issued, and in the multiplication of banks became important and indeed necessary to the business community. The profits of this enterprise enabled Mr. Day to retire from business, and the last 15 years of his life were spent in charitable and public-spirited labors. He was a manager of the house of refuge, of the public school society, of the institution for the blind, and of other similar institutions.

DAY, Stephen, the first printer in New England, born in England in 1611, died in Cambridge, Mass., Dec. 22, 1668. He came to this country in 1638, and commenced printing at Cambridge, by direction of the magistrates and elders, in 1639. The first thing printed was the "Freeman's Oath," in 1639; next in the same year an almanac, made by Wm. Pierce, mariner; then the Psalms, "newly turned into metre," in 1640. He also printed a catechism; "Body of Liberties," 100 laws, in 1641; and a second edition of the Psalms, 1647. From his extant works we are able to say that he was not a skilful printer. The printing house was taken from him about 1648, and put into the hands of Samuel Green.

DAY, Thomas, an English author and politician, born in London in 1748, died Sept. 28, 1789. His father, a collector of the customs, died when Thomas was a year old, leaving him an ample fortune. He was educated at the charterhouse, and at Corpus Christi college, Oxford, which he left after 3 years' study, without taking a degree. He at once began his romantic and benevolent course of life, residing successively in different parts of the continent, making himself familiar with the mental and physical wants of the lower classes of society, and alleviating them to the extent of his power. The distresses which he witnessed caused him temporary melancholy and lasting indignation against certain criminal noblemen, one of whom he vainly challenged to single combat. With peculiar views of education, he selected from the foundling hospital at Shrewsbury 2 girls 12 years of age, designing to educate them after the principles of Rousseau, and ultimately to marry one of them. His expectations, however, were not realized, and he gave portions to his *protégées* on their marriage with persons of their choice. In 1778 he married a lady of Yorkshire, having opinions and a fortune like his own, and retired to his estates in Essex and Surrey, where he took an active part in public meetings as an ad-

vocate of American independence and parliamentary reform. He published several poems and pamphlets against slavery and the slave trade, and on other political questions. The work to which he owes his celebrity is the "History of Sandford and Merton" (3 vols., 1783–'89), one of the most popular of the books designed for the information of youth, written with freshness and vigor, and inculcating the virtues and disinterested philanthropy which characterized its author. It was followed by a shorter work of fiction, entitled the "History of Little Jack." Day met his death by a kick from a young horse, which he was training on a new principle; and his wife was so afflicted by the intelligence that she never again left her darkened chamber, though she survived him 2 years.

DAYS OF GRACE, in commerce, a certain number of days after the time specified by a note or bill of exchange, allowed for the payment of the note or bill. Though formerly gratuitously granted, they may now, in accordance with custom sanctioned by the courts, be demanded. The days of grace in Great Britain and the United States are 3, but their number is larger in most continental European countries.

DAYTON, a city and the capital of Montgomery co., Ohio, at the confluence of Mad and Great Miami rivers, 66 m. W. S. W. from Columbus; pop. in 1840, 6,067; in 1850, 10,976; in 1853, 16,562. It is a place of great industrial activity, and one of the most important of the interior cities of the United States. It is regularly laid out on the E. bank of the Great Miami, with streets 100 feet wide, crossing each other at right angles, lighted with gas, and lined with tasteful private residences, surrounded by fine gardens. The public buildings display a magnificence rarely equalled in commercial cities of such rapid growth. The county court house, planned after the model of the Parthenon, is an imposing edifice, 127 feet long by 62 feet wide, of coarse but compact white marble, quarried in the neighborhood. The roof is of stone, the doors are of solid iron, and the cost of the whole was somewhat over $100,000. There are 2 market houses, one of which, 400 feet long, and paved with blocks of limestone, has accommodations for a city hall and council chamber in the second story. The churches are 17 in number, viz.: 1 Albright's, 2 Baptist, 1 Dunkers', 1 Disciples', 2, Episcopal, 1 German Reformed, 2 Lutheran, 2 Methodist, 1 New Light, 2 Presbyterian, and 2 Roman Catholic. The last named church has an orphan asylum and 2 female academies, one conducted by sisters of charity, and the other by sisters of Notre Dame. There are 5 public common schools, 1 high school, several private seminaries, a large seminary called the Cooper female academy, a prosperous library association and lyceum, and a mechanics' benevolent society. The newspaper press comprises 4 daily and 6 weekly publications. There are 2 private banking houses, a chartered bank with a capital of $100,000, and a branch of the state bank of Ohio. There is an immense water power within the city limits, a great part of which is obtained from a hydraulic canal, built by a company in 1845, and drawing its supply from a point on the Mad river 4 m. above Dayton. The power thus obtained is leased to manufacturers, and the surplus ultimately finds its way to the Miami. A further increase of water power by means of a canal from the Miami has been projected. The city contains 2 flour mills, 4 saw mills, 2 paper mills, 3 cotton factories, 2 woollen factories, 3 iron founderies, 5 machine shops, 6 large breweries, 4 manufactories of agricultural implements, the value of whose products in 1858 was $385,000, 5 oil mills, using annually 180,000 barrels of flaxseed, and manufactories of railroad cars, gun-barrels, pegs and lasts, hollow ware, &c. The car factories are on a large scale; the paper mills supply a considerable part of the West; the value of iron cast is about $500,000 per annum; and the amount of superfine flour manufactured is about 125,000 barrels a year. The assessed value of property in 1853 was $5,309,928. The Miami canal, opened in 1829, connects Dayton with Lake Erie, and the following railroads give it intercourse with all parts of the Union: the Mad river and Lake Erie, 154 m. long, terminating at Sandusky; the Cincinnati, Hamilton, and Dayton, 60 m. long; the Dayton and Western, 108 m. long, and terminating at Indianapolis; the Dayton and Michigan, 72 m. long, completed as far as Lima; the Dayton and Cincinnati short line; the Dayton, Xenia, and Belpre, to Xenia; and the Greenville and Miami, 47 m. long, to Union. Dayton was laid out in 1799, and incorporated as a town in 1805, but until the opening of the Miami canal it made little progress. It was chartered as a city in 1841. It is divided into 6 wards, and is governed by a single board of 12 councillors.

DAYTON, a post village of Marengo co., Ala., 76 m. S. W. from Tuscaloosa. It is a pleasant and prosperous place, situated in a healthy country, near a fertile cotton-growing region called the "Canebrake." It is inhabited in part by wealthy planters, whose estates lie in the vicinity, and is better known as a quiet retreat, with good society, and some facilities for education, than as a manufacturing or commercial village.

DAYTON, Elias, an officer in the American revolution, born at Elizabethtown, N. J., in 1737, died there in 1807. He commenced his military career in 1760, when he joined the British forces which were employed in completing the conquest of Canada from the French; and he subsequently commanded a company of militia, with which he marched on an expedition against the northern Indians. It is probable that this corps was a portion of the original "Jersey blues." At the commencement of hostilities between the mother country and the colonies, he was appointed a member of the committee of safety for Elizabethtown; and in 1776 he was commissioned as colonel of one of the Jersey regiments, in which

capacity he served till 1783, when he was promoted to the command of the Jersey brigade. In June, 1776, soon after the battle of Bunker hill, he signalized himself by the capture of a British transport off the coast of New Jersey, which surrendered to an expedition of armed boats under his command in conjunction with Lord Stirling. He was in active service during the whole war, and took part in the battles of Springfield, Monmouth, Brandywine, Germantown, and Yorktown. He had 3 horses shot under him, one at Springfield, one at Germantown, and one at Crosswick's Bridge. After the war he served several terms in the legislature of his native state. During the life of Washington he was on terms of intimacy with that illustrious man, by whom he was treated with distinguished confidence. Upon the formation of the New Jersey society of the Cincinnati, Gen. Dayton was chosen its president, and held that office until his death.

DAYTON, Jonathan, LL.D., an American statesman, born at Elizabethtown, N. J., Oct. 16, 1760, died there, Oct. 9, 1824. At the age of 16 he was graduated at the college of New Jersey, and 2 years afterward, in 1778, he entered the army as a paymaster. He held several commissions at different periods of the war, and after the peace of 1783 he was elected to the legislature of his native state, and was chosen speaker of the house in 1790. In June, 1787, he was appointed one of the delegates from New Jersey to the convention at Philadelphia for the purpose of framing the federal constitution. In 1791 he was elected by the federal party a representative in congress, in which capacity he served for 3 successive terms, during the last 2 of which he was speaker of the house. In 1799 he was elected to the U. S. senate. When there were apprehensions of a war with France, President Adams sent him a commission as brigadier-general, which was at first declined; but upon being informed that its acceptance would not vacate his seat in the senate, he consented to retain it. He afterward served several terms in the council, as the superior branch of the New Jersey legislature was formerly termed. Among other incidents of his somewhat eventful life, it may be mentioned that he was arrested for alleged complicity with Aaron Burr in his conspiracy, but no further proceedings were had in the case.

DAYTON, William Lewis, an American jurist and statesman, born at Baskingridge, N. J., Feb. 17, 1807. He is the son of Joel Dayton, a farmer, and was graduated at the college of New Jersey in Sept. 1825; commenced soon afterward the study of the law, and was admitted to the bar of his native state in May, 1830. In 1837 he was elected a member of the council, or senate, as it is now called, and was made chairman of the judiciary committee. On Feb. 28, 1838, he was chosen by the legislature as one of the associate justices of the supreme court of New Jersey, which position he resigned in Nov. 1841; and on the decease of the Hon. Samuel L. Southard, a U. S. senator, in 1842, he was appointed by the governor to fill the vacancy so caused. In March, 1845, his appointment was confirmed by the legislature, and he was also elected for a full term of 6 years. He served in the senate from July 6, 1842, to March 4, 1851. As a member of the senate he was what might be called a free-soil whig; he maintained to the fullest extent the right of congress to legislate with respect to slavery in the territories of the United States, on which subject he expressed his views in a speech on the treaty with Mexico in 1847. He was an intimate and influential adviser of President Taylor, the policy of whose administration he warmly supported. He advocated the admission of California into the Union as a free state, was in favor of the abolition of the slave trade in the District of Columbia, and voted against the fugitive slave bill. At the expiration of his term the democratic party was in the ascendency in the New Jersey legislature, and they chose Commodore Robert F. Stockton as his successor. Mr. Dayton now resumed the practice of his profession at Trenton; and in 1856 he was nominated by the republican national convention as their candidate for the vice-presidency of the United States, with Col. Fremont as the candidate for president. In March, 1857, he was appointed attorney-general of the state of New Jersey, which office he still holds.

DEACON (Gr. διακονος, minister, servant), an inferior minister of the Christian church. The apostles appointed 7 deacons (Acts vi.), whose duty it was to superintend the temporal concerns of the church, and to distribute alms from the common fund. Their functions were subsequently enlarged, and in the Roman Catholic church the deaconship is a major order, ranking next below the priesthood. The deacon assists the priest in the celebration of mass, during which he wears a vestment with slit sleeves called a dalmatica, and with permission of the bishop may preach and baptize. He must have entered his 23d year before being ordained, and is bound to celibacy. In the church of England he occupies a somewhat similar position, being allowed to exercise all priestly functions except consecrating the eucharist and pronouncing absolution. He may administer the wine at communion, and officiate as lecturer, curate, or private chaplain, but is incapable of ecclesiastical preferment. The Presbyterians and Independents give this name to officers elected by the church members to distribute the bread and wine to communicants; the German Protestants apply it to assistant ministers; and in Scotland it is the title of overseers of the poor, and presidents of incorporated companies.

DEACONESS, a name given to those females in the early church who were consecrated to the service of the sanctuary, and performed for women the offices which deacons filled for men. They had care of the sick and poor of their own sex. The order has been abolished in the Latin church since the 11th century, and in the Greek church since the 12th century.

DEAD RECKONING, in navigation, the estimation that is made of the place of a ship without any observation of the heavenly bodies. The data for the reckoning are the distance the ship has run by the log, and the course she has taken by the compass; and the result has to be rectified by due allowances for drift, leeway, &c. This reckoning should be corrected upon the first opportunity for an observation of the sun.

DEAD SEA, called by the Latin geographers *Lacus Asphaltites*, and by the Arabs *Birket* or *Bahr Loot*, sea of Lot. It is also known as the sea of Sodom, and in the Scriptures is spoken of as the Salt sea, sea of the Plain, and Eastern sea. Its position is about 25 m. to the east of Jerusalem, between the mountains of Moab on the east and those of Hebron on the west. The locality is that of the ancient vale of Siddim, which Lot selected when he parted from Abraham, and which was then an attractive region, watered by the Jordan, and containing the cities of Sodom and Gomorrah. Even at that early period the district was probably of peculiar geological character, the vale being described as "full of slime pits" (Gen. xiv. 10). The catastrophe which resulted in the destruction of these cities, and in the formation of the sea, is computed to have occurred about 1900 years before the Christian era. By earthquake, accompanying volcanic action (Gen. xix. 28), the valley appears to have sunk to a great depth, and the waters of the Jordan flowing in produced this sea, which was made intensely salt by the saline strata exposed to their action. On its southwest side is a mountain retaining the name of Sodom, or Oosdoom, containing strata of salt, out from which stands a lofty pillar of the same material, observed by Lieut. Lynch, of the U. S. navy, which is probably what travellers often describe by the name of Lot's wife. Josephus speaks of a similar pillar, perhaps the same, which he himself saw, and believed to be that into which Lot's wife was transformed. Clement of Rome and Irenæus also make mention of the same. It is about 40 feet high, standing upon an oval pedestal, the top of which is 40 or 50 feet above the water. The pillar of salt is capped by limestone. Bitumen or asphaltum, from which the sea receives one of its names, is found along the shores of the lake, and during some recent earthquakes, to which the region is still subject, it was thrown up in large quantities at the southern extremity of the sea. The hardened lumps of it are worked into rosaries at Jerusalem. From its abundance in this region it is often called Jews' pitch. Pieces of sulphur are met with upon the shores, and sulphurous exhalations are perceived arising from the ground. The banks are slippery, with a slimy mud, into which the foot sinks deep, and the tracks thus left are soon lined with incrustations of salt. A similar mud covers a considerable portion of the bottom, and when brought up in sounding, crystals of salt are found sticking to it, thus indicating a full saturation of the saline mixture. But a portion of the bottom is rough and rocky, and subject to sudden and great changes of depth. This feature, in connection with the pieces of lava occasionally found, seems to indicate a formation due to volcanic agency, such as is produced in other regions where "the smoke of the country is seen to go up as the smoke of a furnace." The water is dense and bitter with its heavy charge of salt, so that bodies float in it with much greater buoyancy than in other seas. In bathing, one experiences difficulty in keeping the feet down, and a man may float in it breast high without exertion. The southern part of the lake is shallow, giving an average depth of only 13 feet; but the northern portion, as sounded by Lieut. Lynch and others, is found to reach a maximum depth of more than 1,300 feet. The dimensions as given by him are 42 m. from north to south, and the greatest width nearly 10 m. A remarkable feature in the lake is its great depression below the level of the Mediterranean. By the levelling conducted by Lieut. Symonds of the royal engineers, which was confirmed by nearly identical results afterward obtained by the same method by Lieut. Lynch, the difference of level of the two surfaces is 1312.2 feet. This depression, which is the deepest of the kind known upon the face of the earth, extends up the valley of the Jordan toward the north to the sea of Tiberias, which is only 984 feet higher than the Dead sea. The stream of the Jordan is consequently entirely below the flow of all other rivers, and even far below the level of the sea. Yet its swift current, often rushing on in rapids dangerous to navigate, even with the iron boats of the expedition under Lieut. Lynch, pours a large volume of water into the deep basin, from which there is no outlet. During the rainy season the influx is so great from this and other streams, that the level of the sea is raised 10 or 15 feet, and its dimensions extend, especially in a southern direction, over the low flats, far beyond the ordinary margin of the waters. But in the burning heat of the dry season, when the beach becomes so hot as to blister the feet, and the water, as observed by the officers of the expedition, acquires a temperature of 90° F. a foot below the surface, the evaporation rapidly carries off the excess of water, and reduces the sea to its lowest level. The vapors are seen to rise in columns, resembling water spouts, but far exceeding them in size. At this season the air becomes so highly heated in the deep basin between the precipitous mountains which enclose it, that it is almost irrespirable, and the thermometer often rises to 106° or more, even after the setting of the sun. At midnight it was observed to be 98°. Currents of this heated air are set in motion, and sweep in hurricanes over the water. As described by the U. S. officers, the hot wind blistered the faces of the men exposed to it. Every metallic object was burning hot; the coolest substances were the inner surfaces of the clothing. If a pool of fresh water were found to bathe in, the skin was instantly afterward left dry and parched. The perspiration disappeared by evaporation as

rapidly as it was produced. In such an atmosphere, and surrounded in the intervals of the sweeping wind by swarms of mosquitoes, which tormented the men almost to madness, they cast themselves upon the pebbly beach and sought for rest, with their garments wrapped around their heads. One morning, after a night thus passed, the commander of the expedition found a young quail that had nestled by his side, seeking shelter from the hot blast of the sirocco. The hills upon each side are precipitous cliffs of limestone and sandstone in horizontal strata. On the east they are rugged mountains 2,000 to 2,500 feet high, traversed by deep chasms, desolate and bare of vegetation. On the west the height is estimated at 1,500 feet; but the summit level upon the whole is little if any higher than the surface of the Mediterranean. Much of the country between the two seas is a wilderness, without trees or shrubs, save in a few ravines fed by small water courses. In such a desolate district is the convent of Mar Saba, so near the Dead sea that the sound of its evening bell reaches the dreary solitudes of its shores, assuring the disheartened traveller that human life may be continued in this region of gloom and death. Mr. Costigan, who surveyed the sea in 1835, with a Maltese sailor as his servant, died soon after completing its tour. Lieut. Molyneux of the royal navy experienced the same fate in 1847. The excessive heat of the sun was no doubt the direct cause of their death. Two of the seamen belonging to the American expedition were sent to this convent for relief, and Lieut. Dale, the 2d officer, before the party left the country, fell a victim to the fever at Beyroot, where Lieut. Lynch also, and nearly all the men of the party, were attacked by the same disease. It is to this expedition, despatched by the U. S. government in 1847, that we are indebted for most of our exact information relative to this singular spot; though many other travellers, English, French, Russian, and American, also have been led by its ancient celebrity and mysterious nature to venture upon its exploration, and their accounts, full of interesting particulars, have been at various times presented to the public. In March, 1848, the American party, well equipped, passed across, with their boats drawn on trucks by camels, from the bay of Acre, over the mountains of Lebanon, and launched them in the lake of Gennesareth. Thence they descended the Jordan, entering the river on April 10, and passing out of its mouth into the Dead sea on the 19th of the same month. The length of the river they estimated to be at least 200 m., though in a direct course the two lakes are only about 60 m. apart. They spent 21 nights upon the shores of the Dead sea, and after having thoroughly explored the region, they left it on May 10, sending their boats across the desert to Jerusalem. Contrary to the opinion generally entertained regarding the pestilential atmosphere of this neighborhood, they found numerous animals living upon the shores of the lake, as doves, hawks, partridges, and hares, and also ducks swimming upon its surface; and a curious fact regarding the birds, insects, and other animals here met with, is that they are all of a stone color, described as "the same as the mountains and the shore." Whether animal life exists in the water itself is not so certain, though some authorities have mentioned that living shells are found in the sea, and one small species of fish is said to be peculiar to it. It is very possible that the shells may have been swept into the lake from the Jordan or other streams. The surface was in one instance at night observed to present "one wide sheet of phosphorescent foam, and the waves, as they broke upon the shore, threw a sepulchral light upon the dead bushes and fragments of rocks." This is probably owing to animalcules, such as give the same appearance to the ocean. In the sample of water brought back by the party no vestige of animal life was detected; but in Jameson's "Philosophical Journal" of Feb. 1850, it is stated that Ehrenberg found an abundance of infusoria of brackish water species in samples of the water and sediment brought to him for examination. The want of vegetable matter for food must necessarily to a great extent exclude animal life. A few plants which furnish soda in their ashes are occasionally found upon the shore, and at the foot of the cliffs is noticed a scanty vegetation of cane and of the tamarisk shrub, their foliage sometimes of a light green and sometimes of a yellow hue, stained by the exhalations of sulphuretted hydrogen; but the few bushes to be seen often present their branches leafless and incrusted with salt, and the trunks of dead trees scattered here and there add to the desolation of the scene.—Various analyses have been made by eminent chemists of the water taken from the lake, the results of which differ, in consequence, no doubt, of the different seasons of the year and portions of the lake at which the samples were taken, and also of the different methods of conducting the analyses. The specific gravity, as stated by Lavoisier, is 1.240; by Klaproth, 1.24; by Marcet, 1.211; by Gmelin, 1.212; by Apjohn, 1.153; by Salisbury, 1.1877; and by Lynch, 1.13. The constituents are thus given by different authorities:

TABLE I.

Substances.	Pogg. Ann.	Booth & Muckle, depth 1,110 ft.	Genth, 1853.*
Chloride of potassium..	1.393	0.659	1.0087
" sodium.....	6.578	7.855	7.5839
" calcium....	2.894	3.103	2.8983
" magnesium.	10.543	14.590	10.1636
		Brom. potassm.	
Bromide of magnesium.	0.251	0.137	0.5341
Sulphate of lime.....	0.088	0.070	0.0201
Carbonate of lime.....	....	....	0.0042
Hydrat. sesquioxide of iron.....	....	....	0.0037
Silicic acid.....	0.003	....	0.0113
Nitrogenous organic matter.....	....	....	0.0052
Solid parts in 100....	21.773	26.419	22.3086

* Water brought by Rev. Prof. Osborn; sp. gr. 1.1823.

TABLE II.

Substances.	Marcet.	Klaproth.
Muriate of lime	3.920	10.60
" magnesia	10.246	24.20
" soda	10.360	7.80
Sulphate of lime	0.054	....
	24.580	42.60
Water	75.420	57.40
	100.000	100.000

The first of the above analyses is given in Poggendorff's *Annalen*, of a sample of the water procured from the north end of the sea, near the mouth of the Jordan.

DEAF AND DUMB, persons who can neither hear nor speak. That such have existed in all ages is evident from the not infrequent allusions to them both in sacred and profane writings. The idea of attempting the restoration of the lost faculties, or of repairing the loss by education, seems never to have occurred to the ancients. In many instances the authorities connived at, if they did not openly approve of, the destruction of such children, who it was thought could be of no benefit to the state. Among the Hindoos, in the "Ordination of the Pundits," or code of Gentoo laws, it was decreed that whoever was "deaf from his mother's womb," or whoever was dumb, should be classed among persons incapable of inheritance. But, though excluded from inheriting, they were not left without provision; for the person who superseded them in the inheritance was bound to support them—in the language of the ordinance, to allow them clothes and victuals. The code of Justinian, promulgated in the 6th century A. D., assumes throughout that deaf mutes from birth are incapable of managing their own affairs; placing them in this respect on a footing with the insane, idiots, and those suffering from permanent and incurable disease, in requiring guardianship. The same code also provides that they should only buy and sell by the aid of a curator or guardian; that they should not have the power of altering the descent of property, or of making a gift, even with the assistance of a curator. They could not make a will, or a codicil, or create a trust estate, or make a donation contingent on the death of the donor, or emancipate a slave. A singular provision of the code deserves notice. Justinian allows to those who are deaf from birth, but yet able to speak, the privileges of which deaf mutes had been deprived. Pliny, more than 400 years earlier, had said: "There is no person deaf from birth who is not also dumb." The feudal governments of western Europe, making the code of Justinian the basis of their laws, placed the deaf mute under similar disabilities. Pitiable indeed was the fate of these children of silence during the long ages of ignorance and darkness. If the advent of Christianity had prevented their murder as useless incumbrances to society, they were still left as fit companions for the idiot and the maniac. Without instruction, or any means of acquiring it, they knew nothing of the earth on which they trod or the heavens above them; if their powers of imitation enabled them to acquire some facility in the mechanic arts, this might suffice to supply the craving of the body for employment, but what should satisfy the longings of the restless spirit? Some with outstretched hands sought the alms they could not ask; others, grovelling in indolence, sank to the level of the idiots with whom alone they could associate. Yet even in the early ages of the Christian era there were not wanting those who, with infinite pains, sought to communicate instruction to the deaf mute, although the law had pronounced him incompetent to receive it. The venerable Bede relates that, in 690, John, bishop of Hagulstad, taught a deaf mute to speak, and to repeat after him words and sentences. In 1442 Rodolphus Agricola of Groningen, in his *De Inventione Dialecticæ*, speaks of having seen a deaf and dumb person who had learned to understand and practise writing. About 1550, Pedro Ponce de Leon undertook, and with considerable success, the instruction of the deaf and dumb in Spain. His labors seem to have been confined mainly to teaching reading and articulation. He relates, as instances of the successful results of his teaching, that one of his pupils received ordination as a priest, and performed his parish duties acceptably, and that another became a military officer and distinguished himself in martial exercises. In 1560 Joachim Pascha, chaplain of the elector Joachim II. of Brandenburg, instructed his own deaf-mute daughter, by means of pictures, mimic signs, and other methods of his own devising. Not far from the same time Girolimo Cardan, the eccentric Italian philosopher, detailed, in an essay which he published, the principles of deaf-mute instruction, though he never reduced them to practice. In 1620, about 36 years after the death of Ponce de Leon, Juan Paulo Bonet, a Benedictine monk of Spain, published a treatise entitled *Reduccion de las letras y artes para enseñar a hablar los mudos* ("Reduction of Letters and Arts for Teaching the Dumb to Speak"). In this treatise he represents himself as the inventor of the processes he describes, viz., mimic signs, dactylology, the oral alphabet, and writing. His work contains the first engraving of the single-hand alphabet, so generally in use throughout Christendom, and he is believed to have been its inventor. In Italy, at this time, a number of eminent philosophers were turning their attention to the subject. Affinate published an essay about the commencement of the 17th century on teaching the deaf to speak. Giovanni Bonifacio wrote a treatise on the language of action in 1616; Fabrizio di Acquapendente wrote upon the phenomena of vision, voice, and hearing, and on speech and its instruments. In 1629, Ramirez de Carion instructed the prince of Carignan, a deaf mute. Some authorities say that Ramirez himself was deaf and dumb, but had acquired sufficient education to be capable of teaching others. Some few years later, Pietro di Castro, chief physician to the duke of Mantua, instruct-

ed the son of Thomas, prince of Savoy, who was a deaf mute. Castro died in 1663. In Holland, Peter Montanus published a work on the instruction of the deaf and dumb in 1625. In 1644, John Bulwer, a philanthropic English physician, published his "Chirologia, or Natural Language of the Hand," and in 1648, "Philocophus, or the Deafe and Dumbe Man's Friend." In the latter work he refers to the account he had received from his friend Sir Kenelm Digby of Pedro Ponce's success in the instruction of the deaf and dumb. Camerarius and Gaspard Schott had, in the early part of the 17th century, published works in Germany, on the instruction of the deaf and dumb. In 1653, Dr. John Wallis, mathematical professor at Oxford, mentions, in the preface to the 5th edition of his *Grammatica Linguæ Anglicanæ*, that he had instructed two deaf mutes to articulate distinctly, adding that he had also taught them (an entirely different matter, he observes) to understand the meaning of language, and thus to use it in speaking, reading, and writing. The number of pupils under his care was never large, but he seems to have continued to instruct deaf mutes for nearly half a century; for in 1698 he was still engaged in the business, and gave a detail of the plan he was pursuing in a letter to Thomas Beverley. He deserves the credit of being the first practical instructor of the deaf and dumb in England; and in a paper published in the "Philosophical Transactions" in 1670, he distinctly enunciates the fundamental principle of De l'Épée and Sicard, that we may form conceptions in written as well as in spoken language, and states that in the work of deaf-mute instruction he proceeded from certain actions and gestures, which have a natural signification, to convey ideas not already understood. The priority of his invention was disputed by Dr. William Holder, rector of Bletchington, who asserted that he had, in the first instance, taught Popham, one of Dr. Wallis's pupils, to speak. Dr. Holder published in 1669 "Elements of Speech, with an Appendix concerning Persons Deaf and Dumb." In 1670, George Sibscota published a little work entitled the "Deaf and Dumb Man's Discourse." The work is mainly theoretical, and he, like Wallis and Bulwer, had derived most of his ideas indirectly from Pedro Ponce. The same year the Padre Lana-Terzi, a Jesuit of Brescia, published a treatise on the education of the deaf and dumb and the blind. In 1680, George Dalgarno, a Scotchman, but then the preceptor of a grammar school at Oxford, published a work called "Didascalocophus, or the Deaf and Dumb Man's Tutor," in which he expresses a preference for written language and a manual alphabet over articulation and reading from the lip. He was the inventor of the two-handed alphabet now in general use in Great Britain. The "Didascalocophus" was republished in the "American Annals of the Deaf and Dumb" for Jan. 1857. The editor, Prof. Porter, remarks of it: "It is a work of such preëminent ability, and so replete with sound principles and important suggestions of practical value, that it ought to be familiarly known to every instructor." In 1690, John Conrad Amman, a Swiss physician, residing at Haarlem, undertook the instruction of a girl deaf and dumb from birth. His methods were founded on articulation. His success was decisive; but it was not until his essay giving an account of his processes, and entitled *Surdus Loquens* (the "Speaking Deaf Man"), was passing through the press, that he learned what others had done in this field, and commenced a correspondence with Wallis. He subsequently published an enlarged edition of his treatise, under the title of *Dissertatio de Loquela*. In 1679 a deaf mute from birth in France, named Guibal, made his will in writing; it is not known who was his instructor. In 1667 F. M. Van Helmont published a small tract in Holland, entitled *Alphabetum Naturæ*, in which he explained the process of reading on the lip, or learning what another person says by watching the motions of his lips in speaking. About the commencement of the 18th century, the instruction of deaf mutes began to attract the attention of scientific men throughout Europe. In 1704 Kerger published a narrative of the results of his efforts. His sister was associated with him in the work of instruction. The means he used were drawing, pantomime, articulation, and writing. He does not seem to have employed dactylology, but he had cultivated the language of signs with success. Contemporary with Kerger was the pastor Georg Raphel of Lüneburg, of whose 6 children 3 were deaf and dumb. Paternal affection had inspired him with zeal and skill in their instruction, and in 1718 he published, for the benefit of others, the result of his labors. A few years later, Otho Benjamin Lasius gave to the world the narrative of his process of instruction of a deaf and dumb pupil. He had taught articulation and writing, and at the end of 2 years his pupil could answer important questions on religious subjects. The pastor Arnoldi was a contemporary of Lasius; he gave instruction to the deaf and dumb, using for the purpose all the methods previously employed—articulation, drawing, dactylology, writing, and the natural signs. Samuel Heinicke was, however, by far the most distinguished of the early teachers of the deaf and dumb in Germany. He had become interested in the instruction of a deaf and dumb child as early as 1754. In 1772 he had 4 deaf-mute pupils, to whom several others were afterward added. In that year he removed to Leipsic at the invitation of the elector of Saxony, and opened a school for the deaf and dumb there with 9 pupils, the first ever established or supported by the civil government, and which is to this day in existence and prosperity. His method of instruction was by articulation and reading on the lip. His success was very considerable, and his noble and generous character endeared him greatly to the people of Germany. In a controversy with the abbé de l'Épée on

the merits of their respective modes of instruction, he appears to less advantage than in any other part of his career.—In France, Father Vanin or Farnin, a member of the order of Christian brothers, attempted the instruction of deaf mutes toward the middle of the century by means of pictures and sensible objects. The ideas thus conveyed seem to have been very crude and imperfect. Rousset of Nîmes also made some efforts for their instruction about the same time. A more remarkable and successful teacher of these unfortunates was Jacob Rodriguez Pereira, a Spaniard of Jewish extraction, who commenced their instruction in 1743, and in 1749 exhibited some of his pupils before the academy of sciences at Paris. From the report of that committee it appears that his success had been extraordinary for that period; it would even be considered creditable to any of our institutions at the present day. "The pupils," say the committee, "were able to understand whatever was said to them, whether by signs or by writing, and replied either *viva voce* or by writing; they could read and pronounce distinctly all sorts of French expressions; they gave very sensible replies to all questions proposed to them; they understood grammar and its applications; they knew the rules of arithmetic, and performed exercises in geography; and it appeared that Pereira had given them, with speech, the faculty of acquiring abstract ideas." Pereira carefully concealed, even from his own family, the methods he employed in the instruction of the deaf and dumb, though he offered to impart them to the government for a large sum, which was refused. It was his intention to leave them, it is said, as an heirloom to his family, but a fire which occurred soon after his death destroyed all his papers, and thus prevented their being benefited by them. He himself had attained position and wealth by his instruction of the children of some noble families, and by the address with which he followed up his advantages. Saboreux de Fontenai, one of his most distinguished pupils, published after his death an account of the means adopted by his teacher for the instruction of the deaf and dumb. From this we learn that, beside the ordinary methods of articulation, reading from the lip, and the manual alphabet, he had invented a syllabic dactylology, by the use of which he could communicate very rapidly with his pupils, and having thus supplied them in a short time with an extensive vocabulary, he was able to conduct their further education with little more difficulty than would be experienced in instructing speaking pupils. Ernaud appeared a few years later before the academy of sciences, to solicit their attention to his efforts in behalf of the deaf and dumb. His pupils do not seem to have made great advancement in education, but he had been successful in restoring hearing to several who were congenitally deaf. The abbé Deschamps of Orleans is deserving of credit for his philanthropy, at least. Commiserating the condition of the deaf mutes, he devoted his life and fortune to the work of teaching them, but unfortunately adopted the system of articulation, and met with but indifferent success. In 1779 he published his *Cours élémentaire d'éducation des sourds-muets.* The man, however, to whom the deaf and dumb of the world are more indebted for the means of education than any other, is the abbé de l'Épée. His natural disposition, habits, early training, and education, had fitted him for a philanthropist, and when two young deaf-mute girls were thrown in his way under such circumstances as to call forth his sympathies, he entered upon the work of their instruction with a zeal which knew no abatement to the day of his death. His first pupils were gathered in 1755, and entirely from the indigent deaf and dumb. To them alone did he devote himself, refusing the children of the rich, and expending with the most judicious prudence the income of his little patrimony for their support and education. At the commencement of his labors he had read nothing on the subject of the instruction of deaf mutes, and it was not till the second year of his teaching that he saw a copy of Bonet's treatise, and still later that of Amman. He tried at first the method of articulation, but the number of his pupils increasing he became dissatisfied with the result; and remembering the principle which he had learned in youth, that "there is no more natural and necessary connection between abstract ideas and the articulate sounds which strike the ear, than there is between the same ideas and the written characters which strike the eye," he sought for some medium other than articulate sounds by which to represent to the minds of these deaf-mute children the ideas which he wished to convey to them. This medium he found in the language of signs, that natural method of communication by which the most savage tribes of different languages and countries are able to converse to a certain extent with each other. He found this existing to a considerable degree among the uneducated deaf and dumb, as being the only means by which they could make known their physical wants. This language he amplified, improved, and systematized, with the intention of making it an equivalent of ordinary language, so that the process of instruction should be a mere translation of the ideas of written language into the language of signs. It is alleged, and with some truth, that he forgot in this process that the minds on which he was at work possessed but few ideas, and that to make a sign to them of whose meaning they had no conception, and then to show them that that sign was equivalent to a word of whose meaning they were also ignorant, was but to use an algebraic formula—to tell them that $x=x$. That the good abbé too often mistook signs for ideas is probably true; yet there is abundant evidence that his pupils comprehended very clearly much of what he communicated to them. The full advantages of the sign language, and its

capacity for full and free intercourse, and for more ready, complete, and extensive expressions of thought and feeling than any written language, seem not to have been appreciated by him, at least not to the same extent as by his successor; but to the abbé de l'Épée belongs without question the honor of having demonstrated the capability of the natural language of signs for the instruction of the deaf and dumb, when collected in masses; and also of having been the first to collect together indigent deaf mutes in any considerable number for education.—In 1760, 5 years after the opening of De l'Épée's school in Paris, Thomas Braidwood of Edinburgh advertised that at his academy in that city he taught the dumb to speak, and also cured impediments in the speech. Articulation was taught, and little or no attention given to the language of signs. At a period a few years earlier, Henry Baker, the naturalist and microscopist, had given some attention to the instruction of deaf mutes in articulation. Both Baker and Braidwood kept their processes secret, and Braidwood succeeded in monopolizing in his own family and near relatives the business of the instruction of the deaf and dumb for 60 years. In 1783 Braidwood removed his school to Hackney, near London, where he died in 1806. His widow, assisted by her grandchildren, maintained the school till 1816, when it was given up. Thomas, the elder of the two grandsons, took charge of a new institution at Edgebaston, near Birmingham; and John, the younger, went at first to Edinburgh, and after a year or two to Virginia, where he attempted the establishment of an institution for deaf mutes; but though warmly seconded by several gentlemen of wealth and influence, he was so addicted to habits of intemperance, that he was under the necessity of giving it up. The processes of the Braidwoods, though guarded from the public with such jealous care, seem to have differed in no important respect from those of Wallis and Dalgarno. Their success, according to the testimony of impartial observers, was not equal to that of the abbé de l'Épée, and was very far inferior to that of Sicard; and though highly commended in a work published in 1783 by an American gentleman whose child had been educated there, under the title of *Vox Oculis Subjecta*, yet in the majority of instances their system made the pupils mere parrots rather than intelligent, thinking, educated men and women. Dr. Watson, a nephew of the elder Braidwood, who acquired his knowledge of the art of instructing the deaf and dumb from his uncle, and afterward practised it at the asylum in Kent road, London, made many improvements in his processes, and, mingling judiciously the use of natural signs with articulation, succeeded in giving to his pupils a much better education than Mr. Braidwood had ever imparted.—Meantime in France the abbé Sicard, a hearing pupil of De l'Épée, and at the time of his death at the head of an institution for deaf mutes at Bordeaux, had succeeded him at Paris. Though inferior to his master in philanthropy, he was intellectually his superior, and soon found opportunity to improve the methods of instruction in the institute, which was now under government patronage. He expanded and simplified the sign language, and no longer bound it to the conventional rules of written language. Surviving the reign of terror and the administration of Napoleon, in neither of which it had greatly prospered, the royal institution for deaf mutes, as it was called under the Bourbons, saw brighter days, and under the direction of Sicard and Bebian became the leading institution of its class in Europe.—In 1815 several gentlemen in Hartford, Conn., whose interest in the education of the deaf and dumb had been primarily awakened by the fact that the interesting and lovely daughter of one of their number, an eminent physician of the city, was a deaf mute, sent the Rev. Thomas H. Gallaudet, a young and highly educated clergyman, to Europe to qualify himself to become a teacher of the deaf and dumb. Mr. Gallaudet sailed, May 25, 1815, for Liverpool. Arrived in England, he immediately sought the accomplishment of the object of his mission; but found himself thwarted by the influence of the Braidwoods and their relatives, who refused to communicate to him their alleged secret processes, except on condition that he should remain 3 years under instruction, and then take one of Dr. Watson's assistants, or John Braidwood, then in America, into partnership with him. As the parties who had sent out Mr. Gallaudet had contemplated no such plan, and as it was not only unnecessary but illiberal, Mr. Gallaudet refused to enter into such an arrangement; and after attempting in vain to obtain the requisite instruction at Edinburgh, where Mr. Kinniburgh, a pupil of the Braidwoods, was teaching, he visited France, was cordially received and cheerfully instructed by the abbé Sicard, and after 3 months of careful investigation of the processes adopted by the abbé, returned to the United States, bringing with him M. Laurent Clerc, an educated deaf mute, and one of the abbé's most successful teachers. On April 15, 1817, the New England, or, as it was soon afterward named, the American asylum for the deaf and dumb, was opened at Hartford, with Mr. Gallaudet for principal, and M. Clerc as assistant teacher. It received a donation of $5,000 from the state, which was subsequently expended in the education of indigent deaf mutes, and in 1819 from congress the grant of a township of land in Alabama, which by careful management eventually produced a fund of nearly $300,000, the income of which is applied toward defraying the current expenses of the asylum. The other institutions for the deaf and dumb having been established at a later date, and adopting the same general system of instruction with the American asylum, the method in use in this country may properly be termed the American system.—It may aid in giving a clear idea of the instruction of the deaf and dumb, if we devote a little space to the consideration of

the three systems which have been adopted in different countries. I. The system of Wallis, Pereira, Heinicke, and Braidwood proceeded on the theory that articulation is necessary to the clear comprehension of thought; that though signs may communicate vague ideas, there can be no precision of thought without words. This theory has been so utterly overthrown within a few years past that it is not probably maintained by any intelligent instructor of the deaf and dumb at the present day; but the system of instruction inaugurated under it is still practised to a considerable extent on the continent of Europe. Under this system the first 2 years of instruction were devoted to learning articulation almost exclusively; this was effected by placing before the pupil a written or printed word, which the teacher pronounced slowly and audibly, causing the pupil to place his hand upon his throat and to watch his lips as he did so. The pupil was then required to make the attempt to pronounce the word himself; and after repeated trials, if possessing good powers of imitation, he generally succeeded. Another word was then acquired in the same way, and so on. It must be obvious, however, that unless the idea of the meaning of the word was conveyed to the mind of the pupil by some other process, his repetition of these words must be like that of a parrot; and this can only be accomplished by signs of some sort. There is a marked difference in deaf mutes in regard to their ability to acquire the power of articulation so as to be able to speak intelligibly; those who have become deaf after having learned to speak, and those whose vocal organs are pliable, and who possess the imitative faculty in a high degree, acquire the power of articulation with great readiness; while those whose vocal organs are rigid, who are congenitally deaf and dumb, or who possess sluggish intellects, find great difficulty in acquiring the power of speech. Most deaf mutes who speak use a monotonous tone, and some a harsh and unpleasant one, while others modulate the voice without any reference to the sense. Occasionally, though rarely, one is found who, by thorough familiarity with the structure and action of the vocal muscles and long and patient practice, has acquired the art of speaking so well as to excite no suspicion of deafness. Probably no instructor in articulation ever taught it so successfully as Pereira. His pupils, Saboreux de Fontenai and D'Azy d'Étavigny, mingled freely in society, and were in the constant habit of conversing fluently; both were deaf mutes from birth, but there is abundant evidence that nothing in their tones of voice indicated that they were deaf. Seguin even affirms, in his life of Pereira, as a fact of which he was personally cognizant, and which was well known, that Pereira himself being a native of Spain, and speaking with a Spanish accent, all his pupils spoke with the same accent. The mechanical art of articulation and of reading on the lip being acquired, the pupil is thenceforth taught the meaning of words and the sciences in much the same way as a child who can speak. II. The system of the abbé de l'Épée, as improved by Sicard and Bebian, differs from the preceding in every respect. Starting with the principles that there is no necessary or inevitable connection between the word which is the arbitrary sign of a thing and the object for which it stands, and that every idea of which the human mind is capable may be expressed by one or more signs, signs too which even the uneducated can generally understand, the process first attempted was to fix in the mind of the pupil the signs which represented simple objects, and those which readily attracted his attention, such as clothing, food, drinks, parts of the body, the ground, water, grass, fruits, vegetables, domestic animals, men, women, &c.; next, the various relations and circumstances of themselves and others, such as the school, institution, college, officers, domestics, mechanics, laborers, merchants, &c. These attained, subjects more abstruse were represented by the same language of signs, such as the idea of God and spiritual beings, facts of history, science, philosophy, chemistry, numbers, measures, weight, time, &c.; then the organic qualities of man and animals, diseases, properties of matter, action of the body, of the mind, and finally of the moral nature. At an early period instruction in written language is commenced, and the pupil is required to write out narratives communicated to him in the sign language, or to relate by signs facts which he has been made to read. As he advances, he is exercised in the same way on abstract ideas. Having thus acquired two languages, that of signs and written language, his education progresses much in the same way as that of ordinary children, except in the mode of communicating knowledge. The sign language is the natural mode of expressing ideas between individuals who cannot speak the same language; and although the usage of different countries would of course cause differences of dialect, yet with such care have the signs in ordinary use been selected, that the Rev. W. C. Woodbridge affirms that "he has employed it or seen it employed with success, in conversation with an American Indian, a Sandwich islander, a Chinese, and with deaf mutes in various parts of the United States, and in England, Scotland, France, Germany, Switzerland, and Italy." III. The American system may best be described in the words of one who took part in its development, and who had practised it for many years, the late Rev. W. C. Woodbridge: "Mr. Gallaudet has combined the fundamental principle of Heinicke, 'first ideas, then words,' with that of De l'Épée, that 'the natural language of signs must be elevated to as high a degree of excellence as possible, in order to serve as the medium for giving the ideas clearly, and explaining them accurately.' He has added another of no small importance, that as words describe rather the impressions or states of mind produced by external objects than those essential qualities

which are beyond our reach, the process of learning them would be facilitated by leading the pupils to reflect on their own sensations and ideas; and he states as the result of his experience, that among deaf mutes of equal capacities 'those who can be led to mark or describe, with the greatest precision, the operations of their own mind, uniformly make the most rapid progress in the acquisition of written language, and of religious truth.' A leading object therefore, in connection with the first lessons, in which sensible ideas are presented and named, is to establish a free communication with the pupil in the sign language in reference to his feelings and thoughts as excited by the objects which he sees, or the events of his own life. He easily comprehends those of others, and is thus led to learn the names of the simple emotions and acts of the mind. Hence he is brought to think of an invisible agent which we term the soul, as the feeling and percipient being; and by a natural transition is led, by the use of signs alone, to the Great Spirit as the first cause; to his character as our creator and benefactor; and to a knowledge of his law and our future destiny. In this manner the deaf mutes in the institutions of this country are made acquainted with the simple truths of religion and morality in one year, a period in which, in most European institutions, they are scarcely advanced beyond the knowledge of sounds, and the names of sensible objects, qualities, and actions, or the most common phrases. By communicating this instruction in the natural sign language, pupils whose inferior capacity or advanced age would not allow them to acquire enough of written language to receive religious truth through this medium, have been early prepared to enjoy its blessings and hopes, and feel its sanction as a restraint upon their conduct, which renders their government more easy, while it aids them in the formation of correct habits." Another peculiar feature of the American system introduced by Mr. Gallaudet, and now generally adopted in American institutions, is conducting the daily and weekly devotional exercises in the sign language. The English schools, which began by regarding articulation as of the first importance, now make extensive use of the language of signs, as do most of the continental schools; while the French schools and those of this country usually have a class in articulation, generally composed of those who had learned to talk before becoming deaf, or the flexibility of whose vocal organs renders them appropriate subjects for the exercise. The signs are divided by the teachers of deaf mutes into two classes, descriptive and methodical; the first consisting of those which portray the object, or, by some accepted conventionalism, imply some mental action or abstract idea; the second representing those connectives, inflections, and other changes in the form of expression, which vary the meaning of language. The latter are of course arbitrary, but are at the present day generally agreed upon and easily acquired by the learner.

In the acquisition of so large an amount of ideas as is necessary for a good education to the deaf mute, embarrassed as he is by his infirmity and by the necessity of acquiring two languages, it must be evident that the period of 3, 4, or 5 years is utterly inadequate, when a child endowed with all his faculties has from 12 to 15 years for the attainment of an ordinary education; and it is a matter of congratulation that the course is very generally extended to 7 or 8 years, and that in several institutions a high class, for the prosecution of higher branches of study, is established. These classes give to the deaf mute who is desirous of intellectual culture opportunities almost equivalent to those of a collegiate course. In Paris a "class of perfection," answering to the American high class, was established some years since in the national institute, through the liberal bequest of Dr. Itard, who was for many years physician to the institute.—We have adverted in the commencement of this article to the complete mental isolation of the deaf mute, but it may be of interest in a psychological point of view to give in a few words the result of an extended series of inquiries made of intelligent educated deaf mutes some years since in Europe and this country, respecting their ideas before receiving any education. Of some thousands to whom such inquiries as the following were addressed: What were your ideas of God? What of the creation of the world? What of the sun, moon, and stars? What did you suppose to be the object of public religious services on the Sabbath? &c., the answers were in nearly all cases such as these: "I had no idea of God;" "I supposed God to be a strong and cruel man, who made the thunder and lightning to frighten us;" "I supposed the world had always been;" "I had no ideas of the origin of the world;" "I supposed the earth was very much larger than the sun;" "I thought the sun was a man, and the moon another;" "I thought people went to church to worship the minister;" "I supposed it was a holiday, and the people were playing." These answers might be greatly multiplied, but those already given are sufficient to show that in mental condition the deaf mute is in no respect above the ignorant and untutored savage. Their mental operations before receiving education are very slow, and the mind seems to be in a torpid state from which the discipline of an education rouses it. Under the influence of the thorough course of instruction adopted in our American institutions they improve rapidly, becoming respectable scholars, and developing vigorous and healthy intellects. The results of education in training the deaf and dumb to self-support and independence have been very remarkable. Of more than 1,000 pupils who have spent more or less time at the American asylum, the directors and officers after extensive correspondence cannot find more than one or two who are not comfortably supporting themselves, and many of them their families. A considerable number have accumulated property. Some have attained distinction in the

fine arts. In the French magazine *L'Impartial* (devoted to deaf mutes) for Jan. 1856, is an account of two first class prizes having been awarded to deaf mutes at the Paris industrial exhibition of 1855. One was to a M. Maloisel, a sculptor, for an instrument for duplicating choice statues, &c., in any material; the prize was the great medal, and an annuity of $60 per annum. The other was to a M. Richardin for a machine for polishing daguerreotype plates, a process always hitherto performed by hand. There were also several smaller prizes conferred on deaf mutes. When it was proposed to erect a monument to the late Dr. Gallaudet, the deaf mutes who had been his pupils came forward and asked the privilege of taking the whole matter into their own hands. The plan was drawn by a deaf mute, and a copy of it lithographed by deaf mutes. The monument, which is really one of the finest conceptions in the way of a commemorative column, is entirely due, in conception, design, and execution, to deaf mutes. Within the past 5 or 6 years the educated deaf and dumb in this country have been in the habit of holding an annual convention for their improvement, and they have in these conventions given evidence of practical talent of a high order. In Europe, owing mainly to the density of the population, and the difficulty which the laboring classes, even when possessed of all their faculties, find in procuring subsistence, it has been found necessary to form associations for the assistance of deaf mutes. Such societies have been established in Paris, Berlin, Vienna, and perhaps in some other cities. Workshops are hired or erected by these societies, the raw material procured at the lowest price, and they are furnished with them free from rent, and without the necessity of making advance payment on their stock. In some cases they are also boarded at a very low rate, or an allowance is made them weekly toward defraying the expense of board.—The proportion of the deaf and dumb varies greatly in different countries. In China it is said to be very small; whether the prevalent practice of infanticide may not reduce the number by destroying those children whose faculties seem imperfect, is a question. In Africa the missionaries report that there are very few cases among the native population; but we suspect that careful and thorough investigation would bring to light more than are now supposed to exist. The following table, prepared from the published census reports of the several countries, and from other authentic sources, gives, it is believed, a tolerably accurate view of the prevalence of the infirmity in Europe and America. There is reason to believe, however, that in Switzerland, the grand duchy of Baden, and perhaps also in Austria, cretins have been enumerated with deaf mutes. As a general rule, the ratio of deaf and dumb persons to the population is larger in mountainous countries and in districts which are so far isolated as to render intermarriage of relatives frequent:

Countries.	Number of deaf mutes.	Date of census.	Ratio to population.
Great Britain	12,553	1851	1 in 1,670
Ireland	4,747	1851	1 in 1,880
Spain	12,000	1851	1 in 1,500
Portugal	2,407	1835	1 in 1,585
France	29,512	1852	1 in 1,212
Italy	12,618	1835	1 in 1,565
Grand duchy of Tuscany	697	1846	1 in 2,171
Switzerland	3,976	1846	1 in 502
Grand duchy of Baden	1,983	....	1 in 559
Würtemberg	1,250	1850	1 in 1,240
Bavaria	2,908	1840	1 in 1,515
Austria	35,568	1846	1 in 1,052
Prussia	11,973	1849	1 in 1,364
Saxony	883	1849	1 in 2,180
Hanover	946	1840	1 in 1,621
Electoral Hesse	400	1835	1 in 1,375
Duchy of Nassau	210	1835	1 in 1,428
Brunswick	176	1835	1 in 1,170
Oldenburg	167	1835	1 in 1,590
Belgium	1,911	1851	1 in 2,316
Holland	1,393	1850	1 in 2,209
Denmark	1,260	1850	1 in 1,714
Sweden	1,999	1846	1 in 1,528
Norway	1,176	1850	1 in 1,485
Russia	37,978	1850	1 in 1,621
United States	9,803	1850	1 in 2,345
Canada	1,343	1851	1 in 1,372

—*Causes of deafness.* About $\frac{3}{5}$ of the cases of deafness are congenital. The causes of this are usually either hereditary transmission, direct or indirect; intermarriage of near relatives; or grief, fright, or other violent emotions of the mother during pregnancy; and sometimes intemperate or vicious habits on the part of one or both parents. In hereditary transmission of the infirmity, it often occurs that the children of deaf mutes hear while their children are deaf and dumb. The infirmity, too, is often perpetuated in collateral branches of the family. Were it necessary, volumes of statistics might be compiled to show the disastrous results of the intermarriage of near relatives, in inducing not only congenital deafness, but blindness, insanity, and, more often than either, idiocy. The following table presents an interesting summary of the results of inquiry in England, Ireland, France, and different sections of our own country:

Statistics of American Asylum at Hartford.—Of 542 cases, 95 had either parents, grandparents, uncles, aunts, or cousins deaf and dumb; 27 more remote relatives deaf and dumb. Of 911 families, 728 had each only 1 deaf and dumb child; 109 had 2; 41 had 3; 18 had 4; 11 had 5; 2 had 6; and 2 had 7.

Statistics of National Institution, Paris.—Of 102 families, 81 had only 1 deaf and dumb child; 9 had 2; 7 had 3; 3 had 4; 1 had 5; 1 had 7.

Statistics of Yorkshire Institution, at Doncaster, England.—Of 110 families, 74 had but 1 deaf and dumb child; 17 had 2; 7 had 3; 2 had 4; 1 had 5.

Statistics of Report of Secretary of State, Ohio.—Of 407 families, 327 had but 1 deaf and dumb child; 49 families had 2 each; 17 had 3; 8 had 4; 2 had 5; 2 had 6; 1 had 7; 1 had 9. Of these 407 families, the parents of 47 were known to have been cousins. Of these 47, 30 had 1 deaf and dumb child; 10 had 2; 4 had 3; 2 had 4; 1 had 5.

Statistics of Ireland, prepared by Dr. Wildes.—Of 170 families where the parents were known to be first cousins, 109 had 1 deaf and dumb child; 17 had 3; 3 had 4; 1 had 7, and 1 had 8. In 471 cases deafness was found to be hereditary, of which 249 were cases in which the father or some relative of his was deaf and dumb, and 222 where the mother or some relative of hers was deaf and dumb.

Where not congenital, deaf-mutism is usually the result of disease or accident occurring in early life. The diseases which most frequently produce this result are fever in some form, continued, typhus, or yellow, scarlatina, that ter-

rible scourge of childhood, inflammation of the brain or ear, dropsy of the brain, convulsions, and local paralytic affections. In Europe the small pox is also an important agent in causing this infirmity. The following table of causes of deafness when not congenital is made up from the results of a careful and thorough inquiry in 4 different countries:

Reports of what institution or country.	Whole number of cases not congenital.	Fever, continued, spotted, typhus, or yellow.	Scarlatina.	Pneumonia.	Measles.	Small pox.	Whooping cough.	Inflammation of brain or ear.	Scrofula and Rickets.	Mumps.	Hydrocephalus.	Palsy.	Convulsions and Worms.	Accidents.	Erysipelas.	Unknown.
American Asylum, Hartford, United States.	539	101	99	3	19	2	14	85	8	1	13	2	6	22	2	107
National Institution, Paris, France.....	50	10	1	1	2	..	..	9	1	..	..	..	6	1	..	4
Yorkshire Institution, Doncaster, England.	35	..	5	3	4	..	..	9	..	..	..	..	3	..	..	11
Dr. Wildes's Irish Tables.....	375	74	37	..	10	18	..	..	..	..	..	53	40	43	..	100

—*Nature and cure of deafness.* The diseases to which the ear and parts adjacent are subject, and most of which may cause or accompany deafness, are the following: Malformation of the external ear; a diminished or excessive secretion of the wax; obliteration or enlargement of the auditory passage; extraneous matter in the Eustachian tube; a diseased or paralyzed condition of the auditory nerve; disease of the brain; disease of the throat and tonsils; the growth of polypi from the lining membrane of the auditory passage; inflammation or structural disease of the tympanum. Numerous attempts have been made, both by men eminent for science and by quacks, to restore hearing to the deaf; but, with few exceptions, without success, where the deafness was nearly or quite complete. There are not probably on record more than 20 cases of complete recovery where the deafness was entire. Of those who have devoted attention to this subject, none probably ever brought the entire appliances of science to bear upon it more fully than Dr. Itard, the celebrated surgeon and philanthropist. He made himself completely master of the anatomical structure of the ear, of its physiology, and of its diseases. He tried during the long period of 40 years every remedy which seemed to give any promise of success, even to the terrible moxa and the actual cautery, but could report success in but two cases out of the hundreds he treated. Dr. Deleau, another eminent surgeon, also made a great number of experiments, but with no better success.—We have already traced the origin of the early deaf and dumb institutions of France, Great Britain, and Germany. From these great centres they have spread over the whole of Europe, until now there are more or less in each country, and many of them of very superior character. In Great Britain none of the original schools organized by the Braidwood family are in existence; the oldest institution being that of London, founded in 1792, which is also the largest in Europe, numbering over 300 pupils. In 1825 there were in the United Kingdom only 9 institutions for deaf mutes, and these but indifferently sustained; in 1851 there were 25, all well sustained, employing 81 teachers, and containing over 1,400 pupils. In France for many years there were no institutions for deaf mutes except those at Paris, Bordeaux, and Orleans; there are now 44, with 63 teachers, and 1,642 pupils. The school founded by De l'Épée is still in existence as the national institute for young deaf mutes in Paris, and is, after that of London, the largest in Europe. The school of Heinicke still exists at Leipsic, but does not now follow Heinicke's methods. After France, Prussia is next in rank in her devotion to the education of deaf mutes. She has 25 schools, with about 60 teachers and 853 pupils. Austria has 19 institutions, with 71 teachers and 643 pupils. Belgium has 10, with 395 pupils; one of these, that of Bruges, under the direction of the abbé Carton, has become widely known from the writings of its able director, and particularly from his interesting narrative of the deaf, dumb, and blind girl, Anna Temmermans. Bavaria has 9, with 21 teachers and 229 pupils, and has made so thorough an investigation of the condition of its deaf and dumb and its blind inhabitants, that we may reasonably expect hereafter great progress. The smaller states of Germany are well supplied with schools for deaf mutes, but many of them are very small. Italy has 22, several of which have only from 5 to 10 pupils; the whole number of pupils is only 442. Russsia, Spain, and Portugal are very poorly supplied with schools for the education of this class of unfortunates. We subjoin a table giving the population of each country in 1850, with the number of schools for deaf mutes and pupils at the same date:

Countries.	Population, 1850.	Number of schools.	Number of pupils.
England.....	17,927,609	13	854
Ireland.....	6,515,794	7	288
Scotland.....	2,888,742	5	259
France.....	35,783,170	44	1,642
Germany.....about	10,500,000	46	577
Austria.....	36,514,397	19	643
Prussia.....	16,331,187	25	853
Bavaria.....	4,559,452	9	226
Belgium.....	4,426,202	10	395
Holland.....	3,056,591	5	249
Switzerland.....	2,392,740	7	140
Denmark.....	1,402,876	3	225
Sweden and Norway.....	3,762,276	2	116
Italy.....	16,500,000	22	442
Spain.....	12,232,194	3	70
Portugal.....	3,473,758	2	50
Russia.....	62,088,000	5	315
Total.....	240,354,988	227	7,344

—We have already referred incidentally to Mr. Gallaudet's visit to England in 1815, and the subsequent organization of the American asylum for the deaf and dumb at Hartford. That institution, the parent of American deaf-mute institutions, is still vigorous and flourishing. Mr. Gallaudet resigned the superintendency in 1830, and was succeeded by Mr. Weld, then at the head of the Pennsylvania school. On the decease of Mr. Weld in 1853, the Rev. W. W. Turner, the present principal, was elected. The asylum has now (1858) 17 teachers, 246 pupils, and has graduated over 1,100 deaf mutes. The New York institution, the largest in this country, and equal in size to any in Europe, was organized in 1818, but owing to a variety of causes met with but indifferent success till 1831, when its present president, Harvey P. Peet, LL.D., was called to the superintendency. Under his care it has risen to the first rank of public institutions for deaf mutes, in the extent and thoroughness of its course of instruction and the ability of its corps of instructors. It has recently removed to its new edifice at Fanwood, on the Hudson river railroad, about 9 miles from the city hall, New York, where it has accommodations for about 500 pupils. The new buildings are unsurpassed in magnificence and cost by any edifice for the deaf and dumb in the world. About 37 acres are included in the grounds. The entire expense of buildings and grounds was $563,000. The Pennsylvania institution was organized by Mr. Clerc, the deaf mute who accompanied Mr. Gallaudet to this country in 1816, and Mr. Louis Weld, then a teacher in the Hartford asylum, became its principal. On his resignation in 1830, Mr. Abraham B. Hutton, the present principal, was elected. The institution is in a highly prosperous condition. The Kentucky asylum was incorporated in 1823. Its principal, Mr. J. A. Jacobs, like those of the New York, Pennsylvania, Virginia, and Ohio asylums, was educated for his position at Hartford. Mr. Jacobs has distinguished himself among the highly intellectual corps of superintendents of deaf and dumb institutions as an able writer and a vigorous thinker. The Ohio institution, organized in 1829, has been ably managed from the first, and is one of the most efficient of the western schools. It has had 3 principals, Mr. Hubbell, Mr. Cary (both deceased), and Mr. Stone, the present incumbent. All had been teachers at Hartford. The Virginia institution, located at Staunton, was organized in 1838. It contains a department for the blind. It is finely situated, and its buildings and grounds are very attractive. The other institutions have all been organized since 1845, and most of them are state institutions. The western states have generally been very liberal in their appropriations for the erection of suitable buildings and the support of the institutions; but in some of them partisan politics have been allowed to exert an unfavorable influence in inducing frequent changes of superintendents. The table on the next page gives a comprehensive view of the present condition of the institutions in the United States, carefully compiled from their latest reports. From this it appears that there are in these institutions about 1,800 deaf and dumb pupils, which, estimating the proportion of deaf mutes as 1 in 2,000 of the population, would give ¼ of the whole number as under instruction. Large as this proportion is, it comprises, according to the tables of Dr. Peet, published in 1852, only about ⅔ of the number who should be under instruction. The term of life with the deaf mute is shown by the census of England and the United States to be below the average. In England 47 per cent. of the whole number of deaf mutes are under 20 years of age; in the United States about 50 per cent. are under 30 years. The deficiency of schools in this country is mainly in the southern and western states, and is likely to be remedied in the course of a few years. In Europe, and especially in Austria, Spain, Portugal, and, above all, Russia, the provisions for their education are very meagre and defective. The advancing light of civilization will undoubtedly remedy this in time, but many generations of the unfortunate deaf and dumb must first perish in ignorance.—The number of deaf mutes who have attained to eminence in science and art is much smaller than that of the blind; but occasionally we find a superior intellect rising above the trammels of infirmity, and making good its claim to the possession of genius. Among those who have distinguished themselves for intellectual ability, Jean Massieu deserves notice; the fellow pupil of Clerc, and afterward, under Sicard, his fellow teacher, he displayed metaphysical powers of a high order. The late Walter Geikie, R. A. S., of Edinburgh, was a painter and designer of extraordinary ability, and it is no exaggeration to say that the title of the "Scottish Teniers," which was very generally applied to him, conferred more honor on the ancient than the modern painter. He left about 1,300 sketches, many of them etched on copper by himself; and as representations of common life in Scotland they are unsurpassed. We might add to this catalogue such names as that of the linguist Montbret and others, who have distinguished themselves in their several spheres; but the living deaf mutes who have achieved distinction are far more numerous than the dead. Laurent Clerc and Prof. Lenoir, eminent as teachers in deaf and dumb institutions; Levi S. Backus, editor of the "Radii;" Edmund Booth, editor of the "Eureka;" Albert Newsam, an artist of decided genius; M. Maloisel, the French sculptor; and Mrs. Mary Tolles Peet, whose lyrical powers give evidence not only of poetic genius but of rhythmic ability entirely independent of the accident of hearing, are among the most distinguished. As education progresses among the deaf and dumb, we may confidently expect the development of higher intellectual powers, and a more facile and skilful use of them.

TABULAR VIEW OF DEAF AND DUMB INSTITUTIONS IN THE UNITED STATES, 1858.

Name.	Location.	Date of opening.	Date of information.	Number of pupils who are deaf mutes.	Males.	Females.	State beneficiaries.	Cost of the present buildings and grounds.	Annual amount received from state for ordinary purposes.	Amount from paying pupils.	Amount of ordinary expenses.	Permanent funds.	Annual charge to paying pupils.	Name of principal or superintendent.	Number of instructors, including principal.	Number of instructors who are deaf mutes.	Number of do., female.	Number educated previous to 1857.
American asylum for deaf and dumb....	Hartford, Conn...	1817	1858	246	127	119	221	$69,061	$16,554	$2,041	$40,682	$290,000	100	Rev. W. W. Turner...	14	5	3	1,073
N. Y. institution for deaf and dumb.....	New York city...	1818	1857	315	180	135	255	563,000	41,000	4,000	43,600	.....	150	H. P. Peet, LL.D.....	15	6	2	989
Penn. " " "	Philadelphia.....	1820	1857	173	80	93	143	107,364	12,600	1,711	19,625	52,000	140	A. B. Hutton.....	10	3	0	875
Kentucky " " "	Danville	1823	1857	75	42	33	67	63,000	13,000	700	9,268	4,000	105	J. A. Jacobs.....	6	3	1	351
Ohio " " "	Columbus	1829	1857	155	80	75	153	35,000	20,000	200	21,000	.....	100	Rev. Collins Stone....	9	3	0	510
Virginia inst. for deaf, dumb, and blind..	Staunton	1839	1855	71	42	29	..	75,000	....	....	23,000	.....	130	J. C. M. Merillat, M.D.	6	3	1	120
Indiana institution for deaf and dumb..	Indianapolis	1844	1857	153	96	57	147	137,000	25,000	600	26,000	Land.	100	Thomas McIntire.....	9	2	2	211
Tennessee " " " ..	Knoxville	1845	1857	61	29	32	60	41,780	13,000	130	13,000	.....	130	A. G. Scott.....	5	2	1	6
N. Carolina inst. for deaf, dumb, and bl'd.	Raleigh.....	1845	1856	68	..	..	..	.....	8,000	....	....	.....	..	William D. Cooke....	3	2	..	..
Illinois institution for deaf and dumb...	Jacksonville.....	1846	1857	115	75	40	115	100,000	22,500	....	22,500	.....	100	P. G. Gillett.....	9	3	1	..
Georgia asylum " " ..	Cave Spring.....	1846	1857	45	27	18	35	18,500	8,000	1,750	8,500	.....	175	O. P. Fannin.....	3	1	0	83
S. Carolina inst. for deaf, dumb, and blind.	Cedar Spring.....	1849	1857	24	8	16	21	12,531	4,416	450	....	.....	150	N. P. Walker.....	4	1	2	13
Louisiana " " "	Baton Rouge	1852	1857	..	..	..	..	200,000	14,500	....	....	.....	..	J. S. Brown.....	..	..	..	..
Missouri institution for deaf and dumb..	Fulton	1851	1857	84	44	40	75	48,500	10,800	....	11,750	.....	100	William D. Kerr.....	5	4	0	55
Wisconsin " " " ..	Delavan.....	1852	1857	41	26	15	41	11,000	....	....	....	.....	100	J. S. Officer.....	5	2	1	..
Mich. asylum for deaf, dumb, and blind.	Flint.....	1854	1857	57	28	29	57	38,000	7,000	....	7,000	.....	100	B. M. Fay.....	4	2	0	..
Iowa institution for deaf and dumb.....	Iowa City.....	1855	1857	47	24	23	46	rented b'd'gs	5,000	140	5,000	.....	..	William E. Ijams.....	3	2	0	..
Mississippi " " "	Jackson	1856	1857	21	..	..	..	.....	6,000	....	....	Stato lands, 100,000 acres	..	A. K. Martin.....	1	1	0	..
Texas " " "	Austin.....	1857	1857	11	..	..	..	rented b'd'gs	....	....	....		..	Jacob Van Nostrand..	2	1	0	..
Columbia inst. for deaf, dumb, and blind.	Washington, D. C.	1857	1857	12	..	..	12	" "	....	....	....		..	E. M. Gallaudet.....	2	1	1	..

EMINENT DEAF MUTES.

Juan Fernandez de Navarette, painter, born 1526, died 1579, commonly known as El Mudo; he was regarded as the Titian of Spain. He painted many of the finest pictures of the Escurial.

Pedro de Velasco, a brother of the constable of Aragon, born 1540, a priest of the Roman Catholic church; —— Velasco, a brother of the preceding, born 1544, an officer in the Spanish army. These were pupils of Pedro Ponce de Leon, and were the first deaf mutes who attained distinction.

Sir Edward Gostwick, magistrate, born about 1610; —— Gostwick, painter; brothers, mentioned by Defoe as having obtained distinction; they were deaf from birth. The younger attained to eminence as a painter of portraits.

Emanuel Philibert, prince of Savoy, born about 1650, died about 1700, a pupil of Ramirez de Carion, who acquired the ability to read and speak 4 languages.

Miss Loggin, authoress, born about 1700; also mentioned by Defoe, who speaks of her as a miracle of wit and good nature.

Saboreux de Fontenai, born about 1730, one of the most distinguished of Pereira's pupils, master of several languages, and an author.

Jean Massieu, teacher of deaf mutes, born 1772, died 1846, was the most eminent of Sicard's pupils, and possessed extraordinary logical powers. He was director of the deaf-mute institute at Lille.

Eugène, Baron de Montbret, secretary interpreter to the minister of foreign affairs, France, born 1785, died 1847. After Cardinal Mezzofanti, Baron de Montbret was perhaps the best linguist in Europe. He was more familiar than any other man with the Asiatic languages. He became deaf at the age of 5 years. He left $60,000 and a library of 60,000 volumes to the city of Rouen.

Laurent Clerc, professor at Paris and Hartford, born 1785, was associated with Mr. Gallaudet in founding the American asylum for deaf and dumb, and had previously been a professor at Paris under Sicard. He is still living at Hartford. His autobiography, letters, and addresses have been published.

Mrs. Charlotte Elizabeth Tonna, authoress, born 1792, died 1846. Mrs. Tonna was one of the most voluminous religious writers of the present century, and her works have had a large circulation. She became deaf in childhood, at the age of 9 or 10.

Walter Geikie, painter and engraver, born 1795, died 1837, possessed such skill in the portraiture of low life in Scotland that he was known as the Scotch Teniers. A volume of his etchings has been published.

Levi S. Backus, teacher, printer, and editor, born 1803, formerly connected with the deaf and dumb institute at Canajoharie, now discontinued; editor and publisher of the "Radii," at Hamilton, N. Y.

John Kitto, D.D., LL.D., author and editor, born 1804, died 1854. Dr. Kitto was regarded, at the time of his resigning his connection with the "Journal of Biblical Literature," as the ablest biblical scholar then living. He was the editor and a large contributor to the "Cyclopædia of Biblical Literature," author of "Daily Bible Illustrations," "Lost Senses," &c. He became deaf at the age of 13.

Thomas Brown, mechanic, born 1804, has presided over three sessions of the convention of the deaf and dumb. His addresses which have been published exhibit decided talent.

Wilson Whiton, a teacher in the American asylum, born 1805. Prof. Whiton has not, we believe, published any thing, but bears a high reputation for scholarship and intellectual ability.

Alice Cogswell, born 1805, died 1830, one of the most interesting of this unfortunate class. She possessed in a high degree the poetic temperament. It was in consequence of his interest in her that Dr. Gallaudet was led to attempt the education of the deaf and dumb.

George H. Loring, teacher in the American asylum, born 1807, died 1852, was one of the earliest pupils of the asylum. He was a writer of superior ability.

James Nack, poet and author, born 1809, became deaf at the age of 9 years; has an office under the N. Y. county clerk; has published several volumes of poems, the last entitled the "Romance of the Ring" (1859).

David M. Phillips, lieutenant-colonel of governor's horse guards, Louisiana, born 1811, was educated at the deaf-mute institute in Groningen, but has resided in New Orleans since 1831. He has filled many offices with fidelity and distinction, some of them such as it would seem impossible for a deaf mute to fill.

Edwin John Mann, mechanic and author, born 1811, is a graduate of the American asylum at Hartford. He published in 1836 a volume entitled "The Deaf and Dumb; a collection of articles relating to the condition of deaf mutes, &c."

Mrs. Mary Tolles Peet, teacher and poetess, born 1836, has published a number of fugitive poems of great merit. She possesses what deaf mutes seldom attain, an accurate perception of rhythm and melody. She became deaf at the age of 13.

John R. Burnet, farmer and author, was for a time an instructor in the N. Y. institute; now resides at Livingston, N. J., where he has a farm. Is familiar with French and German literature. He has published "Tales of the Deaf and Dumb, with Miscellaneous Poems," and has been a frequent contributor to the "Biblical Repository" and "North American Review."

Ferdinand Berthier, professor at Paris and author, died 1857, wrote an able memoir of De l'Épée, and several addresses which were published.

Professor Lenoir, of Paris, spoken of by Mr. Clerc as a man of decided ability. He is still living.

John Carlin, an artist. Mr. Carlin is one of the most gifted deaf mutes living. As an artist and designer he possesses genius of a high order. He is also a vigorous and able writer. He is a graduate of the Philadelphia institution.

Albert Newsam, artist and engraver. Mr. Newsam stands in the first rank of American lithographic artists. Many of his engravings, designed entirely by himself, are among the best specimens of the art in this country.

M. Maloisel, superintendent of turning shop in Paris institution for deaf and dumb. M. Maloisel has distinguished himself as an inventor. A machine invented by him for executing sculpture received the great medal and an annuity of $60 per annum, at the world's fair in Paris, 1855.

M. Richardin, inventor and daguerreotypist. M. Richardin also received a medal for an ingenious machine for polishing daguerreotype plates—not his first contribution to the improvement of that art.

—The following works may be consulted with advantage by those who would investigate the subject of deaf-mute instruction more fully; the earlier ones, except some 2 or 3 which have been reprinted, are scarce: Juan Pablo Bonet, *Reduccion de las letras y artes para enseñar a hablar los mudos* (Madrid, 1620); George Dalgarno, "Didascalocophus, or the Deaf and Dumb Man's Tutor" (Oxford, 1680), reprinted in the "Annals of the Deaf and Dumb," vol. ix.; John Wallis, "Letter to Thomas Beverley," in the "Philosophical Transactions," Oct. 1698; Joseph Watson, LL.D., "Instruction of the Deaf and Dumb" (London, 1809); "Memoirs of Rev. John Townsend" (Boston, 1831; Mr. Townsend was the founder of the London asylum for the deaf and dumb); Charles Michel, abbé de l'Épée, *La véritable manière*, &c. (Paris; this is De l'Épée's best work; it was translated into English, and published at London in 1801); Charles Baker, "Contributions to Publications of the Society for the Diffusion of Useful Knowledge," &c. (privately reprinted, 1842); Abbé Sicard, several works on the instruction of deaf mutes, all of which are, however, now scarce; Baron de Gerando, *De la bienfaisance* and *De l'enseignement des sourds-muets*, the latter a work of great value; *Annales de l'éducation des sourds-muets et des aveugles*, a periodical published in Paris, 1843–'53; *Le Bienfaitcur*, a periodical, 1853–'56; *L'Impartial*, a periodical, 1856; "Annals of the Deaf and Dumb" (Hartford, 1848–'58); "Tribute to Gallaudet," with an appendix by the Hon. Henry Barnard (Hartford, 1852); reports of the various deaf and dumb institutions in Europe and America; "Life of the Rev. T. H. Gallaudet, LL.D.," by the Rev. Heman Humphrey, D.D. (New York, 1858).

DEAL, a parliamentary and municipal borough, parish, seaport, market town, and watering place of Kent, England, and a member of

the cinque port of Sandwich, built on an open beach on the North sea, between the N. and S. Forelands, 18 m. S. E. of Canterbury, 8 m. N. E. of Dover, and 102 m. by the south-eastern railway E. S. E. of London; pop. in 1851, 7,067. It is divided into Upper and Lower Deal; the former, comprising the residences of the wealthy classes, was a small fishing village in the time of Henry VIII.; the latter, built on 3 streets parallel with the coast, is entirely of modern date, and has most of the business and the bulk of the population. The town contains a spacious esplanade, a public library and reading room, a custom house, a naval yard and storehouse, barracks, a pilot station, a town hall, a gaol, baths, a savings bank, boat-building yards, gas works, a nautical school, national and infant schools, 2 parish churches, a chapel of ease, and places of worship for dissenters. At its S. end is a fortress built by Henry VIII. in 1539, and on the N. stands Sandown castle, now used as a coast guard station. There is no harbor, but vessels of all dimensions ride safely in a spacious roadstead called the Downs, between the shore and the Goodwin sands. The latter lie directly opposite the town, and are the scene of frequent shipwrecks. There is little or no foreign commerce, but a brisk trade in naval supplies is carried on with vessels which, at times to the number of 400 or 500, anchor in the Downs while waiting for favorable winds. Many of the inhabitants are fishermen or connected in some other way with maritime pursuits, and the skill and daring of the Deal boatmen, both as pilots and as wreckers, are almost proverbial; but their occupation is now deserting them. Of the licensed or branch pilots of the cinque ports, 56 are attached to this station. The registered shipping of the port, Dec. 31, 1856, amounted to 18 vessels, with an aggregate tonnage of 299. Number of coasting vessels entered during the year, 72, tonnage 5,335. There were no returns of entrances from foreign ports, nor of clearances of any description. Adjoining Deal on the S. is the suburban village of Walmer, where is situated Walmer castle, the official residence of the warden of the cinque ports. In the same suburb is a royal naval and military hospital, now converted into a coast guard station. There are several martello towers along the coast. The borough unites with Sandwich in sending 2 members to the house of commons.

DEAN (Lat. *decanus*, Fr. *doyen*), in England, an ecclesiastical officer, so called, it is supposed, because he was formerly at the head of ten (lat. *decem*) canons or prebendaries. Deans are of 3 classes. 1. The dean of a cathedral church ranks next to the bishop, and is chief of the chapter, by whom he was originally elected; but in bishoprics erected by Henry VIII. he is now appointed by the crown, while in other sees the chapter are obliged under heavy penalties to choose the royal nominee. All the acts of such communities are in the name of the dean and chapter. 2. Rural deans are usually beneficed clergymen to whom is committed the superintendency of a certain number of parishes. They are the medium of communication between the higher and lower orders of clergy; they appear to have formerly discharged the duties now performed by clergymen called surrogates, and they had their public seals. The office probably existed in England before the Norman conquest, and subsequently falling into disuse, became merged in those of archdeacon and chancellor. An attempt has been made to revive it during the present century. 3. Deans in peculiars are ecclesiastics possessing peculiar privileges and jurisdiction, arising in most instances from royal foundations. Such are the deans of Westminster, St. George's chapel at Windsor, Christ church Oxford, the Arches, the King's chapel, &c., most of whom were originally, as some are now, at the head of capitular bodies. There are also deans of faculties in the universities, and in Scotland deans of guild, who preside over incorporated bodies of tradesmen.

DEAN FOREST, a royal forest of England, in the county of Gloucester; area, about 22,000 acres, one-half of which is now set aside for navy timber; pop. in 1851, 13,566, mostly miners. It was anciently much more extensive than at present, nearly all that part of the county lying W. of the Severn having been included within its limits. It embraces a number of plantations of oak, beech, and other trees, and orchards famous for the production of styre-apple cider. It abounds in coal and iron, and several railways have been constructed from the mines to the Severn, Wye, &c. Dean Forest is divided into 6 parochial districts, and is the property of the crown. The inhabitants pay no county rates, and enjoy a number of ancient privileges.

DEANE, James, M.D., an American physician, the discoverer of the fossil footprints of the Connecticut valley, born in Coleraine, Mass., Feb. 14, 1801, died at Greenfield, June 8, 1858. He removed to Greenfield in 1822, where, after writing in a public office for 4 years, he studied medicine, and practised as a physician and surgeon from 1831 until his death. As a medical writer he was known to the profession by his frequent contributions to the Boston "Medical and Surgical Journal," and by a communication written at the request of the Massachusetts medical society, on the "Hygienic Condition of the Survivors of Ovariotomy," in which he established the morality of the operation. In the spring of 1835 he discovered the fossil footprints in the red sandstone of the Connecticut valley. By means of diagrams and plaster casts he succeeded in calling the attention of eminent scientific men to the subject, and thus gave the first impulse to its thorough investigation, which was afterward prosecuted by Prof. Edward Hitchcock and others. For several years he was a most successful collector of specimens, and American geologists were early convinced of the genuineness of the footprints; but the greatest scepticism existed in England until, in 1842, Dr. Deane prepared a box of the impressions, which he

sent with a communication to Dr. G. A. Mantell, by whom they were placed before the geological society of London; and by means of these, taken in connection with the then recent discovery of the bones of the dinornis of New Zealand, the doubts of Sir Roderic Murchison (then Mr. Murchison), the president of the society, and of Dr. Mantell and Prof. Owen, were removed, and they yielded their assent to the conclusions of Dr. Deane and Prof. Hitchcock. Shortly afterward a discussion arose between the two latter gentlemen as to their respective claims to the credit of the discovery, which appeared in "Silliman's Journal," vol. xlvii. Dr. Deane also published numerous papers in the same and other scientific journals, and in the memoirs of scientific societies, with occasional illustrations; and at the time of his death he was engaged in the preparation of an elaborate memoir upon the whole subject for the Smithsonian institution, with lithographic plates made by himself, by which the color of the rock and the actual appearance of the footprints were reproduced with singular fidelity. These plates were all completed.

DEANE, Silas, an American diplomatist, born at Groton, Conn., died at Deal, England, Aug. 23, 1789. He was graduated at Yale college in 1758, and was a member of the first continental congress in 1774. He was sent by congress to France as a political and financial agent, and arrived at Paris in June, 1776, with instructions to ascertain the temper of the French government concerning the rupture with Great Britain, and to obtain supplies of military stores. But he did not confine himself to his instructions, but made promises and engagements on all sides, which afterward brought the congress into considerable embarrassment. When in September it was determined to send ministers to negotiate treaties, Dr. Franklin and Mr. Jefferson, and, on the declension of the latter, Arthur Lee, were commissioned to join him at Paris, and he assisted in the negotiation of the treaty with France. In consequence of the extravagant contracts he had entered into, he was recalled, Nov. 21, 1777, and John Adams appointed in his place. He left Paris, April 1, 1778, and upon his return, being called upon to give an account of his proceedings on the floor of congress, evaded a complete disclosure upon the ground that his papers were in Europe. He then attacked his fellow commissioners and congress itself in a public manifesto for the manner in which he had been treated, but did not succeed in removing the public suspicion from himself. He afterward published in 1784 an address to the citizens of the United States on the same subject, and returning to Europe, died in great poverty.

DEARBORN, a S. E. co. of Ind., bordering on Ohio, drained by Whitewater river; area, 291 sq. m.; pop. in 1850, 20,166. Part of the surface is level and part hilly; the soil is generally fertile. Limestone is the principal rock. In 1850 this county yielded 938,491 bushels of corn, 70,506 of wheat, 94,108 of oats, and 13,889 tons of hay. There were 47 churches, and 7,461 pupils attending public schools. Capital, Lawrenceburg.

DEARBORN, Henry, an American general, born in Hampton, N. H., in March, 1751, died at Roxbury, Mass., June 6, 1829. He was practising medicine at Portsmouth when, on hearing the news of the battle of Lexington, April 20, 1775, he immediately marched with 60 volunteers, and was at Cambridge early the next day, a distance of 65 m. He was made a captain, was at the battle of Bunker hill, June 17, and accompanied Arnold on the expedition through the woods of Maine to Quebec. In the attack on that place, Dec. 31, he was taken prisoner, and afterward released on parole, and exchanged, March, 1777. He served as major under Gates at the capture of Burgoyne, and distinguished himself and his regiment by a gallant charge at the battle of Monmouth in 1778. In 1779 he served in Sullivan's expedition against the Indians, in 1780 with the army of New Jersey in 1781 at Yorktown, and in 1782 was on garrison duty at Saratoga. At the peace, having emigrated to Maine, he was appointed by Washington in 1789 marshal of that district. He was twice member of congress, and for 8 years, during the presidency of Mr. Jefferson, secretary of war. In 1809 he was made collector of Boston, and on Jan. 27, 1812, became senior major-general in the U. S. army. In the spring of 1813 he captured York, in Upper Canada, and Fort George, at the mouth of the Niagara, but was recalled, and soon afterward placed in command of the military district of New York city. Resigning his commission in the army in 1815, he was appointed, May 7, 1822, minister to Portugal, where he remained 2 years, and was recalled at his own request.

DEATH. With all our science and philosophy we cannot obtain a better definition of death than that it is a cessation of life. Of life itself we know nothing beyond what we can learn from the observation of certain phenomena presented by living organized bodies, as distinguished from those exhibited by inorganic forms. When these vital phenomena cease to present themselves, we have death. Human beings seldom or never reach that term of existence that nature has fixed. Death by disease or violence is the rule, death from old age the exception. When disease terminates life gradually, it is almost impossible to trace the precise changes which lead to the final and fatal result. When, however, death is sudden, as in apoplexy, concussion of the brain, suffocation, and hemorrhage, its immediate cause may be more readily ascertained. The heart, the lungs, and the brain were called the tripod of life by the ancients, who thus metaphorically described the fundamental basis upon which animal existence is erected. Death to either is necessarily death to all, as each of these organs is the source of a function absolutely essential to

life. The cessation of the action of the lungs and heart, organs intimately associated in the movement of the blood, is so far similar in effect, that in either case the cause of death is to be attributed to default of the circulation. When asphyxia or suffocation is the primary difficulty, and the blood is consequently not aërated on account of the inaction of the lungs, whose special function it is to breathe in the air, the heart continuing its movement sends an impure fluid to the brain which acts as a direct poison upon that organ, and, putting a stop to its functions, terminates life. When the action of the heart is first destroyed, as it may be by wounds, ruptures, disease, or the nervous effect of mental emotions, joy, grief, anger, or fear, the brain ceases to live at once, from being deprived of blood in consequence of the inability of the heart to send a supply, and sudden death is the result. When death begins by the lungs or by the heart, the fatal termination is more rapid than when it begins at the brain. The last is the centre of the animal, while the other two are the chief instruments in the maintenance of the organic functions; and it is well known that the animal life cannot exist for a moment after the death of the organic, although the vitality of the latter is possible for a greater or less time after the cessation of the former. When, therefore, the action of the brain is first arrested by disease or violence, and the animal functions of sensation, thought, and motion cease, the organic functions of respiration and circulation may still continue. For example, in apoplexy, a disease of the brain, the individual falls senseless and motionless, but his lungs continue to operate and his heart to beat. These organs, however, are affected from the beginning, and act with diminishing power, until they cease entirely, and death is the result.—*Facies Hippocratica* is the term applied to the ordinary appearance of the dead human countenance, from the generally truthful description given by Hippocrates, whose words have been thus translated: "The forehead wrinkled and dry; the eye sunken; the nose pointed and bordered with a violet or black circle; the temples sunken, hollow, and retired; the ears sticking up; the lips hanging down; the cheeks sunken; the chin wrinkled and hard; the color of the skin leaden or violet; the hairs of the nose and eyelashes sprinkled with a yellowish white dust." Some of these appearances, however, show themselves previous to death, and in diseases that do not necessarily terminate fatally, while many of them are entirely absent in those who die suddenly, or of ailments not long protracted or very painful. It becomes therefore a matter of great importance to decide whether there are precise indications of death, and what they may be; such undoubtedly exist, in spite of the vulgar notion of their frequent absence. There are but few well authenticated cases of premature burial, and these were probably from design or barbarous ignorance. The horror of being buried alive naturally, however, so excites the imagination, that it is prepared to receive the most marvellous fables as if they were authentic facts. A French writer named Fontenelle has, in his work on the signs of death, given full scope to his credulity, and accepts without hesitation the most absurd stories of persons being buried alive. He narrates, with a faith more marvellous than are even the extraordinary incidents of some of his recitals, 100 cases of premature burial gathered from all the world and from all history, and which he would have us believe are truths, but he gives no evidence of their genuineness. Louis, a French writer on medical jurisprudence, relates that a patient who was supposed to have died at the hospital was removed to the dissecting room. Next day Louis was told that moans had been heard, and on repairing to the place he was persuaded, as the winding sheet was more or less disturbed, that the supposed dead had revived during the night, and had died subsequently. The moans heard and the disarrangement of the coverings of the dead, in this case, were however no proofs of the movements of life, and it is quite possible that Louis was misled by indications that have often seemed to give sanction to the popular notion of persons having revived after apparent death. Bodies are often found turned in their coffins and their grave clothes disarranged. These effects are however easily explained without any supposition of life by the fact that the gases generated by corruption imitate in their action upon an inanimate body some of the movements of vitality. Dead bodies which have been long in water, when not secured to the dissecting table, have been known to be heaved up and thrown to the ground from the mere effect of the gases developed within them in the progress of corruption. This is in fact a constant effect in bodies that have been interred, and undoubtedly the supposed moans sometimes heard, the changes of position observed, and the horrible idea entertained of the flesh being gnawed in hunger, may be accounted for by the generation of the gases after death, which will explode with a noise, twist the body, and break through the integuments. There are certain indications which in the aggregate are such sure proofs of death that none but the ignorant can be in doubt. These are mainly cessation of breathing, stoppage of the heart, coldness and paleness of the surface, a film on the eye, rigidity of the joints with subsequent flexibility, loss of contractility of the muscles under the stimulus of galvanism, and the beginning of corruption, which first shows itself in a dark greenish color about the skin of the abdomen. For a long time both science and popular belief considered the mirror and the feather as the critical tests of death. These were held to the mouth of the supposed dead, and if the surface of the one remained undimmed, and the "light and weightless down" of the other unmoved, all hope of life was extinguished. The surest proof, however, of the cessation of breath, is the cessation of the movement of the chest and abdomen, which will continue to rise and fall as long as the least respiration re-

mains.—Lord Bacon says: "It is as natural to die as to be born; and to a little infant, perhaps, one is as painful as the other." The imagination naturally shrouds the great mystery of death with a solemnity so great that none contemplate its approach without awe, and few without terror. By a natural association in the common mind of fear with suffering, the act of dying has been commonly supposed to be painful. So general is this belief that the term "agony," or the expressions the "pangs of death" and "last struggle," are almost universally applied to the termination of life, as if it necessarily involved violence and suffering. "Certainly," as Bacon says in his essay on death, "the contemplation of death, as the wages of sin and passage to another world, is holy and religious; but the fear of it, as a tribute due unto nature, is weak." So exaggerated have been the notions of the pain of the last moments of life, that it was long considered an act of humanity to anticipate nature by violence. For ages it was the custom in Europe to remove with a sudden jerk the pillow from the head of the dying, in order to hasten death and thus prevent the supposed agony of the last struggle. However painful the mortal disease, there is every reason to believe that the moment preceding death is one of calmness and freedom from pain. As life approaches extinction, insensibility supervenes—a numbness and disposition to repose, which do not admit of the idea of suffering. Even in those cases where the activity of the mind remains to the last, and where nervous sensibility would seem to continue, it is surprising how often there has been observed a state of happy feeling on the approach of death. "If I had strength enough to hold a pen, I would write how easy and delightful it is to die," were the words of the celebrated William Hunter during his last moments. "If this be dying, it is a pleasant thing to die," has been uttered in the enthusiasm of many a dying person; and Louis XIV. is recorded to have exclaimed with his last breath: "I thought dying had been more difficult." Those who have been snatched from the very jaws of death, and have lived to record their sensations, have almost unanimously stated that the apparent approach of the last moment was accompanied by not only a sense of ease but a feeling of positive happiness. Montaigne in one of his essays describes an accident which left him so senseless that he was taken up for dead. On being restored, however, he says: "Methought my life only hung upon my lips; and I shut my eyes to help to thrust it out, and took a pleasure in languishing and letting myself go." The pain in the case of Montaigne, and in that of others similarly restored, seems not to have been in the apparent progress to death, but in the return to life. Cowper, when restored from his mad attempt at suicide by hanging, said on reviving that he thought he was in hell. With the restoration of vigor there comes a renewal of sensibility and a consequent power of suffering, which are extinguished in the paralysis of approaching death.—Of all deaths called violent, perhaps those by some of the poisons are the easiest, such as prussic acid and opium, which act directly on the nervous system, first lulling it into repose, and finally sinking it into the insensibility of death. Drowning has been generally supposed to be a painful mode of terminating life. This, however, would seem to be an error, which probably has become common in consequence of the first struggles made by a drowning person, from fear. Captain Burney, the brother of the famous novelist Madame d'Arblay, who had a remarkable recovery from drowning, has, in a description which he has left of his sensations while under water, declared that they were totally free from pain. Another has recorded that his feelings were not only of comfort, but of such luxurious delight as he groped on the bottom of the stream, that he felt quite indignant at those who pulled him out. A writer in the "Quarterly Review" records that a gentleman who had been rescued from drowning declared that he had not experienced the slightest feeling of suffocation. "The stream was transparent, the day brilliant, and as he stood upright he could see the sun shining through the water, with a dreamy consciousness that his eyes were about to be closed on it for ever. Yet he neither feared his fate nor wished to avert it. A sleepy sensation which soothed and gratified him made a luxurious bed of a watery grave." A person drowning is soon deprived of air, and the heart supplies, instead of arterial, venous blood, which acts upon the brain like an opiate, and deadens its sensibility. Sudden death by a gun-shot wound is also supposed to be easy; and accordingly the practice, which has been carried out so frequently during the Indian mutiny, of shooting the rebellious sepoys from the cannon's mouth, is not so severe in pain to the suffering victims as it appears horrible to the terrified beholder. The first effect of a fatal shot would appear to be benumbing to the sensibility; and where, after the mortal wound, there has been a momentary interval of life, it has been frequently observed that the mind is occupied, not with a sense of suffering, but with its habitual thought and feeling. The first act of Charles XII. of Sweden, on receiving a ball in his brain, was to grasp his sword. In death by cold, it is only in the preliminary stage where there can be much suffering, for the first evidence of danger is a state of drowsiness and stupor which is entirely incompatible with pain. Dr. Solander, who accompanied Cook and subsequently Sir Joseph Banks on their expeditions, was so conscious of the dangerous symptom of sleep, in those exposed to excessive cold, that he warned all against it; and at the same time he himself was so bewitched by its influence as to be among the first to lie down in the snow to enjoy the fatal slumber. He was, however, fortunately aroused in spite of himself by his companions, who had benefited by his emphatic lessons proper for the emergency. So-

lander's servant did as his master did and not as he said, and when aroused, with the warning that he would die if he slept, answered that that was all he desired. Similar expressions are recorded by all travellers in the arctic regions, and Napoleon's fatal retreat from Moscow was marked at every step by those who, benumbed with cold, lay down only to sleep, but never awoke again to life.—Justice, which has always claimed to be heaven-born, has more often shown, at least in past times, a lower affinity. When the torture, the quartering, and the burning of living criminals were the manifestations of the execution of law, cruelty succeeded in giving extreme horror and suffering to death. As late as the 16th century, the medical school at Montpellier received its annual tribute of a criminal to be dissected alive, for the benefit of science. Ravaillac, the assassin of Henry IV., was torn limb from limb by horses, while yet alive, and during the agony his flesh was pulled away in bits by red-hot pincers, and boiling oil poured upon the raw wounds. As late even as the time of Louis XV., Damiens met with a fate similar to that of Ravaillac. Even in England, in the reign of Queen Elizabeth, traitors were disembowelled during life; and in the time of her father, Henry VIII., boiling to death was an occasional punishment. It was only within the last century that in Great Britain justice, in dealing with treason, so far tempered punishment with mercy as to spare the traitor the agonies of a cruel and lingering death. In all civilized countries, while capital punishment has been retained for certain crimes, ingenuity has been exercised to render death as speedy and as little painful as possible. Loss of life, without any added horror, is supposed to be sufficiently effective for the ends of justice. Hanging is the mode of capital punishment practised in the United States and in England. The guillotine is the instrument used in France, and the garotte in Spain. The cause of death, in hanging, is ordinarily suffocation from the tightening of the rope about the windpipe. Occasionally, however, the neck is dislocated, although rarely, unless the executioner should give a sudden twist to the body when he swings off his victim, or a kinsman with a merciful intent, as in some countries was once allowed, should spring with his full weight upon his suspended relative. Hanging is not supposed to be a painful mode of terminating life. Those who have lived to record their sensations, after hanging by the neck until they became insensible and on the very verge of death, declare that at first there was but a brief period of discomfort, which at once gave way to delightful sensations of varied lights and colors and charming visions. "A criminal, who escaped," says a writer in the "Quarterly Review," "by the breaking of the cord, said that after a second of suffering, a fire appeared, and across it the most beautiful avenue of trees. Henry IV. of France sent his physician to question him, and when mention was made of a pardon, the man answered coldly that it was not worth the asking." The Spanish garotte is composed of a metallic collar with a screw by which it is tightened about the neck of the criminal; its effects and the sensations produced must be similar to those of hanging. The guillotine, which was brought into operation in France at the suggestion of a Dr. Guillotin, can hardly be called an improvement upon the gallows. There is undoubtedly more suffering from the cutting effects of the falling blade of the instrument; but after the head is severed, although its eyes and lips may move and the muscles of the body contract, there is, notwithstanding some have argued the contrary, an end to all sensibility to pain. Probably crucifixion, with its cruel nails, its torturing strains, and its lingering agonies, is the most painful punishment ever invented by the ingenuity of cruelty. Travellers now and then record the existence of the most horrible tortures practised by barbarous nations on their criminals and captives. —We conclude the subject with that remarkable passage from Montaigne, from which the wise Bacon has borrowed a sentence, and the eloquent Taylor a noble passage. Montaigne says: "I have often considered with myself whence it should proceed that in war the image of death, whether we look upon it as to our own particular danger or that of another, should without comparison appear less dreadful than at home in our own houses (for if it were not so, it would be an army of whining milksops); and that being still in all places the same, there should be, notwithstanding, much more assurance in peasants and the meaner sort of people than in others of better quality and education; and I do verily believe that it is those terrible ceremonies and preparations wherewith we set it out that more terrify us than the thing itself. An entirely new way of living, the cries of mothers, wives, and children, the visits of astonished and afflicted friends, the attendance of pale and blubbering servants, a dark room set round with burning tapers, our beds environed with physicians and divines, in short, nothing but ghostliness and horror round about us, render it so formidable that a man almost fancies himself dead and buried already. Children are afraid even of those they love best and are best acquainted with, when disguised in a visor, and so are we: the visor must be removed as well from things as persons; which being taken away, we shall find nothing underneath but the very same death that a mean servant or a poor chambermaid died a day or two ago, without any manner of apprehension or concern. Happy, therefore, is the death that deprives us of the leisure for such grand preparations."

DEATH-WATCH, a small beetle, of the family *serricornes*, and genus *anobium* (Fabr.). The body is of a firm consistence, short, and ovoid in shape; the rounded head is almost entirely received into an arched thorax; the antennæ are terminated by 3 joints larger than the rest, the last being ovate; the mandibles are

short, thick, and dentated beneath the point; the palpi are very short, and end in a large ovoid joint; the tibiæ are not dentated, and the terminal spurs are very small. They are slow in their motions, rarely fly, and when touched counterfeit death for a long time; hence their generic name, from *αναβιον*, resuscitated. Olivier states that they will allow themselves to be pulled to pieces, and even slowly burned to death, without showing the least sign of life. The larvæ resemble white soft worms, with 6 short feet; the scaly head is armed with two powerful cutting maxillæ, with which they gnaw into wood, old furniture, books, &c., leaving behind them small round holes like those of a gimlet, whence the French name *vrillettes;* their excrements form the small masses of worm-eaten wood often seen on the floors of old and deserted houses; the larvæ also attack the flour of various grains, wafers, prepared birds and insects, concealing themselves in grooves or galleries; they pass the nymph state in their cells lined with a few silken threads. The tick of the death-watch is made by the perfect insects, of several species, by striking with their heads or mandibles against the wood in which they are concealed; these strong and repeated strokes, from 7 to 11, resemble the regular ticking of a watch, and are supposed to be the means by which the sexes call each other. There are 10 species enumerated by Mr. Stephens in Great Britain alone, which make this much dreaded sound. One of the most common is the *A. striatum*, with striated wing covers, considered by some the same as the *A. pertinax* (Fabr.), of a dark brown color; another is the *A. tessellatum* (Fabr.), with the wing covers handsomely tessellated. The tick resembles that made by tapping the finger-nail gently on the table, so much so that the insect hearing it may often be led to recommence its sounds. The superstitious regard this sound with fear, firmly believing that

> The solemn death-watch clicks the hour of death.

Such firm hold had this belief in Sir Thomas Browne's time, that, says he, "the man who could eradicate this error from the minds of the people would save from many a cold sweat the meticulous heads of nurses and grandmothers." The wood louse, a neuropterous insect, of the tribe *termitinæ*, and genus *psocus* (Latr.), makes a similar tick. The *P. pulsatorius* (Linn.) is very small, soft, white, and slender, with a reddish mouth; it lives in old wood and books, wall paper, collections of insects and plants, &c.; it is quick in its motions, darting into dark corners; the ticking noise is made by striking the wood with its head, and probably for the same purpose as in *anobium*.

DE BAY. See Baius.

DEBENTURE (Lat. *debere*, to owe), the drawback or right allowed to merchants of claiming repayment or remission of duties on imported goods when the goods are reëxported. The term is also used for the custom house certificate which is issued as a voucher for such right. Goods may be entered subject to debenture, in which case the original invoice is left with the collector; but without such entry at the time of importation, the drawback may be obtained upon reëxportation by making satisfactory proof of the identity of the goods. It is required that they be exported in the original packages, casks, &c., and when any change of such packages may become necessary, it must be made under the inspection of a revenue officer. A drawback of duties on wines and spirits is not allowed unless such liquors have been deposited in public stores, and kept there from the time of landing until re-shipment. Three years from the time of importation is allowed for reëxportation with drawback of duties, but such exportation must be from the district of original importation. The general regulations of debenture are contained in the act of congress of March 2, 1799, but modifications have been made by various other acts.

DE BOW, James Dunwoody Brownson, an American journalist and statistician, born in Charleston, S. C., July 10, 1820. His father, Garrett De Bow, was long a merchant in Charleston, and the son was for 7 years employed in a mercantile house in that city. But, as he manifested an inclination for intellectual pursuits, his father determined to afford him full opportunity for acquiring a liberal education, and he was graduated at Charleston college in 1843. He next studied law, and was admitted to the Charleston bar in 1844. Owing to his fondness for literature and statistics, he made little effort to practise his profession, but became a contributor to the "Southern Quarterly Review," published at Charleston, and in 1844 he took charge of that periodical as chief editor. Among other papers prepared by him for its pages was an elaborate article, published in 1845, upon "Oregon and the Oregon Question," which attracted much attention both in this country and Europe. It was translated into French, and was the occasion of a debate in the French chamber of deputies. In the latter part of 1845 he withdrew from the "Southern Quarterly," removed to New Orleans, and established "De Bow's Commercial Review." This enterprise proved successful, and the work attained a circulation greater than has ever been reached by any similar publication in the South. In 1848 Mr. De Bow was elected professor of political economy and commercial statistics in the university of Louisiana. This position he held but a short time, when he was placed at the head of the census bureau of Louisiana. He held this office for 3 years, during which he collected and published a great mass of valuable statistics in reference to the population, commerce, and products of that state. In March, 1853, he was appointed by President Pierce to the office of superintendent of the U. S. census. In that position he collected and prepared for the press a large part of the material for the quarto edition of the census of 1850. He afterward compiled the 8vo.

volume entitled "Statistical View of the United States," being a compendium of the 7th census. Of this work 150,000 copies were printed by order of congress. In 1853 he compiled from his review a work in 3 vols. 8vo., which he published under the title of "Industrial Resources of the Southwest." During Mr. De Bow's official career he continued to edit his review. The business connected with the census of 1850 was completed in 1855, and the bureau was discontinued. Since that time he has devoted his time to the review, lecturing, and other literary pursuits. He has taken an active part in the various enterprises tending to the advancement of the material and intellectual interests of the South. He has been a member of nearly every southern commercial convention since that at Memphis in 1845, over which the late John C. Calhoun presided. He was president of the convention at Knoxville, Tenn., in 1857. He has contributed many articles upon American topics to the new edition of the "Encyclopædia Britannica," has delivered various addresses before literary, agricultural, and other associations, and was one of the founders of the historical society of Louisiana, which has since been merged in the academy of science.

DEBRECZIN (Hung. *Debreczen*), after Pesth the largest and most important commercial town of Hungary, capital of the county of North Bihar, in the district of Gross-Wardein (according to the late division—previously Circle beyond the Theiss), is situated in an apparently boundless sandy but fertile plain, in the N. E. part of the Hungarian Lowland (Alföld), about 130 m. E. from Pesth; lat. 47° 32′ N., long. 21° 36′ E.; pop. about 60,000. It is an open town with long suburbs ending on a vast heath, and has a rustic appearance from its mostly one story thatched houses, with large yards, but contains also a number of fine buildings, of which the principal are the town house, several churches, the Piarist monastery, and the Protestant reformed college, founded in 1792. The last mentioned possesses a large library and other valuable collections, and is now the best frequented seat of learning for the Calvinist youth of Hungary. There are several other higher educational institutions belonging to both Protestants and Catholics, as well as a number of charitable establishments and a house of correction. The principal streets, in which a few years ago side planks still served to lead the passengers through the deep mud in winter and the dusty sand in summer, have lately been paved with brick. The inhabitants, who with the exception of a few thousands belong to the Protestant religion, are robust, hardy, and patriotic Magyars, and are regarded as the very types of the rural portion of their race. They are mostly agriculturists, and many of them retire several times in the year with their families and cattle to their distant fields on the plain, where they live for weeks in huts or under tents, performing the necessary labors. A numerous class is engaged in the manufacture of coarse woollens, sheepskins for clothing, leather, shoes and boots, saltpetre, soap, various kinds of pottery, cutlery, cooperage, combs, buttons, pearl wreaths, and particularly clay tobacco pipes, of which several millions are produced annually. The trade of Debreczin is equally important, consisting chiefly in cattle, horses, swine, hides, bacon, potash, wine, various kinds of oils, cheese, and Vienna haberdashery and colonial articles, for which it is the chief depot for eastern Hungary and Transylvania. Its 4 annual fairs are held on the surrounding plain, an immense space of which is then covered with tents and huts, herds and wagons, bales and cases, and thousands of people from all parts of the country and the adjoining provinces. Numerous railway lines, which are now in course of completion, will soon connect Debreczin with all parts of the Austrian empire. The bread of Debreczin is renowned, but the town suffers from scarcity of water.—During the long wars between the Hapsburg monarchs of Hungary, the Turks, and the princes of Transylvania, Debreczin was often taken, pillaged, and partly destroyed. The Turks finally left it in 1684. Having embraced Protestantism in the first half of the 16th century, and adopted the Helvetian creed in a synod held there in 1567, it suffered bloody persecutions, in 1686, from the Austrian general Caraffa. It also suffered greatly during the insurrection under Rákóczy, after the termination of which it was made a free royal town in 1715. In the earlier part of 1849 it was the seat of the Hungarian revolutionary government under Kossuth, and the sessions of the diet were held there from Jan. 9 to May 30, in the most important of which, held in the Calvinist church, on April 14, the independence of Hungary was declared. On Aug. 2 the flank guard of Görgey, under Gen. Nagy-Sándor, was surprised by an overwhelming Russian force on the plain before the town, and was dispersed after a short though lively resistance.

DEBTOR AND CREDITOR. In the early laws of every country there will be found greater severity against debtors than there is at a later period of civilization. The reason is twofold: 1, the want of sufficient intellectual acumen to distinguish the degrees of wrong in cases of fraud and of unforeseen accident and misfortune; 2, the actual want of probity in the earlier period of national existence. There is undoubtedly a prevalent error in respect to the latter consideration. It is very common to suppose that in a rude state of society there is a greater degree of honesty and fair dealing than in an advanced civilization. But that this is a mistake we need no better proof than the history of the laws of the Germanic nations. There was no lack of personal independence, at least of intrepidity in war, yet in judicial proceedings it was found that no reliance whatever could be placed upon the oaths of parties or witnesses. Thus, instead of producing witnesses who could testify to the fact in question, numerous compurgators or conjurators were called to swear that

they believed the statement made by the party who called them; and even this was found so uncertain that the trial by combat was preferred by the men of that period, as a better mode of determining the fact. So it is reasonable to infer by analogy that the cruelty exhibited in the early laws of the Athenians, and in the Roman law of the 12 tables, was founded upon the trickery and dishonesty which prevailed at Athens and Rome. It was, however, a barbarism to involve the innocent as well as the guilty in an undiscriminating condemnation. The right of the creditor to sell the debtor as a slave was abolished by Solon. The decemvirs of Rome, who professed to follow his legislation, did not conform to it in this particular, but enacted a law more oppressive than the Athenian, or indeed than any other law of which we have an authentic record, whereby the debtor was subject to be taken by the creditor to his own house, and to be dealt with in the most cruel manner for 60 days, after which he could be sold into foreign slavery. The atrocious conduct of a usurer who undertook to gratify his lust upon a young man who had surrendered himself for a debt of his father, and in consequence of the resistance of the prisoner to his attempt, scourged and otherwise maltreated him, led to an outbreak of the people and the passage of a law by the senate, A. U. C. 428, by which creditors were prohibited from taking debtors into their own custody, but the right of selling them into slavery still remained. This power of the creditor over the debtor seems to have become practically obsolete, and a milder mode of treatment grew up, under the emperors. According to the Institutes of Justinian, a debtor was subject only to loss of property for payment of his debts. The same practice prevailed in England at an early period. Suits were commenced by a summons, and if the defendant failed to appear, process was issued for the attachment of his property; but in actions upon contract no further remedy was given, either at the commencement of the suit or after judgment. In actions for injuries accompanied with force, it was, however, permitted to issue process for the arrest of the person. By various statutes the same remedy was extended to other actions in which there was no force, as actions of account, debt, detinue, and actions on the case. In the court of king's bench, however, the defendant was, without the aid of these statutes, liable to arrest upon process issued for an alleged trespass, and when arrested he was made to answer for any other cause of action. In the court of exchequer jurisdiction was obtained by a similar fiction. Upon recovery of judgment in any action in which an arrest was allowed upon mesne process, a writ could be issued called a *capias ad satisfaciendum*, whereby the defendant could be arrested and committed to close custody (*in arcta custodia*); in which respect the proceeding was more rigid than it was upon mesne process, for in the latter the defendant could be discharged upon giving bail for his appearance, whereas upon final process he could not be allowed to be at large; and if he was suffered by the sheriff to be outside of the gaol, it was deemed an escape, for which he was made liable for the whole amount of the debt. In the United States the same forms of proceeding were introduced, but were gradually modified in advance of the changes which were made in the English practice, which will be presently adverted to. Thus, in the state of New York it was provided that a *capias ad satisfaciendum* should not be issued till after an execution against the property (called a *fieri facias*) had been first issued and returned unsatisfied. In 1831 imprisonment for debt upon contract, except in certain cases, was abolished in that state. The excepted cases were where fraud had been committed or was intended, in which cases an arrest could be ordered by a judge, to which exception was added, by statute of 1846, the case of money received in a fiduciary capacity; and by a subsequent statute imprisonment for interlocutory costs was abolished. The principle embraced in these laws was adopted in the code of procedure of 1849. Arrest is thereby prohibited in all civil actions, except in certain specified cases, viz.: in actions for injury to the person or character, or for injuring or wrongfully taking or detaining property; in cases of embezzlement by public officers, or persons acting in a private fiduciary capacity; for misconduct in office or any professional employment; in actions to recover the possession of personal property where it is concealed or kept out of the reach of the sheriff; and in cases where the defendant has been guilty of a fraud in contracting the debt or in avoiding the payment of it. In the excepted cases there may be an arrest by an order of a judge, in which order the amount for which the defendant shall be held to bail is specified; and when there has been arrest upon mesne process the like remedy in all cases is given upon final process. No provision is made by the code for a discharge from an arrest under such order. Females are exempted from arrest in all cases except actions for wilful injury to person, character, or property. The legislation of the state of New York has been followed in several other states, and may be assumed in its general features as the prevalent system throughout the United States, in respect to the coercive remedy for the collection of debts by process against the person.—In England important modifications have been recently made in the laws relating to the collection of debts. In 1838 (by stat. 1 and 2 Victoria, c. 110), arrest upon mesne process for debts exceeding £20 was abolished, except in cases where proof was made of the intention of the defendant to leave England. Provision was also made for discharge from liability to imprisonment upon final process, upon the surrender by the debtor of all his property for the payment of his debts. In 1842 (by stat. 5 and 6 Victoria, c. 116), similar provision was made for discharge from imprisonment for debts under £20; and in 1844 (7 and 8 Victoria, c. 96),

arrest upon final process in an action for a debt not exceeding £20 was abolished, except where there was fraud in the contracting of the debt, or a fraudulent attempt to avoid payment, leaving it to the discretion of a judge to order an arrest upon proof of any such fraud. A great amelioration was effected by these statutes. The relief under the previously existing bankrupt laws applied only to a class designated as traders, leaving a large proportion of debtors entirely unprovided for; and the relief itself, even in cases to which it was applicable, was harsh to the debtor, wasteful of the assets devoted to the creditors, and not unfrequently all beneficial effect was defeated by the technical stringency of the statutes, and the extreme severity of the courts. (See BANKRUPT.) Then as to the relief of insolvents, under the act of 32 George II., c. 28 (commonly called the lords act, from the circumstance of its having originated in the house of lords), it was limited to debtors actually in custody upon execution for debts under £100 (afterward extended to £300); and notwithstanding the surrender of the debtor's property as provided by the act, the creditor could still if he chose detain the debtor in prison, subject only to the condition that he was to allow 2*s.* 4*d.* per week for his support.—The insolvent laws of the state of New York are of a twofold character. By one mode of proceeding, the debtor obtains a discharge from imprisonment on account of debts upon the surrender of his property, the application for this purpose being made by the debtor upon notice to all his creditors; by another mode of proceeding, upon the application of the debtor in concurrence with creditors to the amount of two-thirds of the entire indebtment, he obtains a discharge from all future obligation on account of his debts, or in other words, from the obligation of his debts. In both these cases the discharge is withheld when the debtor, knowing his insolvency, has made disposition of any part of his property with the view of giving a preference to one creditor over others. The practical effect of this provision has been to restrict the benefit of the statute within too narrow limits, as there are few cases where a discharge could be obtained if the restriction should be rigidly enforced. In the struggle to avoid a failure, peculiar obligations are to a greater or less extent almost always incurred, which have a claim upon the debtor superior to that of his ordinary indebtment, although in law all are placed upon the same footing. Preferences will accordingly be given by the debtor in such cases, even at the peril of having to depend upon the gratuitous consent of the rest of his creditors for release from his debts. Individual hardship will thus sometimes occur, but generally relief can be had by compromise with the creditors upon fair terms when the case is free from fraud. Greater liberality in this respect is perhaps to be found in this country than in any other. In both of these insolvent proceedings, the discharge is only from debts upon contract; yet a judgment for a cause of action arising *ex delicto* is deemed to have merged the original nature of the debt, and is included. A 3d form of insolvent proceedings is where the debtor is in custody upon execution, in which case he may obtain a discharge in the particular suit by a surrender of his property, without being precluded by having given preferences in payment of debts; nor is it prescribed by statute that the judgment upon which such execution has issued must have been recovered upon contract. It has now no other value except as it may be available for a discharge in actions for tort and other cases in which arrest is still allowed by the code. A similar insolvent procedure has been adopted in most of the states, so far as respects relief from imprisonment, but the experiment made in the state of New York of releasing the obligation of debts has not been generally acted upon in other states. An interesting question in respect to the validity of insolvent laws of the latter description has been brought into discussion in the U. S. courts, under the provision of the federal constitution prohibiting the passage of a state law impairing the obligation of contracts (Constitution, art. 1, § 10), and the following propositions have been settled: 1, that an insolvent law is inoperative to discharge a debt existing at the time of the passage of the law; 2, that it has no validity for the discharge of debts due to citizens of other states, or rather that such discharge is no bar to an action brought by citizens of other states for the recovery of such debts in the courts of the United States, or of any other state than that where the insolvent discharge was granted; 3, that the validity of such discharge is not sustained by the fact that the contract was made in the state where it is discharged, as against citizens of other states; 4, that in the courts of the state whose insolvent law is in question, as between citizens of such state, it is not to be held a law impairing the obligation of contracts, and a discharge under it may be properly held valid; 5, that a citizen of another state who sues in the courts of the state where the discharge is granted, is subject to the same rule as a citizen of such state. (Ogden *vs.* Saunders, 12 Wheat. 213; Boyle *vs.* Zacharie, 6 Peters, 648.) The last proposition was not necessarily involved in the decision of either of the above cited cases, and seems scarcely consistent with the harmony of the courts of the different states and of the United States. Another proposition was left untouched, viz.: what is the rule where the question is between parties who were both citizens of the state where such an insolvent law exists, and the contract was made in such state, but the creditor has become a citizen of another state and sues in the courts of the United States or of such other state. Two principles combine to make the discharge valid, viz.: the *lex loci contractus*, and the subjection or supposed consent of both parties to the law of the state of which they were citizens. The former was

repudiated by the supreme court in the cases above cited, but the latter was maintained and much insisted upon as the basis upon which alone the law of the state could be held not to impair the obligation of contracts.—By the laws of most countries of Europe, the cession of the property of an insolvent to his creditors for the payment of debts is not a ground for releasing his future acquisitions from liability for his debts, but only for discharging the debtor from process against his person. In France, the law respecting imprisonment (*contrainte par corps*) for debt has recently undergone great modification. For commercial debts, imprisonment is limited to 3 months when the amount does not exceed 500 francs, 6 months when the amount does not exceed 1,000 francs, and so on in that proportion, but not to extend beyond 3 years for any amount; and in the case of a man having minor children, imprisonment may be suspended a year. Ecclesiastics, minors, septuagenarians, and women not engaged in commerce, are exempt from imprisonment. Officers of courts (*greffiers*, *notaires*, *avoués*, *huissiers*, &c.) are subject to *contrainte par corps* for moneys received by them officially or professionally, and wrongfully withheld, or for any other violation of official or professional obligation to suitors. So also constraint is allowed *pour stellionat*, *i. e.* the selling or hypothecating property belonging to another, *en cas de redintegrande*, or action for the recovery of property wrongfully withheld, and various cases of fraud or breach of trust. The law relating to this subject is to be found in the *Code civile*, § 2,060 *et suivans; loi* 27 *Avril*, 1832; and *loi* 13 *Dec.* 1848.

DECADE (Gr. δεκα, ten), an aggregate of ten. In the French republican calendar, decades of days were substituted for weeks in the division of the year. In the French system of weights and measures, the prefix *deca* multiplies the quantity by 10, while *deci* divides by 10.

DECALOGUE (Gr. δεκα, ten, and λογος, word), the Ten Commandments, or more properly, according to the Hebrew, the Septuagint, and Vulgate, the ten words or sayings which God delivered to the Jews through Moses. They contain the fundamental precepts of religion and morality, and are almost universally regarded as the golden rules for every society, age, and people. The division of the commandments has elicited a manifold difference of opinion. Of the various modes of dividing them which have found both numerous and weighty defenders, the following may be regarded as historically the most important: the Origenian or Philonic, the common Jewish or Talmudic, and the two Masoretic. According to the 1st, which is supported by the Jewish testimony of Philo and Josephus, and the authority of Origen, Gregory Nazianzen, and Jerome, the 1st precept consists mainly in the words: "Thou shalt have no other gods but me;" the 2d forbids images of God; the 3d forbids taking the name of God in vain; the 4th commands the sanctification of the sabbath day; the 5th, to honor one's father and mother; the 6th forbids murder; the 7th, adultery; the 8th, theft; the 9th, bearing false witness; and the 10th, concupiscence. This division has been adopted by the Helvetian and Anglican churches, by the Lutherans of the school of Bucer, and by the Socinians. The Talmudic division, which is also that of the modern Jews, being supported among other authorities by Maimonides's "Book of the Commandments," and Aben Ezra's commentary on the Pentateuch, differs from the preceding only in making the words, "I am the Lord thy God, who brought thee out of the land of Egypt, out of the house of bondage," the 1st commandment, and in considering the prohibition of the worship of other gods and of images as the 2d. This division is proved by a quotation from Julian in Cyril of Jerusalem to have been generally known in the early centuries of the Christian era, and has through the authority of Pseudo-Athanasius also been adopted by the Greek churches, including the Russian, which has sanctioned it in its catechism. The Masoretic division, in both forms, so called on account of its being based on the Hebrew text as revised according to the rule of the Masora, unites the passage on the exclusive worship of God with the prohibition of images to make the 1st commandment, and restores the number 10, which is distinctly specified in the Scriptures, by dividing the last into 2; the text of Exodus separating by the mark of division (ס) the prohibited coveting of a neighbor's house, as the 9th commandment, from the prohibited coveting of all other objects as the 10th, while the text of Deuteronomy separates and gives first the commandment against coveting another's wife. The division according to Exodus has been adopted by the Lutheran church, and also by the council of Trent; the other Masoretic form, which is supported by the Septuagint, by St. Augustine, Bede, and Peter Lombard. The question, how many of the ten commandments were engraved on each of the stone tables of Moses, has been agitated, mostly on philosophical grounds. Philo, and after him Irenæus, are for 2 pentads; others believe the commandments on worship alone to have been engraved on the 1st table, which is regarded by some as the more divine of the two.

DECAMPS, Alexandre Gabriel, a French painter, born in Paris in 1803. In early life he visited Turkey, and afterward executed a great number of pictures of oriental scenery and characteristics. He has gained a high reputation by these works, as well as by his pictures of animals. Among the latter are many representations of apes; one of them, the "Monkey Connoisseurs," is intended as a satire on the jury of the Paris academy of painting, on account of the severe criticisms passed upon his works. One of his best historical paintings represents the "Defeat of the Cimbri." About 60 of his works figured at the great exhibition of 1855. His style of painting is bold and original, his coloring brilliant, and he is especially happy in pre-

senting strong contrasts in a humorous and picturesque manner, but has often been censured for his want of correctness.

DE CANDOLLE. See CANDOLLE.

DECAPOLIS (Gr. δεκα, ten, πολις, city,) a confederacy of eastern Palestine, which contained the following 10 cities: Damascus, Philadelphia, Raphana, Scythopolis, Gadara, Hippos, Dion, Pella, Galasa, and Canatha, and was formed by the heathen inhabitants for mutual protection against the Asmonean princes of Judæa. These cities appear to have possessed similar political institutions and privileges.

DECATUR, the name of counties in several of the United States. I. A S. W. co. of Ga., bordering on Fla., intersected by Flint river, and bounded W. by the Chattahoochee; area, about 1,062 sq. m.; pop. in 1850, 8,820, of whom 3,949 were slaves. The surface is irregular, and the soil productive. In 1850 the harvest amounted to 5,308 bales of cotton, 275,497 bushels of corn, 105,889 of sweet potatoes, and 65 hogsheads of sugar. Value of real estate in 1856, $1,379,470. The county was named in honor of Com. Stephen Decatur, jr. Capital, Bainbridge. II. A W. central co. of Tenn.; area, 325 sq. m.; pop. in 1850, 6,003, of whom 723 were slaves. The Tennessee river flows along its entire E. boundary, and Beech river intersects it. The surface is nearly level, and almost all the land is fertile. The productions in 1850 were 261,790 bushels of corn, 43,555 of oats, 66,180 lbs. of tobacco, and 52,211 of butter. There were 15 churches, and 1,058 pupils attending public schools. This county was formed in 1846 by the division of Perry county. Capital, Decaturville. III. A S. E. co. of Ind.; area, 372 sq. m.; pop. in 1850, 15,107. It is drained by several small streams. It has a level or gently undulating surface, and the soil is a rich loam, resting on a basis of limestone. Wheat and live stock are the chief articles of export. In 1850 the productions were 1,050,217 bushels of corn, 88,493 of wheat, 47,778 of oats, and 5,537 tons of hay. There were 46 churches, and 3,721 pupils attending public schools. The county was organized in 1821. Capital, Greensburg. IV. A S. co. of Iowa, bordering on Mo.; area, 528 sq. m.; pop. in 1856, 6,229. It has a rolling surface, and a good soil. A great part of the land is occupied by prairies, interspersed with numerous clusters of hard timber, scattered along the Weldon river and other streams, which intersect the county. In 1856 the productions were 13,693 bushels of wheat, 32,332 of oats, 283,249 of corn, 18,715 of potatoes, 266 tons of hay, and 63,260 lbs. of butter.

DECATUR, a prosperous village of Ga., and capital of De Kalb co.; pop. in 1850, 744. It is a handsome little town, noted for its beautiful situation and healthy climate. It is the seat of 2 seminaries. About 6 m. E. of the village is Stone mountain, an isolated granite rock, nearly 2,200 feet high, which is annually visited by thousands of persons.

DECATUR. I. STEPHEN, a commodore in the U. S. navy, born in Newport, R. I., in 1751, died in 1808, obtained the command of a vessel in the merchant service at a very early age. During the war of the revolution he commanded several privateers, and acquired some reputation by the capture of English ships. At the commencement of hostilities with France in 1798, he received the commission of captain in the navy, and was appointed to the command of the Delaware of 20 guns, in which ship he cruised during the years 1798–'99 on the American coast, and in the West Indies, capturing at different times the French privateers Le Croyable of 14, and Marsuin of 10 guns. In 1800 he commanded a squadron of 13 sail on the Guadeloupe station, the Philadelphia frigate of 38 guns being his flag ship. He was discharged from the service under the peace establishment in Oct. 1801, and engaged in commercial pursuits in Philadelphia. II. STEPHEN, jr., a commodore in the U. S. navy, son of the preceding, born at Sinnepuxent, Md., Jan. 5, 1779, killed in a duel, March 22, 1820. He entered the navy as midshipman, July, 1798, was promoted to a lieutenancy in July, 1799, and served in both grades in the frigate United States, on the West India station, under the command of Com. John Barry, during the *quasi* war with France. In May, 1801, he joined the frigate Essex, Capt. William Bainbridge, one of a squadron of 3 frigates and a brig, sent to the Mediterranean, under the command of Com. Richard Dale, in consequence of hostile demonstrations against the United States by Tripoli. War had been actually declared by Tripoli before the arrival of Com. Dale upon the station, but the orders under which he acted were prepared in ignorance of that fact, and nothing, therefore, beyond blockading Tripolitan cruisers, and the consequent protection of our commerce, was effected by this squadron, except an action which took place off Malta between the Enterprise of 12 guns, under Lieut. Sterrett, and a Tripolitan cruiser of 14 guns, which resulted in the capture of the latter. Com. Dale returned to the United States in Dec. 1801, and early in the spring of 1802 another squadron of 3 frigates, 2 sloops of war, and a brig was ordered to the same station, under Com. Valentine Morris, in which Decatur was actively employed as first lieutenant of the frigate New York, Capt. James Barron. At Malta he acted as second in a duel between Midshipman Joseph Bainbridge and an English officer, which terminated fatally to the latter. The surrender of the parties concerned to the civil authorities was demanded by the governor, Sir Alexander Ball, and it was therefore deemed prudent for Decatur to leave the squadron, and return to the United States. Com. Morris was recalled from his command in Nov. 1803, and the squadron, having been materially strengthened, was placed under the command of Com. Edward Preble, Decatur serving in it at first in command of the brig Argus of 16 guns, and subsequently of the Enterprise, 12, having been superseded in the Argus by Lieut.

Hull, his senior in rank. At the commencement of Preble's command, and in fact before he had time to appear off Tripoli himself, the frigate Philadelphia unfortunately fell into the enemy's hands; and as she added much to the defences of the port, and would doubtless be eventually sent out to cruise, it was deemed very important to recapture or destroy her. Capt. Bainbridge, then a prisoner in Tripoli, and in secret correspondence with Preble, suggested, in a letter of Dec. 5, 1803, the practicability of destroying her by fire, although she was in a harbor filled with cruisers, and surrounded by batteries. Preble was then lying at Syracuse, the rendezvous of the squadron, with the Enterprise, Lieut. Comdt. Decatur, in company. The plan was mentioned to Decatur, who at once entered upon it with great zeal and spirit. A Tripolitan mastico, bound to Constantinople with a present of female slaves for the Porte, which had been captured by the Enterprise a few days before, afforded ready means for carrying it into execution, and she was taken into the service for the purpose, and named the Intrepid. About this time Lieut. Comdt. (now Commodore) Stewart, of the brig Siren, of 16 guns, which had just arrived from a cruise, volunteered to cut out the Philadelphia; but Preble adhered to the plan already formed, and on Feb. 3, 1804, issued the order for carrying it into effect. That evening the Intrepid, convoyed by the Siren, sailed from Syracuse to execute this important service. The officers were Lieut. Comdt. Decatur, Lieuts. Lawrence, Joseph Bainbridge, and Thorn, Midshipman Thomas McDonough, and Surgeon Heerman, all of the Enterprise, and Midshipmen Izard, Morris, Laws, Davis, and Rowe, who volunteered from the Constitution, Com. Preble's flag ship, and Salvadore Catalano, a Greek, acting as pilot and interpreter. The entire crew of the Enterprise volunteered for the expedition, but only 62 of the most athletic and active were selected, making, with the officers, 74 souls. On Feb. 9 Tripoli was discovered, but bad weather prevented the attempt until the night of the 15th, when the party in the Intrepid was reënforced by Midn. Anderson and 8 men from the Siren. About 10 o'clock in the evening the Intrepid reached the mouth of the harbor. The weather was beautiful, and the sea and bay were as smooth as in summer. She entered the hostile port slowly, the breeze being very light. Decatur stood at the helm, with the interpreter beside him, the men lying on deck out of sight; a few officers only remained standing. As the frigate was neared, Decatur discovered a few of her crew looking over the hammock rail, and the Intrepid was hailed and ordered to keep off. The pilot answered, according to previous instructions, that they were from Malta, on a trading voyage, had lost their anchors in a late gale, and desired to ride by the frigate until others could be procured. The Tripolitan then asked some questions about the brig in the offing, and was told that it was the Transfer, a former British vessel of war, which had been purchased for the Tripolitans, and was daily expected to arrive. During this conversation warps were carried to the frigate, where they were received and made fast, and the crew of the Intrepid, still lying down, began to warp her gently alongside. Distrust was awakened among the Tripolitans by the discovery of the anchors of the Intrepid, and the cry of *Americanos* was raised. A vigorous pull brought the vessels in contact, the order to board was given, and Midshipman Charles Morris stood first on the quarter deck of the Philadelphia, followed immediately by Decatur. So perfect was the surprise, and so rapid and vehement the assault, that the resistance was very slight, and in less than 10 minutes Decatur was in undisturbed possession of the ship. Her foremast was wanting, and not a sail was bent, or yard crossed. To move her, therefore, was impossible, and her destruction was instantly resolved upon. The men immediately distributed themselves, according to previous instructions, with combustibles, which consisted principally of canvas sacks of dry pine and shavings, well covered with soft turpentine. All were emptied and spread in the cock pit and store rooms, and demijohns of spirits of turpentine poured down upon them from the gun deck. The ship was in a very dry state, and the conflagration so extremely rapid that the assailants escaped with difficulty. When all were on board the Intrepid, she was cast off, and for an instant was in great danger, in consequence of the fouling of a fast. It was cut, and the little vessel dropped clear just as the flames burst forth from the ports of the frigate over her deck, upon which a large mass of ammunition was lying covered with tarpaulins. The sweeps were now manned, and the Intrepid was very soon at a safe distance from the burning frigate. When a few lengths from her the men ceased to row for an instant, and gave 3 hearty cheers. A light land breeze sprung up at this critical moment, which wafted the little vessel rapidly out of the harbor. The spectacle as she left the port was described by the officers as sublime and beautiful. The bay was completely illuminated by the conflagration, and the town, castles, minarets, and mosques were all brought by it into distinct view. By the light thus afforded, a heavy fire was opened upon the Intrepid by the batteries and cruisers, though without effect, one shot only passing through a sail. The guns of the frigate, as they became heated, began to go off, and singularly enough, her broadsides bore upon the city and one of the principal batteries. The Siren was soon fallen in with in the offing, and Decatur went on board to report his success. The arrangements for this expedition were perfect. No firearms were used, but all was carried by the cutlass. Nothing was wanting, nothing defeated, and on the part of the Americans but a single casualty occurred, one man being slightly wounded. The loss sustained by the enemy could never of course be correctly ascertained. Many swam on shore,

and to the nearest cruisers, and 20 were reported to have been killed. The effect of this gallant exploit was at once to place the name of Decatur high upon the list of the most distinguished of our naval officers. Com. Preble recommended him for promotion, and a captain's commission was conferred upon him, dated on the day of the destruction of the Philadelphia; a sword was also presented him by congress, and 2 months' pay was voted to each of his officers and crew. In the subsequent attacks upon Tripoli by Com. Preble's squadron, Decatur bore a distinguished part, and especially in the one of Aug. 3, 1804. In this service a number of gun-boats and bomb vessels, borrowed from the Neapolitan government (which was at that time at war with Tripoli) were used, and in the attack referred to, Decatur commanded a division, consisting of 3 of these vessels. The special object of the attack was a flotilla of gun-boats, protected by batteries on shore, and a 10-gun brig, and there is hardly a record in naval history of an attack made with such a disparity of force and crowned with entire success. Each of the boats of Decatur's division, singling out an opponent, boarded and carried her, after a desperate hand-to-hand conflict with cutlass and pistol. Decatur, on taking possession of the boat which he first assailed, took her in tow, and bore up for the next one to leeward, which he boarded, with most of his officers and men, attacking himself the Tripolitan commanding officer the moment he attained his deck. The Tripolitan was a powerful man, of large stature, and a desperate personal struggle took place, in which Decatur fell with his antagonist upon him. With one hand Decatur grasped firmly that of his foe, who was endeavoring to reach his yatagan, while with the other he drew a pistol from his vest pocket, passed the arm around the body of the Tripolitan, and pointing the muzzle in, fired. The ball passed through the body of his foe, and killed him. In the first part of this contest between the two commanders, Decatur's life was doubtless saved by a young American sailor named Reuben James, who intercepted a blow aimed at the head of his commander, by interposing his own arm, receiving thereby a very severe wound. The desperate nature of the fighting which distinguished this remarkable assault may be inferred from the foregoing details, and the amount of loss. The 2 boats captured by Decatur had but 80 men in them, of whom 52 are known to have been killed or wounded. In another Tripolitan gun-boat, captured by Lieut. Triple, there were found living and dead 36 people, of whom 21 were killed or wounded. Three gun-boats were sunk in the harbor, in addition to the 3 which were taken; a large number of shells were thrown into the city, and the batteries were much injured. The moral effect upon the enemy of this and subsequent attacks of the same nature was very great. The superiority of the Americans in gunnery had been already admitted, and they had now overcome the Tripolitans with inferior numbers hand to hand, a species of combat in which the latter particularly excelled. In the attack of the 3d the American loss was but 14 killed and wounded. Among the killed was Lieut. James Decatur, a younger brother of Stephen, and an officer of high promise. On Aug. 7, just at the conclusion of another attack, in which Decatur participated, his commission as captain arrived from the United States in the John Adams, 28, Capt. Isaac Chauncey, and he subsequently served at one time in the Constitution as flag captain, and at another in the frigate Congress of 38 guns. On June 3, 1805, peace was proclaimed. In 1806 Decatur stood 9th on the list of captains, and between the close of the Tripolitan war and the declaration of war with England in 1812, he was variously employed, at one time superintending the construction of gun-boats. After the affair of the Chesapeake our ships of war were for the most part kept upon our own coast, in anticipation of hostilities with England, and Decatur was then in command of a squadron, the United States, 44, bearing his flag. On June 18, 1812, war with England was declared, and on Oct. 25 Decatur, still in command of the frigate United States, fell in with and captured, after an action of an hour and a half, the British frigate Macedonian, 49, commanded by Capt. John S. Carden, an officer of high reputation. She was smaller, of lighter armament, and had fewer men than the United States. She mounted long 18s upon her gun deck, and 32 lb. carronades upon her quarter deck and forecastle; while the main battery of the United States consisted of long 24s, with 32 lb. carronades upon the upper deck. But though it is admitted that the American ship was the heaviest, her superiority was certainly not in proportion to the execution done in this combat. The Macedonian being to windward could choose her distance, and the action was fought for the most part at long shot. She was very severely cut up, her mizzen mast, fore and main topmasts, and main yard being shot away, a hundred round shot in her hull, while of her 300 men 36 were killed and 68 wounded. The United States suffered but little. She lost a top-gallant mast and was otherwise somewhat cut up aloft, but her hull was very slightly injured; 7 men were killed and 5 rounded. The Macedonian was taken into New York. For this capture congress voted a gold medal to Decatur, and silver ones to each commissioned officer under his command. On May 24, 1813, Decatur sailed from New York in command of a squadron, consisting of the United States (flag ship), the Macedonian, now an American frigate, and the Hornet sloop of war. The Sandy Hook channel being blockaded by the enemy, he passed through Long Island sound, and on June 1 attempted to go to sea by running out past Montauk point. He was intercepted, however, by a British squadron of much superior force, and compelled to enter the harbor of New London, where he remained closely blockaded until the summer of 1814, when he was transferred to the

President, 44, and hoisted his pennant in that ship as commander of a squadron, consisting of 3 vessels of war and a store ship, destined for a cruise in the East India seas. So closely was New York blockaded that he did not get to sea until the middle of Jan. 1815, when he sailed at night. Unfortunately, the pilots missed the channel, and the ship struck, and beat very heavily upon the bar for an hour and a half. Upon the rising of the tide she floated, and went to sea, though obviously much injured, it being impossible to return. At daylight the next morning 4 ships were discovered in chase, one on each quarter, and two astern. The sailing of the President was so much impaired by the injuries received while on the bar, that escape was impossible, and she was brought to action about 3 P. M. by the frigate Endymion of 40 guns. A running fight took place, which lasted about 8 hours, in the course of which Decatur formed the bold plan of carrying the Endymion by boarding, and going off with her, abandoning the President to the enemy. He communicated this plan to his men, by whom it was well received, and attempted to execute it, but the superior sailing of the enemy enabled him to frustrate the efforts made to close with him. At 11 P. M. the Pomona, 38, another of the pursuing ships, also closed, and obtaining a position upon the weather bow of the President, fired a broadside into her; and as at this moment the Tenedos, 38, was fast closing upon the quarter, and the razee Majestic was within gun-shot astern, it was but too evident that further resistance was useless, and Decatur therefore surrendered, delivering his sword to the captain of the Majestic, the senior British officer present. The loss of the President during this long action was very severe; 80 were killed and wounded. Among the former were Lieuts. Babbitt, Hamilton, and Howell. Her fire upon the Endymion was principally directed at the spars, with a view to cripple her, and the loss of that ship, according to the published reports, was 11 killed and 14 wounded. The President was carried into Bermuda, and both she and the Endymion were dismasted in a gale before reaching port. Decatur was soon released on parole, and on his return to the United States was honorably acquitted by a court of inquiry for the loss of the ship. On March 2, 1815, immediately upon the termination of the war with Great Britain, congress passed an act authorizing hostilities against Algiers, that power having for some time before been engaged in depredations upon the little American commerce that remained in or near the Mediterranean. On May 21 a squadron, consisting of 3 frigates, 1 sloop of war, and 6 brigs and schooners, sailed from New York for the Mediterranean, under Decatur's command, the Guerriere, 44, being his flag ship. Mr. William Shaler was on board to act jointly with Decatur in negotiating a treaty with Algiers, should she be disposed to come to terms. On June 17, when off Cape de Gatt, on the coast of Spain, the squadron fell in with and captured the Algerine frigate Mashouda, 46, after a short running fight, in which the Algerine admiral and nearly 100 of his officers and men were killed and wounded. The prisoners amounted to 406. Two days later an Algerine brig of war, the Estido, 22, was chased into shoal water off Cape Palos by the small vessels of our squadron, and captured after a short resistance. The prizes were sent into Carthagena, and the squadron arrived off Algiers, June 28. On the 30th, just 40 days after its departure from New York, a treaty, dictated to the dey by the commissioners, was concluded. By the terms of this treaty demands upon the United States for tribute were for ever abolished. A mutual liberation of prisoners and restitution of property was made, and it was stipulated that in the event of future wars Algiers was not to treat American prisoners as slaves. As a personal favor to the dey, the captured frigate and brig were restored, though the commissioners refused to permit an article to that effect to be inserted in the treaty. Our affairs with Algiers being thus settled, Decatur proceeded with his squadron to Tunis and Tripoli, and made reclamations upon those powers for depredations committed by them upon American commerce during the war with England, obtaining prompt redress from both. As soon as this service was concluded, most of the squadron returned to the United States, and in Nov. 1815, Decatur was appointed navy commissioner, which position he held until his death. He fell in a duel fought near Bladensburg, Md., with Com. James Barron, which grew out of the affair between the Chesapeake and Leopard. Com. Barron, upon the termination of his suspension from duty, sought professional employment, in which he was warmly opposed by Decatur, and this led to his hostile meeting with that brave but unfortunate officer. Both fell at the first fire, Decatur mortally and Barron very severely wounded. No officer of the navy ever occupied a higher place in public estimation than Com. Decatur, who, among brave men, was noted as a person of the coolest and most determined courage. He was rather below the middle size, but of a remarkably symmetrical form. His complexion was dark, his eyes were black and piercing, and altogether he was a man of remarkable appearance, riveting the attention of all who saw him.

DECAZES, Élie, duke, a French statesman, born at St. Martin du Laye, Gironde, Sept. 28, 1780, filled at an early age high judicial positions, gained the confidence of Louis Bonaparte, king of Holland, whom he served even after his abdication in 1810, officiated as secretary of Letizia Bonaparte, but joined the cause of the Bourbons in 1814, and under the second restoration discharged the duties of prefect of police at Paris with marked ability. He became an intimate friend of Louis XVIII., and in 1815 a member of his cabinet as minister of police. By his conciliatory policy he gave umbrage to the ultra royalists, without giving satisfaction to the extreme

liberal party. In 1818 he became home minister, and in Nov. 1819, premier. The opposition of the royalist party broke out with renewed virulence on occasion of the assassination of the duke de Berry, in 1820, when a deputy charged him openly with being an accomplice of the murderer; and Châteaubriand, then an ultra royalist, wrote in the *Conservateur:* "His foot slipped in the blood." He then resigned, when Louis XVIII. made him a duke, and his ambassador to England, where he remained till Dec. 1821. Under the reign of Charles X. he opposed the extreme measures of the government, and after the revolution of 1830, adhered to Louis Philippe. In 1834 he was appointed grand referendary of the chamber of peers. Of late years he has devoted his activity to the superintendence of large iron works at Decazeville in Aveyron. On his marriage in 1818 with his second wife, Mlle. de Saint-Aulaire, a relative of the late duke of Holstein-Glücksburg, the title of duke of Glücksburg was conferred on him by Frederic VI. of Denmark.—His eldest son by his second wife, Louis Charles Élie Amanieu, marquis Decazes, duke of Glücksburg, born May 9, 1819, officiated previous to the revolution of 1848 as French ambassador in Spain and Portugal.

DECCAN, a country of British India, lying between the Nerbudda and Kistnah rivers. Under the Moguls the country N. of the Vindhya mountains was called Hindostan, and that lying to the S. the Deccan. Assigning it the less extended signification, it comprises nearly the whole of the Bombay presidency except Sinde; Nagpoor, Berar, Sumbulpoor, Cuttack, and part of the Saugur and Nerbudda territories, in the Bengal presidency; the Northern Circars, Guntoor excepted, in the Madras presidency; and the dominions of the Nizam, parts of those of Sindia and Holkar, and several petty native states, toward the N. E. The general aspect of this immense territory is an elevated table-land of triangular shape, supported by the mountain walls of the Ghauts on the E. and W., and by the Vindhya range on the N. The dip of the country is toward the E., all the rivers of magnitude flowing eastward to the bay of Bengal. The principal of these rivers are the Godavery, flowing E. with a course of 850 m., and the Mahanuddy, 650 m. The seaward declivity of this table-land, facing the bay of Bengal, consists of a series of terraced steeps, abrupt but not precipitous. The interior table-land mostly consists of rolling prairie. A variety of races, numbering perhaps 50,000,000 souls, differing in manners and customs, inhabit this territory. The remote history of the Deccan is lost in obscurity. An ancient division of the country into 5 kingdoms is indicated by its 5 languages. The first irruption of Mohammedans from the north took place in 1294, under Aladdin, afterward king of Delhi. He was followed by Mohammed Togluck, who, in 1325, completed the subjugation of the country. Revolts followed, and wars for 300 years, ending in distribution and re-distribution of the territory, until in 1686 it passed under the sway of the Mogul emperor Aurungzebe. After Aurungzebe's death it fell piecemeal into the hands of the Mahrattas, and was subsequently broken up into the feudal sovereignties which yet exist in name. About the middle of the last century British influence became predominant, and by conquest and annexation, especially since 1818, the greater part of the Deccan has been absorbed into the British Indian empire, and was little disturbed by the recent insurrection.

DECEMBER, the 12th month of the year, from the Latin *decem*, 10. The Roman year began with March, so that September was the 7th and December the 10th month.

DECEMVIRI (ten men), the name of the members of several Roman magistracies, distinguished by an additional denomination. The *decemviri legibus scribendis* (appointed to digest a written code of laws) were first elected in the year 451 B. C., during the long dissensions between the two orders after the establishment of the tribunate. The tribune Terentius (or Terentillus) Arsa, after a violent exhibition of the grievances of the plebeians, and the usurpations of the patricians, proposed (460) the appointment of 10 commissioners to digest a regular body of laws which should secure the rights of all, and be binding alike on consuls, senators, patricians, and plebs. This was accomplished after 9 years of continued disputes and struggles. An embassy, it is said, was sent to Greece to obtain information concerning the laws of the different states, and particularly concerning those of Solon; and after their return 10 distinguished patricians were appointed for a year, with supreme power, to frame the new laws. They commenced and continued their work with zeal and accuracy, and exercised their power with justice, impartiality, and moderation, each presiding by turns, day by day, and he only using the fasces. The new laws, engraved on 10 tables of brass, were placed in the forum and sanctioned by general acclamation, as well as by the sacred rites of the augurs. But the addition of two new tables being required, a new decemvirate was elected for the next year, in which the ambitious patrician Appius Claudius managed to be reëlected, and to introduce a few plebeian members. He thus became the favorite of the people, while aiming to become their master. The laws were completed, and afterward known under the name of "Laws of the XII. Tables," and were admired for their wisdom, which, according to Cicero, surpassed that of all the books of philosophy. But now the decemvirs changed their conduct, exercised their power over all classes of the people with oppressive rigor, and continued in office illegally after the expiration of their term, maintaining themselves by terror. Their oppression was endured for some time without resistance, until the attempted rape of Virginia by Appius Claudius, under the guise of a public judgment, and the blood of the virgin shed by her own father to save her honor, roused the public indigna-

tion to an outbreak, which overthrew the decemvirate, and caused its abolition.—The *decemviri litibus* (or more anciently *slitibus*) *judicandis* formed a judicial magistracy, which replaced the former authority of the pontifices in matters relating to persons and taxable property, and had the management of the *subhastationes;* under the emperors they were the presidents of the centumviral court.—The *decemviri sacris faciundis* (or more briefly *sacrorum*) formed a priestly college for the interpretation of the Sibylline books (established 368 B. C., instead of the ancient patrician *duumviri*); they were chosen for life, partly from the patrician, partly from the plebeian order, and had the management of the Apollinian and secular games. At a later period their number was increased, probably by Sylla, to 15.

DECHAMPS, Adolphe, a Belgian journalist and statesman, born at Melle, June 17, 1807. Early in life a disciple of Lamennais, he subsequently became an orthodox Roman Catholic. From 1843 to 1845 he was minister of public works, and from 1845 until Aug. 1847, when the triumph of the liberal party led to his secession, minister of foreign affairs. From 1837 to 1851 he conducted the Catholic *Revue de Bruxelles*, founded by himself and Dedecker. He is an able administrator and an influential parliamentary speaker.

DE CHARMS, Richard, an American clergyman and author, born in Philadelphia, Oct. 17, 1796. His ancestors on the male side were Huguenots, who took refuge in England upon the revocation of the edict of Nantes. In 1793 his father, a physician by profession, emigrated to America, and died of the yellow fever a few weeks before the birth of his son. The latter, when 14 years of age, supported his mother and himself by working in a printing office, until ill health compelled him to desist. Subsequently he found the means to enter Yale college, at which he was graduated in 1826, and at the suggestion of a female friend, to whom he was indebted for his education, commenced the study of theology in London, with a view of fitting himself for the ministry of the church of the New Jerusalem. During the 2 years he remained in England he supported himself by his labor as a journeyman printer. He has been settled at Cincinnati, Philadelphia, and Baltimore, and has published several collections of sermons and lectures on the fundamental doctrines of Swedenborg. To the periodical literature of his church he has also rendered valuable service in the establishment of the "New Jerusalem Magazine" in Boston, the first 3 numbers of which were printed by his own hands, and by editing the "Precursor" and "New Churchman." His chief work is the "New Churchman Extra" (1 vol. 8vo.), which is devoted to polemics and church history.

DECIDUOUS (Lat. *deciduus*, from *decido*, to fall), in botany, a term applied to such plants as drop their leaves at periodical seasons. In the temperate and northern latitudes this occurs for the most part on the approach of winter, or in early autumn. There are, however, marked exceptions; many kinds of oak retain their dry foliage until the next spring, in which case the leaves are called persistent.

DECIGRAMME. See Gramme.

DECIMAL, a calculation proceeding in a geometrical progression whose ratio is 10; that is, by tens, hundreds, &c., or by tenths, hundredths, and so on. Decimal arithmetic is the system in common use, in which the value of a figure increases tenfold with every remove to the left, and decreases a tenth by every remove to the right, the point between the units and tenths being designated by a period. Decimal division was doubtless suggested by the fingers of the hand, and therefore may be called natural; but other systems, as the binary and duodecimal, possess certain advantages over it. So long, however, as arithmetic uses a decimal ratio, it will be most convenient, for all purposes of calculation, to have money, weights, and measures divided decimally, as was done under the French republic.

DECIMATION, a Roman military punishment which was inflicted when the entire body of criminals was too large for condemnation. The names of the guilty were put into an urn or helmet, and as many having been drawn out as amounted to $\frac{1}{10}$ of the entire number, these were punished.—Blücher decimated a corps of Saxon mutineers just before the battle of Waterloo.

DECIUS, Caius Messius Quintus Trajanus, emperor of Rome from 249 to 251, born in Pannonia, was the successor of Philip. When the legions of Mœsia revolted against that emperor, Decius, who had spoken in the senate against submissive measures, was sent to bring them back to their allegiance. But the revolted army compelled him, under threats of death, to assume himself the purple, and to march at their head against Philip. While so doing he is said to have still secretly assured his former master of his fidelity, and promised submission as soon as he should reach Italy. Philip hastened to meet him in the field, but lost the battle of Verona and his life. The short reign of Decius is remarkable for a severe persecution of the Christians, an attempt to restore the ancient independent censorship, and with it the former virtuous manners and habits of the republic, and for the first invasion of the Goths from the neighborhood of the Black sea. To defend the northern provinces of the empire against this people, Decius hastened to the Danube, but fell with his son in battle.

DECIUS MUS, Publius, the name of 3 celebrated Roman plebeian consuls, father, son, and grandson. The first distinguished himself, in the year 343 B. C., in the war against the Samnites, and commanded, in 340, with his colleague Titus Manlius Torquatus, against the Latins, who at that time were trying to shake off the yoke of the Romans. Before a decisive battle, it is said, both consuls had a vision informing them that the infernal gods required one of the contending armies and the opposing commander to be

devoted to them. The consuls agreed between themselves that he whose wing should first waver should devote himself and his enemies to death. The wing of Decius gave way; he immediately caused the pontifex maximus to perform the consecrating rites, wrapped himself closely in his robe, spurred his horse into the thickest of the enemy, and perished. His legions, sure of success, rushed on anew and were victorious.—His son imitated this act of self-sacrifice in the battle of Sentinum (295), where he was opposed to the Gauls. Similar patriotism is attributed to the grandson in the war against Pyrrhus and the Tarentines, which, however, he survived.

DECIZE (anc. *Decetia*), a French town, arrondissement of Nevers, department of Nièvre, pop. 4,000, built on an island in the Loire, at the junction of the Aron with that river and at the head of the Nivernais canal, connected with one bank of the Loire by a suspension, and with the other by an immense stone bridge. On a rock which forms the highest point of the island stands an old castle formerly belonging to the dukes of Nevers, and used since 1849 as a hospital. In the same year a monument was dedicated here to Guy-Coquille, the famous jurist of the 16th century. The country around Decize contains some of the richest coal mines in France, and the town has large iron works and an extensive manufactory of bottles. The navigation through the canal of Decize, which is a branch of the lateral canal of the Loire, amounted in 1852 to 61,356 tons.

DECKER, or Dekker, Jeremias de, a Dutch poet, born at Dort about 1610, died in Amsterdam in Nov. 1666. His writings consist of a paraphrase of the Lamentations of Jeremiah, translations and imitations of classic poets, and a great number of epigrams. The most celebrated of his poems, the "Praise of Avarice" (*Lof der Geldzucht*), has earned for itself a place beside the *Moriæ Encomium* of Erasmus. A first edition of these appeared in Amsterdam in 1656, another edition with additions in 1702, and a complete collection of his poetry in 1726. Selections of his epigrams are contained in Geysbeck's *Epigrammatische Anthologie* (1821), and of his poetry in Siegenbeck's *Proeven van Nederduitsche Dichtkunde* (1823).

DECKER, Thomas, an English dramatic author, of the reign of James I., supposed to have died about 1638. He is now chiefly remembered by his quarrel with Ben Jonson, who, representing himself as Horace, satirized him as Crispinus in the "Poetaster," to which Decker replied by attacking Jonson in his "Satyromastix" under the name of "Young Horace." Decker wrote plays in conjunction with Massinger, Webster, and Ford, and was the sole author of several plays of considerable merit. Hazlitt remarks of one of them that it unites "the simplicity of prose with the graces of poetry." He wrote also many small works of a humorous cast, in the most important of which, "Gull's Hornbook" (London, 1609; a new edition by Dr. Nott, 4to., 1812), he ridicules the follies of London fashionable life.

DECLINATION of a heavenly body corresponds to latitude upon the earth; that is to say, it is the angle which a line drawn from the centre of the earth to the heavenly body makes with the plane of the equator. On June 20, the sun's declination is about 23° 28′ N.; Dec. 20, 23° 28′ S.; and March and Sept. 20, 0° 0′.

DECRESCENDO, in music, a direction to the performer to decrease the volume of sound from loud to soft. It is marked thus >:

DECRETALS, letters sent by the pope to bishops or churches for the regulation of ecclesiastical affairs. They form an important part of canon law, and enter largely into the collections of decrees bearing on that branch of legislation. The earliest known decretals are those of Pope Siricius, and the most ancient regular collection of them is found in the famous work of Dionysius Exiguus, who wrote in the 6th century. In a synod held at Rome in 494 decretals were pronounced of equal authority with the decrees of councils. (See Canon Law.)

DECURIONES, magistrates in the provincial *municipia* of the Roman state, corresponding to the senate at Rome. In the later times of the republic, the state was distinguished into two distinct parts, Italy and the provinces. Italy consisted, so to say, of a multitude of republics, whose citizens finally became members of the sovereign people, maintaining the internal administration of their own affairs. This municipal constitution was of great importance in the development of Italy. Originally the popular assemblies had the sovereign power in the municipia, and conferred the executive authority upon the decuriones. They consisted at first of 10 men, but in later times they frequently numbered more, and sometimes even amounted to 100. Each *curia decurionum* was presided over by 2 members who were called duumviri, and whose powers within their municipium resembled those of the Roman consuls during peace. Under the republic the whole administration of the internal affairs of their respective cities was in the hands of the decuriones, but after the establishment of the empire they exercised nearly all the circumscribed rights of the communities, though finally they were little more than receivers of taxes. The decuriones were created by election, and each decurio was required to be at least 25 years old, and to possess a certain annual income. Their election took place on the kalends of March.

DEDECKER, Pierre Jacques François, a Belgian statesman, born at Zele, in East Flanders, Jan. 25, 1812. In 1837 he established, in concert with Dechamps, the Catholic *Revue de Bruxelles*, which was continued until 1851. Since 1839 he has been a member of the chamber of representatives, in which he is one of the leaders of the Catholic party. With his friend Count Vilain he formed the ministry of March 30, 1855, in which he took for himself the department of the interior. When the

parliamentary debates on a new charity law called forth an uncommon political excitement, he tendered his resignation, with all his colleagues, Oct. 31, 1857. This step was severely censured by a large portion of his own party, but he was reëlected to the new chamber. He has written numerous works, among which are *Religion et amour* (1835 *et seq.*); *Du pétitionnement en faveur de la langue Flamande* (1840); *De l'influence du clergé en Belgique* (1843); and *De l'influence du libre arbitre de l'homme sur les faits sociaux* (1848).

DEDHAM, a township and the capital of Norfolk co., Mass., on Charles river, 10 m. S. W. from Boston; pop. in 1855, 5,633. It is connected with Boston by a branch of the Boston and Providence railroad, and is a favorite residence for persons doing business in that city. The court house is a handsome granite building, having a Doric portico on each front. The gaol is of hewn stone and well arranged. A canal 3 m. long, excavated in 1639 from Charles to Neponset river, gives a good supply of water power, which is used chiefly for cotton and woollen mills. Of the former there are 2, with a capital of $68,000, and of the latter there is 1, with a capital of $200,000. There are 2 furnaces, 1 machine shop, 1 soap and candle factory, 1 sugar refinery, 1 card factory, 2 tanneries, gas works, 1 bank, a savings bank, 1 newspaper office, a high school, 9 grammar schools, a library organized in 1855, 2 fire insurance companies, and 10 churches, viz.: 1 Episcopal, 2 Congregational, 2 Unitarian, 2 Baptist, 1 Methodist, 1 Universalist, and 1 Catholic.

DEE, the name of several rivers. I. A river of N. Wales, rising among the mountains of Merionethshire, in a small lake called Bala or Llyn Tegid, flowing N. E. through the vale of Llangollen, and forming part of the boundary between Cheshire and Denbighshire. At Aldford it enters Cheshire, and passes on to Chester, which it nearly encompasses, and where it has a width of 300 feet. Thence it is conveyed in an artificial channel along the marshes, a distance of 9 m., and finally empties into the Irish sea, through an estuary 14 m. long and from 2 to 6 m. broad. Its length, exclusive of the estuary, is about 80 m. It is much obstructed by sand banks at its mouth, and is not naturally navigable, but has been improved to admit of the passage of small vessels to a point 2 or 3 m. above Chester. Near Trevor it is spanned by an aqueduct 1,007 feet long, 120 feet above the water, and supported by 18 stone piers, which carries the Ellesmere canal across the vale of Llangollen; and at a short distance from this structure is another of still greater size and beauty, on which the Shrewsbury and Chester railway crosses the Dee at a height of 150 feet above its surface. This viaduct has 19 arches of 90 feet span, is 1,530 feet long, and is built almost wholly of stone. II. A river of Aberdeenshire, Scotland, rising in the Cairngorm mountains, flowing E. about 96 m., and entering the North sea at Aberdeen. It has valuable salmon fisheries, which have lately yielded $40,000 a year. III. A river of Kirkcudbrightshire, Scotland, with valuable salmon fisheries. It enters Solway frith after a course of about 50 m. IV. A river of Ireland, counties of Meath and Louth, 21 m. long, flowing into Dundalk bay. V. A branch of the river Derwent, in Van Diemen's Land, co. of Cumberland.

DEE, JOHN, an English mathematician and astrologer, born in London, July 13, 1527, died at Mortlake in 1607 or 1608. He was educated at Cambridge university, and attained much proficiency in the science of the time. After a short tour in Holland he was elected fellow of Trinity college, and in 1548 took his degree of master of arts. Incurring the suspicion of being a conjurer, he repaired to the continent, resided 2 years at the university of Louvain, and visited France, spending some time at the college of Rheims, where he gave several lectures on mathematical theorems, which he however elaborated into metaphysical and astrological dogmas which were received with great applause. On his return to England in 1551 Dee's learning recommended him to the patronage of Edward VI., who conferred on him a pension of 100 crowns, which he afterward relinquished for the rectory of Upton on Severn. Shortly after the accession of Mary he was accused of practising against the queen's life by enchantment, and he was subjected to a protracted trial and long imprisonment, but released in 1555. On Elizabeth's accession he was introduced to the queen, and requested to name a propitious day for the coronation. He again returned to the continent for some time, where he was supposed to have acted as a secret agent of the English government, and visited the court of Maximilian, to whom he presented and dedicated one of his works. When in 1571 he fell dangerously ill abroad, the queen sent 2 of her own physicians to his relief. After his return he settled at Mortlake, Surrey, where he was engaged for some years in his favorite pursuits and studies, and calculated horoscopes and nativities for private patrons. In 1576 the people in the neighborhood attacked his house from prejudice against his occult science, and he barely escaped with life, his furniture and apparatus being all destroyed. He was sent abroad again in 1578, ostensibly on a mission to consult with German physicians touching Elizabeth's health, but probably for some secret political object. On his return he began that career on which his celebrity principally rests. In 1581 he made the acquaintance of one Edward Kelly, an apothecary of depraved character, who had had his ears cropped for forgery, but of considerable talent. This man pretended to be as sincere a devotee to magic as was Dee himself; and with his assistance spirits were raised and information obtained by use of a crystal, or magic mirror, in which, after invocation, responses were granted to their inquiries. In 1583 they made the acquaintance of Albert Laski, a Polish nobleman, an inquirer into kindred subjects, and at his request they

accompanied him abroad. They exhibited before the emperor at Prague, and resided there for a time, asserting that they had the art of transmuting metals, which enabled them to live in considerable splendor. At Prague Dee and Kelly separated. The former returned to England, and was appointed (Dec. 8, 1594) chancellor of St. Paul's cathedral, and in the following year warden of Manchester college, which he left in 1602 or 1604 to return to his old residence near London. A catalogue of his printed and published writings is contained in his "Compendious Rehearsal of his Life and Studies," prepared in 1592, on the appointment of a commission by Elizabeth to inquire into his circumstances. His diary was printed in 1842 by the Camden society, together with the catalogue of his library of MSS., which he had made himself before the pillage of his house by the mob, and which contains the titles of several mediæval works, not now known to be in existence. Dr. Dee's "Relation of what passed for many years between him and some Spirits," edited by Casaubon, appeared in London in 1659. One of his magic mirrors is in the British museum.

DEED (Lat. *factum*, Nor. Fr. *fait*), a term originally employed to express an act for the disposition of lands, which at an early period was by the actual or symbolical delivery of possession in the presence of witnesses; but when a writing was substituted in place of this formality, the same name continued to be applied. A deed is now understood to be an instrument in writing and under seal whereby real estate or some interest therein is transferred. In English conveyancing it is designated as an indenture where there are several parties, counterparts being made on parchment, the edges of which are cut like the teeth of a saw to correspond each with the other. A deed poll (polled or shaved even) is one purporting to be executed by a single party. The term indenture is used in this country simply as expressing that there are several parties; and though in form the deed usually purports to be executed by all the parties named, yet in fact the ordinary deed of lands is executed by the grantor only. The deed which is chiefly used in the United States is what in the English law is called a conveyance by bargain and sale (see that article). In some of the states, however, no particular form is required if the intention be clearly expressed; as in Massachusetts by a provincial act, in New York by the Revised Statutes of 1830 (1 R. S. 738), and in several other states by a similar provision. Even in those states where no statute regulation has been adopted, a simple form has generally come into use, having very little analogy to the English bargain and sale, except that the technical words "bargain and sell" are retained. By the New York statute the word "grant" is substituted in place of all the phraseology used in the different forms of English conveyances. By a singular confusion of the original intent of the phrases peculiar to each conveyance, before the enacting of that statute the whole were combined together in a deed drawn with much professional care, as enfeoff or grant, give, bargain and sell, demise, release, confirm, &c.; in which we have the operative words of a feoffment, donation or gift in tail, the conveyance by bargain and sale under the statute of uses, and the conveyance by lease and release; and this undiscriminating use of terms is still kept up to some extent for the satisfaction of those who attach importance to old forms of expression. A consideration is said to be essential to the validity of a deed, but this is to be understood with reference to other persons than the parties to the deed. A gift or voluntary conveyance is effectual except as it may affect creditors or subsequent purchasers. Under the statutes in England and this country against fraudulent conveyances, a deed wholly without consideration would be held void as against the creditors of the grantor or subsequent purchaser without notice. In England it is held to be void even if the purchase was made with knowledge of the prior voluntary deed; but a different rule prevails here. A consideration may be either good or valuable, the former being founded upon natural affection between near relations, and it is presumable that it may extend to those who hold such relationship by adoption; the latter (*i. e.* valuable) is what has a pecuniary value, as money or its equivalent. It is not altogether settled how far a consideration of natural affection will sustain a deed against creditors; it probably would be held sufficient if there was no other circumstance from which it could be inferred that the intent was to remove the property out of the reach of creditors. Insolvency at the time of executing the deed would be such a circumstance; yet if not known to the grantor at the time, it would give rise to a serious question. The Revised Statutes of New York declare that the want of a valuable consideration shall not alone be sufficient to avoid a deed as fraudulent (2 R. S. 137). In common law conveyances it was not necessary that the consideration should be expressed, nor was it necessary to prove one, the conveyance itself being an act of such formality that the law raised the presumption of a consideration; but in deeds which were introduced under the doctrine of uses held in courts of equity, it was essential that a consideration should be shown, which might be either by being expressed in the deed, and then, under the general rule applicable to sealed instruments, it could not be controverted by parties or their privies; or it might be proved whenever the deed was brought in question. It was necessary, however, that the deed should purport to be for a pecuniary consideration, as this was essential in order to raise a use, but the sum need not be mentioned; and whatever might be the sum expressed or proved, it was sufficient to give effect to the deed. Hence arose the common form of expressing a consideration of $1; and this again gave rise to an anomaly in respect to sealed instruments, viz.: that the actual amount of the consideration, and whether paid or not, might

be inquired into, when essential for other purposes than the mere validity of the deed, notwithstanding a sum had been named or the receipt acknowledged. It has indeed been held that in order to prove any other than a pecuniary consideration it is necessary that there should be some expression in the deed to warrant it, as "for divers other considerations." These rules, which had respect to deeds of bargain and sale, will generally apply to the simpler forms which have been substituted. A deed was at common law the most artificial of all forms of contract. Certain operative words belonged to each of the different conveyances, and no others could be used with the same legal effect, as enfeoff or give (*feoffavi* or *dedi*), in the conveyance of the fee; give or grant (*dedi or concessi*), in the conveyance of incorporeal hereditaments; demise, grant, and to farm let, in a lease; and so of others. A second peculiarity was that certain obligations resulted from the use of these terms without being otherwise expressed, which were called covenants in law. Thus to the words "enfeoff or give" was annexed a warranty by which the grantor vouched for the title, and upon failure thereof was bound to render lands of equal value; but this being by statute limited to the grantor, an express clause of warranty was introduced into the deed in order to bind his heirs. This gave rise to what Chief Justice Coke declared to be "one of the most curious and cunning learnings of the law." The heir was bound upon the presumption of law that he had received from his ancestor an equivalent; and though he was not compelled upon failure of title to render an equivalent to the grantee unless he had himself received other lands by descent from the warranting ancestor, yet he was barred from making a claim to the lands warranted if he might have derived title from him who made the warranty. The same rule was unjustly extended to a case where the title to the warranted lands could not by possibility have come from the warrantor; as when the husband, having an estate for life as tenant by the curtesy in lands belonging to the wife, conveyed with warranty, the son who would have taken as heir of the mother was barred from claiming the estate. This is the doctrine of lineal and collateral warranties, to understand which fully it is necessary to bear in mind that it was first introduced for the purpose of avoiding the old feudal rule of non-alienation of lands without consent of the heir. By various statutes in England, collateral warranties are now abrogated, except when assets have descended from the ancestor who warranted. Both lineal and collateral warranties have been abolished in the state of New York, and it is further declared that no covenant shall be implied in any conveyance of real estate, and heirs and devisees are liable upon the express covenant of the ancestor or testator only to the extent of lands which descend or are devised to them. (1 Rev. Stat. 739, § 140, 141.) In those states where similar statutes have not been enacted, it is held that the word "give" implies a warranty during the life of the grantor; that the words "grant, bargain, and sell" do not imply a covenant of title in a conveyance in fee, but that "grant or demise" does imply such a covenant in a lease for years. Express covenants have both in England and this country taken the place of the ancient warranty. The covenants usually inserted are these: 1, that the grantor is lawfully seized; 2, that he has good right to convey; 3, that the land is free from encumbrances; 4, that the grantee shall quietly enjoy; 5, that the grantor will warrant and defend. These are personal covenants, and the remedy for a breach is only against the covenanter or against his heirs or assigns to the extent of lands descended or devised. The covenants of warranty and for quiet enjoyment are broken only by actual eviction; hence they are said to run with the lands, and may be taken advantage of by the heirs or assignees of the grantee. But the other covenants not being prospective, but being broken if at all at the time of the execution of the deed, become what are called *choses in action*, and are not assignable. The measure of damages for a breach of these covenants is the price paid for the lands with interest, the rule being founded upon the supposed value of the lands at the time of the execution of the deed; and the rule is the same although the land has since risen in value, or the grantee has himself made improvements. The covenant against encumbrances may be an exception, as the damages recoverable is the sum paid to discharge the encumbrance, and this may in some cases exceed the consideration or price of the lands. As to the parties to a deed, the general rules have been stated in the article Contract. An important innovation has, however, been recently made in many of the states in respect to the capacity of a married woman to convey, which will be more properly considered under the title Husband and Wife.—The recording of deeds is universal in this country; and although the suggestion was derived from a local practice in some parts of England, yet it is still very limited in that kingdom, being probably uncongenial to the large landed proprietors, who usually have private family arrangements which they would be unwilling to make subject to public inspection. For the purpose of recording, it is a requisite in all the states of the United States, that the deed should be acknowledged or proved before some officer authorized to take such acknowledgment or proof, whose certificate is to be affixed to the deed; and in several of the states 2 subscribing witnesses are required. In the state of New York a subscribing witness is not required when the deed is acknowledged, but is of course necessary when it is proved. The general provision is, that an unrecorded deed is inoperative against a subsequent purchaser in good faith and for a valuable consideration, whose deed shall be first recorded. It is, however, understood that actual knowledge of a previous deed by the subsequent purchaser would be equivalent to a registry,

which is but constructive notice; or in other words, he would not be held to be a *bona fide* purchaser within the meaning of the statute.

DEEG, a town of Hindostan, in the native state of Bhurtpoor, 24 m. W. from Muttra, lat. 27° 29′ N., long. 77° 23′ E., formerly celebrated as a strong fortress. The natives supposed it impregnable, but it was taken by storm, Dec. 23, 1804, by the English, and was dismantled in 1826 after the capture of Bhurtpoor.

DEEMSTERS, or Demsters (Saxon *dema*, a judge, or umpire), the name given to certain judges in the isle of Man, chosen annually from among the people. There are 2 for each division of the island, and they have authority in all civil and criminal cases. In deciding the law in cases of emergency, they have the assistance of the house of keys.

DEEP RIVER, one of the head streams of Cape Fear river. It rises in Guilford co., N. C., flows S.E. through Randolph co., then nearly due E. into Chatham co., where it unites with Haw river to form the Cape Fear. It is about 100 m. long, and furnishes good water power. It has recently been rendered navigable from its mouth to the mines of anthracite and bituminous coal which are worked near its banks in Chatham co. It was called by the Indians Sapponah.

DEER, the common name applied to an extensive group of ruminating animals, embraced in the family *cervidæ* of authors. This group, which includes animals varying in size from the small muntjac to the gigantic moose, is characterized in most genera by the presence in the males of solid horns arising from the frontal bone, falling off annually in the large species, and covered when first developed by a hairy skin. They are remarkable generally for the lightness and elegance of their forms, the velocity of their movements, and the timidity of their disposition; they are found in all parts of the world, and are valuable as furnishing food, clothing, and beasts of draft for many northern nations. The forms of the horns or antlers are very various, being sometimes flat and palmated as in the moose, or nearly round and branching as in the stag; their substance is very different from horn, being compact and solid, without any central core like that of the antelope and ox family; their production is intimately connected with the generative function. In the young animal a kind of exostosis, or bony growth of great hardness, is perceptible on each side of the frontal bone; this increases rapidly, pushing the skin before it; the enlarged vessels are compressed and obliterated by the growing horn, the cutaneous envelope dies, and the exposed horn in time is cast off; under the wound, which rapidly cicatrizes, a new horn soon rises with a burr around it; during the rutting season the reproduction of the horn is most active, with considerable heat and irritation; when it is fully developed the skin falls as before, leaving the hard and bare horn, which falls and is reproduced; at each successive growth the horn increases in size and complexity, but its duration is the same. When the horns fall, the animal retires into the thick forests, not appearing among the herd of females until these organs reappear; when the horns are covered, they are said to be "in the velvet." The broad form of the horns, as in the reindeer, is a provision of nature to enable them to clear away the snow in search of food. The origin of the horns is called the burr, the main shaft the beam, and the branches the antlers; the latter may be near the head, when they are termed brow antlers, or in the middle of the beam (median or bezantlers); the termination of the beam is sometimes styled a perch, and the small processes snags and prickets. The teeth of the deer are 8 incisors in the lower jaw, and none in the upper, in their place being a callous pad; generally there are no canines, but these exist in the upper jaw alone in a few species; there is an empty space between the incisors and the grinders, the latter being 6 on each side in each jaw, with the crown marked by the disposition of the enamel in 2 double crosses, whose convexity is turned inward in the upper teeth, and outward in the lower. The feet end in 2 toes, each with its sharp hoof, resembling a single hoof which has been cleft; behind and above these are 2 small rudimentary toes or hoofs. The 2 metacarpal and metatarsal bones are united into a single cannon-bone. The head is long, and terminated in most by a muzzle; the ears are large, the pupils elongated, and the tongue soft; there are 4 inguinal teats. The skeleton is constructed for lightness and rapid springing motions; the neck is long to permit grazing, and the spines of the dorsal vertebræ are long and strong for the origin of the thick ligamentum nuchæ to support the ponderous head; the cavity of the skull is small, in conformity with the limited intelligence of the group. The internal structure is that of other ruminants feeding only on vegetable substances; they have no gall bladder. The external covering consists of close and thick crisp hair, with a kind of wool next the skin in the species of cold regions; the general color is a variety of shades of brown, with rufous tints and white spots. The senses of smell, hearing, and sight are very acute, enabling them to detect their enemies at a distance, and escape by flight; under the eye in most is a sinus, which has been supposed by some to communicate with the nose; it secretes largely a viscid fluid like tears, whence the French call these gland-containing sacs *larmiers;* they communicate with the nose by the lachrymal ducts; the secretion is the most profuse during the rutting season. Deer are capable of a certain degree of domestication, and the reindeer may be completely subjected to man; some species reside in thick forests, others in open plains, and others in swampy districts.—All the arrangements of this group are more or less artificial and unnatural; but there are several subdivisions generally admitted, founded on similarity of structure and on geographical limitation, which are

of advantage in classification. Cuvier, De Blainville, and more especially Col. Hamilton Smith, made the horns the basis of division into subgenera; Mr. J. E. Gray and Dr. Sundevall have pointed out some other external distinctions which they believe more characteristic of genera and species than modifications in the form of the skull, teeth, and horns, as they are not changed by age, and are evident in both sexes. These are the form and extent of the muffle, and the metatarsal hair-covered glands on the hind legs. In the "Annals and Magazine of Natural History" (London, vol. ix. 1852, p. 413) is a paper by Mr. Gray, which presents a good synopsis of the varieties of deer. He divides them as follows: I. Those of snowy regions, with broad muzzle entirely covered with hair, expanded and palmated horns, short tail, and their fawns not spotted; containing (*a*) the alcine deer, with no basal anterior snag to the horns, and a small bald muffle between the nostrils, as in the genus *alce*, the elk or moose; (*b*) the rangerine deer, with a large basal anterior snag, close to the crown or burr, and no muffle, as in *tarandus*, the reindeer. II. Those of temperate and warm regions, with a tapering muzzle ending in a bald muffle; the fawns, and sometimes the adults, spotted; containing (*c*) the elaphine deer, with an anterior basal snag, the muffle broad and separated from the lip by a hairy band, and the tuft of hair on the outside of the hind leg above the middle of the metatarsus, as in *cervus*, the stag, and *dama*, the fallow deer; (*d*) the rusine deer, with an anterior basal snag, the muffle very high and not separated from the edge of the lip, and the metatarsal tuft as in the last division, as in the genera *panolia*, *rucervus*, *rusa*, *axis*, *hyelaphus*, and *cervulus*; (*e*) the capreoline deer, with no basal anterior snag, the first branch being at some distance above the burr, the suborbital fossa generally small, as in the genera *capreolus* (roebuck), *furcifer*, *blastocerus*, *cariacus* (American deer), and *coassus* (the brocket). The 1st and 2d of these divisions are confined to the northern parts of both continents; the 3d to Europe and Asia, with the exception of the wapiti of North America; the 4th to the warm regions of Asia; the 5th to America, except the roebuck of Europe, and the ahu of central Asia. The alcine deer will be described in the article Elk, and the elaphine under Stag; the rangerine have been described under Caribou.—Of the rusine group, or samboos, confined to south-eastern Asia and its islands, the 1st genus in order is *panolia* (Gray), and the species sungnai deer (*P. Eldii*, Gray); in this genus the round horns curve backward and outward, with the upper part bent in and forked, rather expanded on the inner edge; the yellowish brown fur rigid and flattened; a large, oblong, and deep suborbital pit, with the nasal bones short, broad, and dilated behind; the frontal snag sometimes has a tubercle or branch at the base. In the genus *rucervus* (Hodgson), the horns are cylindrical, repeatedly forked at the tip; the tail short and thick, a well developed tear-bag, broad rounded ears, covered with hair, and narrow compressed hoofs; the fur is soft, with indistinct spots, and without pale tint on the rump; the face is long and narrow, the opening of the nose large, and the suborbital pit shallow. The species is the bahraiya deer (*R. Duvaucellii*, Cuv.), of a yellowish brown color on the tips of the black hairs; an indistinct dark streak on the back, with a row of white spots on each side; hair of neck, throat, chest, and belly longer, with scattered grayish hairs; muzzle and front of leg dark; chin white; fur in winter dark brown. In the genus *rusa* (H. Smith), the horns are on a moderately long peduncle, and simply forked at the tip, with an anterior frontal snag close to the crown; the hair is hard, rigid, and thick, elongated in the males of the larger species into a kind of mane on the neck; they have canine teeth. The black samboo deer (*R. Aristotelis*, Cuv.) is of a blackish brown color, with the feet, vent, and spot over the eye fulvous; tail brown, with dark tip; the skull is about 17 inches long, with a very deep triangular suborbital pit: a large and beautiful animal, inhabiting India and Ceylon. The spotted rusa (*R. dimorphe*, Hodgs.) is of a red-brown color, with white spots on the back and sides, neck and belly blackish, chin white. The Malayan samboo (*R. equinus*, Cuv.) is plain brown, with a rounded, floccose, black-tipped tail; this inhabits Sumatra and Borneo, and is the eland or elk of the Dutch sportsmen. The Javan rusa (*R. hippelaphus*, Cuv.) is remarkable for its ample mane, giving it a resemblance to a horse, whence its specific name; its color is dull brown, and the hair thick, dry, and frizzled; it stands more than 3 feet high at the shoulders; it inhabits Java. The smaller rusas have no manes, and the elongated peduncles of the horns are covered with hair. Among these are the smaller rusa (*R. Peronii*, Cuv.), brown, paler beneath, with the anal disk white, hind part of feet hairy, and horns thick and heavy, inhabiting Timor and the neighboring islands; the Philippine rusa (*R. Philippinus*, Desm.), with brown forehead, end of nose brownish, feet naked behind, hair rigid and not waved, resembling the muntjac in its horns, but without the ridge and the facial grooves of the latter; and the little rusa (*R. lepidus*, Sundev.) of Java, of a reddish brown color, back and sides varied with pale, vent disk white with black edge above, not so large as the roebuck. The genus *axis* (H. Smith) is characterized by horns similar to those of *rusa*, but more slender, by the absence of canines and mane, by an elongaged tail, and by the smaller size; the hair is thick, polished, fulvous, with beautiful white spots at all seasons; the face is long and narrow, the ears large and acute, the legs long and slender; the suborbital pit is small but deep. The spotted axis (*A. maculata*, Gray) has a black streak on the back edged with a series of white spots; on the sides is an oblique curved line of similar spots, and a short oblique white streak across

the haunches; in size and markings it resembles the fallow deer, but its horns are quite different, being destitute of palmations. This species is abundant in Bengal, and is frequently hunted; it frequents thick jungles near water, feeds during the night, and is very timorous except in the breeding season; it is easily tamed, and in captivity is very nice in tasting its food; the height is about 2½ feet at the shoulders. The genus *hyelaphus* (Sundev.), which includes the hog deer, resembles *axis*, but is lower on the legs, and has no black dorsal streak, nor white streak on the haunches; the ears are short and round. The porcine deer (*H. porcinus*, Zimmerm.) is of a yellowish brown color, with obscure whitish spots, the front of face and legs darker, and white on the inside of the thighs; it inhabits the jungles of India, and, notwithstanding its thick and clumsy appearance, is a very active animal; the tail is bushy, and often carried erect. The genus *cervulus* (Blainv.), the last of the rusine division, inhabiting eastern Asia, will be described in the article Muntjac.—Of the capreoline deer, the genus *capreolus* (H. Smith), containing the European roebuck and the Siberian ahu, will be described in the article Roebuck. The genus *furcifer* (Wagner and Sundev.) has the horns erect, forked, without any basal snag, acute narrow ears, and a short tail; the hair is thick, brittle, and waved; there is a distinct pencil of hairs on the inside of the hock, but none on the outer side of the metatarsus (in which it differs from *capreolus*). The taruga (*F. Antisiensis*, D'Orbigny) is of a yellowish gray color, with the edge of the muffle and throat white; face with a brown streak, and a band between the eyes; hoofs broad; it inhabits the mountains of Bolivia, and the east coast of South America. The gemul (*F. huamel*, H. Smith) is darker colored, with the inside of the ears white; this species, considerably larger than the roebuck, inhabits the mountains of eastern South America and Patagonia. The genus *blastocerus* (Wagn. and Sundev.) has horns straight, erect, 3-branched, without basal snag; a very short tail and large ears; hair very thin and soft, the tuft on legs as in *furcifer*. The guazupuco deer (*B. paludosus*, Desm.) is nearly as large as the stag; the general color is fulvous, but the inside of the ears and limbs and the lower parts of the breast are white; the face marks and feet are blackish, and the under surface of the tail white; it inhabits Brazil and Paraguay. The guazuti deer (*B. campestris*, Licht.) is much smaller than the last, standing about 2½ feet high at the shoulders; the horns are more slender, and about a foot long, generally with 2 snags; the color is fulvous brown; the hairs of the nape and back reversed; the hoofs are narrow. This beautiful animal inhabits the open plains of Patagonia, and is so swift of foot that, according to Azara, a horse cannot overtake it; the flesh of the young is delicate, but that of the adult strongly flavored.—The genus *cariacus* (Gray), which contains our common deer, has the horns cylindrical, tending to flatten, strongly bent back and then forward, with a central internal snag, the tip bent forward, and several lower branches on the hinder edge; the hair is soft and thin, and the moderately long tail has long hair on the under side; the ears are large and rounded; there is generally a tuft of white hair on the hind leg, rather below the middle of the metatarsus; the suborbital pit in the skull is shallow, and the nasal bones broad and subtriangular behind; the hoofs are generally narrow and elongated. The common American deer (*C. Virginianus*, Penn.) has rather a long head and sharp muzzle, large and lustrous eyes, and the lachrymal bags covered by a fold of the skin; the legs are long and slender. The color in summer is bright fulvous, in autumn of a leaden hue, and in winter dark brown, when it is longer haired above; the lower parts from chin to end of tail are white; the sexes are very much alike. The young, till about the age of 4 months, are bright reddish brown, with irregular longitudinal white spots; after this age they resemble the old ones. The length of this species from nose to root of tail is about 5 feet 4 inches, and the length of tail, including the hair, 13 inches, the bones being only 6 inches; the ear is 5½ inches high. From the observations of Dr. Bachman, as given in the "Quadrupeds of North America" (vol. iii. p. 168), it appears that in the one-year-old male the horns had each a rudimentary prong about ⅝ of an inch long, and another scarcely visible; when 2 years old, 2 prongs, from 4 to 6 inches long; when 3 years old, 3 prongs, the longest 8 inches, with brow antlers; when 4 years old, the brow antlers longer and curved, and larger in diameter; during the next 2 years, the animal seemed to lose its vigor, and the horns diminished in size; perhaps in the wild state the horns would have been somewhat larger. As a general rule, the horns become annually longer and more branched, until the animal arrives at maturity, when they begin to decline; when the operation of castration is performed while the horns are fully grown, they are said to continue for years, and after they have dropped there is no subsequent growth. This graceful animal is the most useful of the wild game of North America; its flesh forms a palatable and easily digestible article of food; its skin is made into various articles of clothing both for civilized man and the savage; its horns are useful for handles of different kinds of cutlery; its very sinews form the bow-strings and snow-shoe netting of the North American Indian. Though very timid, it lingers around its old haunts when invaded by man and persecuted by the hunter; during the day, it retires to thickets and swamps, coming out to feed and drink by night; in hot weather, it is fond of immersing itself deeply in ponds and streams. The food of the deer in winter consists of buds of the wild rose, hawthorn, brambles, and various berries and leaves, and in spring and summer of the tenderest grasses; it not unfrequently visits the fields

of wheat, oats, maize, and cow peas; berries, nuts, acorns, and persimmons are also favorite articles of food. They are in fine order from August to November, when in the southern states the rutting season begins; during this period, which lasts about 2 months, the neck of the male increases in size; the males meeting, tremendous battles ensue, resulting often in the death of one or both of the combatants; about January the horns are dropped, and they associate peaceably together, as if conscious of their weak and defenceless condition; in about 3 weeks after the shedding of the horns, the swellings of the new ones begin to appear, soft, tender, vascular, rapidly growing, accompanied by considerable heat, and covered by a soft downy skin called the velvet; when these are fully grown, in July or August, this dry covering is rubbed off against the trees, and the horns become solid and smooth. The females are fattest from November to January, gradually getting thinner toward the end of gestation, and growing quite lean while suckling the young. The young are born in April, May, or June, according to latitude; Audubon says that in Florida and Alabama most of the fawns are brought forth in November. The young are carefully concealed, and are visited by day only occasionally, as at morning, noon, and night; they are easily domesticated, but are troublesome pets. The hind does not produce young until she is 2 years old, and the number of fawns varies from 1 to 3 at a birth; she is much attached to her young, and the imitation of their cry is often practised by the Indians to bring the mother within reach of their weapons. Deer are gregarious, being found in herds of several hundreds, the sexes separate except during the rutting season; their sense of smell and hearing are very acute, as every hunter knows; the sense of sight is not so acute, and the voice is quite imperfect. Preferring to roam at night in search of food, it frequents the banks of water courses and the salt licks, where great numbers are destroyed. In walking, the deer carries the head low, the largest animal usually leading the herd, which advances in single file; when alarmed, it gives 2′ or 3 high and exceedingly graceful springs, and, if it sees any danger, rushes off with the speed of a race horse, running low, with the head in a line with the body. Deer take to water readily, and swim with their bodies deeply submerged, and so rapidly that nothing but an Indian canoe can easily overtake them. The deer has been hunted by the Indians for ages with the bow and arrow; the white man hunts it with the rifle in the rocky districts, chases it with hounds in the open country of the South, or kills it when dazzled by a bright light in the woods. The deer are growing scarce in all but the unsettled parts and inaccessible swamps and thickets of the United States, and will soon become extinct unless stringent laws are made and enforced against killing them out of season; they are found, however, in every state of the union, in Canada and the British provinces, in Texas and in Mexico; in California this is replaced by the black-tailed species. Those found in the mountains are larger and shorter legged than those of the swamps of Carolina and the Atlantic seaboard. It is generally believed that the *C. Mexicanus* (Licht.), *C. nemoralis* (H. Smith), and *C. gymnotis* (Wiegm.), all from Mexico, are only varieties of the common Virginian deer. A different species, however, is the black-tailed or Californian deer (*C. Richardsonii*, Aud. and Bach.; *C. Columbianus*, Rich.). The male is a little larger than the common deer, but shorter and stouter in form; the horns are twice forked, the first fork being 10 inches from the base, the antlers somewhat like those of the European stag; the ears are of moderate size, the head shorter and the nose broader than in the first species; the hoofs are narrow and pointed; the lachrymal openings large, and close under the eye; the tail short and bushy. The general color is reddish brown above and white beneath, with no light patch on the buttocks; the chest blackish brown, which encircles the shoulder like a collar; a dark line from under chest to middle of belly; the tail dark brown, becoming black at the top, and white below. The length to root of tail is 5½ feet, tail 9 inches; height at shoulders 2½ feet; width of horns between superior prongs 1⅝ feet. First noticed by Lewis and Clark near the Columbia river, it has become recently well known to the Californian miners; it seems to replace the common deer to the west of the Rocky mountains. The flesh is tender and of good flavor. Less graceful than the common deer, and more bounding in its movements, it is said to be very swift; it also breeds earlier in the season. It is found from California to the Russian possessions. The Columbian black-tailed deer (*C. Lewisii*, Peale) may be merely a variety, according to season or locality, of the last named; but Audubon and Bachman think it will prove different. The long-tailed deer (*C. leucurus*, Douglass) is smaller than the Virginian, with the head and back fawn-colored, mixed with black; sides and cheeks paler; white beneath; tail brownish yellow above, reddish near tip, and cream-white below. The form is elegant, lachrymal opening small, limbs slender, hoofs sharp-pointed, and tail long; the fur dense, coarse, and long, with a tuft on the belly between the thighs. The length is only 4 to 5 feet to root of tail; tail 13 inches. In appearance and manner of jumping it resembles the roebuck; the flesh is excellent. According to Richardson, this species is not found on the east side of the Rocky mountains beyond lat. 54°, nor to the eastward of long. 105°; Douglass says that it is the most common deer in the districts adjoining the Columbia river; it is also met with on the upper Missouri and Platte rivers, and in Washington territory. The mule deer (*C. macrotis*, Say.) is intermediate in size between the wapiti and the common deer, and is a noble-looking animal, the only drawback being its long ears; the

horns are twice forked; the lachrymal aperture is long, the hair coarse and crimped, the hoofs short and wide, and the tail almost without hair beneath. The general color of the hair above is brownish gray, shading into fulvous, the chin without any dark markings; the forehead dark brown, and the dorsal line nearly black; below grayish white; a yellowish white spot on the buttocks; tail pale ferruginous, with a black tuft at the end; the glandular openings on the sides of the hind legs are very long. In the female, the form and length of the ears resemble so much those of the mule that the origin and appropriateness of the common name are very evident. The length of a female measured by Audubon and Bachman was $4\frac{5}{6}$ feet to the root of the tail, and the tail to end of hair 10 inches; the height at the shoulders $3\frac{1}{4}$ feet, at rump $3\frac{1}{2}$ feet; length of ears 7 inches; the weight 132 lbs. The male would be considerably larger than this. Their habits are more like those of the stag than of the common deer; they fly far from the settlements, and when started, run a mile or two before stopping. The female brings forth one or two young in the month of June. This species ranges along the eastern sides of the Rocky mountains, from 54° N. to north-western Texas; it is found on the upper Missouri and Platte rivers and in Oregon, not extending to the Pacific. It is very likely that other species of this genus will be found in Central America by the various exploring and hunting expeditions constantly fitted out by individuals and the government.—In the genus *coassus* (Gray; *subulo*, H. Smith), the horns are simple, straight, and round, like those of a deer of the first year, and inclining backward; the ears are short, broad, and almost naked; tail short; face rather convex; the fur short, elongated into a tuft on the forehead; legs without any external metatarsal tuft, but with a pencil of hairs on the inside of the hocks; the suborbital pit is small and shallow. This genus, which includes the brockets, is confined to tropical South America; they are of small size, living in woods and jungles. The pita brocket (*C. rufus*, F. Cuv.) is of a shining red color, with the crown and neck gray; the young are spotted with white, and the females are of a lighter red, with more gray. They inhabit the low, moist woods, and are polygamous, there being about 10 females in company with one male; they are very fleet for a short distance, but are soon tired out. The height at the shoulders is about 2 feet. The apara brocket (*C. nemorivagus*, F. Cuv.) is about 26 inches long, and resembles a sheep more than a deer. The lower parts of the head and lips are whitish; the inside of the fore legs, and from the lower breast to the buttocks, pale cinnamon-colored; the neck and rest of the body grayish brown. The eyebrowed brocket (*C. superciliaris*, Gray) differs from the pita in the deeply arched muffle and the white stripe over the eyes. The large-eared brocket (*C. auritus*, Gray) resembles the Asiatic muntjac in color, and the ears are large, broad, more than half the length of the head, with 2 lines of hairs. All these species inhabit Brazil and the eastern coast. On the western coast is another species, the venada deer (*C. pudu*, Mol.), with ears thickly covered with hair, a deep suborbital pit, and large molars; the fur is rufous, blackish in front and behind; the ears and tail are very short. It inhabits Chili.

DEER GRASS (*rhexia Virginica*, Linn.), the New England representative of the Asiatic family of plants called *melastomaceæ*, of which only 8 species are found in the United States. The flowers, in common with those of the family, are conspicuous and showy, with bright rosy purple petals, and render the meadows unusually gay when enamelled with patches of this lovely plant, entitling it to the common name of the meadow beauty.

DEFFAND, Marie (de Vichy-Chamrond), marquise du, an accomplished French woman, born in 1697, died in Paris, Sept. 24, 1780. She was of noble birth, and was educated in a convent, but at an early age astonished her parents by her sceptical opinions on religious subjects. At 20 years of age she was married to the marquis du Deffand, from whom her indiscretions soon caused her to be separated, after which she launched into a career of fashionable dissipation, and for many years was one of the most brilliant ornaments of the court of the regent and of Louis XV. Although incapable, from a natural selfishness and want of sympathy, of entertaining the passion of love, she knew how to inspire it in others; and over the greater part of her numerous lovers, among whom, it is said, was the regent himself, her influence remained unimpaired until their dotage. Her conversational powers and clear, cool judgment caused her to be courted by the most eminent men of the time, and when in her 56th year she became totally blind, her saloons in the convent of St. Joseph's were the favorite resort of Montesquieu, Voltaire, President Hénault, David Hume, D'Alembert, and many others. At this period of her life she became acquainted with Horace Walpole, between whom and herself a correspondence was for many years carried on. As she grew old her selfish traits developed more disagreeably, and the ungenerous manner in which she treated her companion and reader, Mademoiselle de Lespinasse, alienated many of her friends. Her latter years were marked by peevishness and *ennui*, and she died unhappy after several unavailing efforts to consecrate herself to the life of a devotee. Her epistolary writings comprise her correspondence with Hénault, Montesquieu, D'Alembert, and the duchess of Maine, and with Horace Walpole, the latter being compiled from the original letters deposited at Strawberry Hill. Her style is a model of elegance.

DEFIANCE, a N. W. co. of Ohio, bordering on Ind.; area, 414 sq. m.; pop. in 1850, 6,966. The St. Joseph's and Maumee are the principal rivers. The surface is level, the soil good, and

timber very abundant. In 1850 the productions were 90,691 bushels of corn, 47,806 of wheat, 26,471 of oats, 2,372 tons of hay, and 19,241 bushels of potatoes. There were 6 churches, 2 newspaper offices, and 1,220 pupils attending public schools.—The capital, DEFIANCE, a flourishing village and township, pop. in 1853, about 1,000, is agreeably situated at the junction of Auglaize and Maumee rivers, and at high water is accessible by steamboat. A fort, called by the same name as the town, was built here by Gen. Wayne in 1794. The place was then occupied by a large tribe of Indians, who owned extensive corn fields and orchards.

DEFLAGRATION (Lat. *deflagro*, to burn), the sudden combustion which takes place when an inflammable substance, like sulphur or charcoal, is mixed with nitrate or chlorate of potash and projected into a red-hot crucible. The instantaneous decomposition of the salt, and the uniting of its oxygen with the combustible body, give rise to the explosion which is called deflagration.

DEFLECTION. See DIFFRACTION.

DEFOE, DANIEL, an English novelist and political writer, born in London in 1661, died in the same city, April 24, 1731. The son of James Foe, a butcher and dissenter of the parish of St. Giles, Cripplegate, he was admitted by right of his birth to the freedom of the city in 1688, under the name of Daniel Foe, but afterward assumed the prefix De, as one of his enemies asserted, to escape the reputation of an English origin. He was educated at a dissenting academy at Newington Green, near London; was strongly impressed both by his parents and teachers with religious sentiments and principles; and, after leaving the academy in 1680, was nominated a Presbyterian minister. It was his disaster, however, as he expresses it, "first to be set apart for, and then to be set apart from, that sacred employ;" and he became interested in politics more than divinity. There is attributed to him a pamphlet published in 1682, entitled "Speculum Crape-Gownorum; or, a Looking-Glass for the Young Academics," which was a lampoon on prevalent high-church notions, and an answer to Sir Roger L'Estrange's "Guide to the Inferior Clergy." In 1683, while war existed between the Austrians and Ottomans, he issued his "Treatise against the Turks," combating the general sentiment in favor of the latter, and arguing that it was "better that the popish house of Austria should ruin the Protestants in Hungary, than that the infidel house of Ottoman should ruin both Protestants and Papists." In 1685 his zeal for the Protestant succession led him to join the standard of the unfortunate duke of Monmouth; but unlike many of his associates, he escaped both the hazards of the field and the sanguinary campaign of Judge Jeffreys, which succeeded the suppression of the rebellion. He repaired to London, engaged in trade as a hose factor in Cornhill, published in 1687 a tract assailing the proclamation of King James for the repeal of the penal laws, hailed the revolution of 1688 as the salvation of Protestantism, was one of the superbly mounted escort of volunteers who attended William and Mary from Whitehall to the mansion house, Oct. 29, 1689, and in 1692 was declared bankrupt and was obliged to abscond, but succeeded in making a composition with his creditors, they accepting his personal bonds, which by unwearied diligence he punctually paid. Subsequently he discharged his full liabilities to such of his creditors as had themselves fallen into distress. In 1694 his friends arranged a mercantile enterprise for him at Cadiz, but he declined it, "Providence," as he remarks, "which had other work for him to do, having placed a secret aversion in his mind to quitting England." In the next year he was appointed without solicitation accountant to the commissioners of the glass duties, in which service he continued till the suppression of the tax in 1699. The many inventions of that period and his own numerous schemes suggested to him the "Essay on Projects" (1697), the perusal of which quickened the mental energies of Franklin, and which has been said to contain the ideas of the French revolution without its follies. He published a variety of political pamphlets during several years, the most successful of which was the "True-born Englishman" (1699), a poetical satire commencing with the well-known couplet:

> Wherever God erects a house of prayer,
> The devil always builds a chapel there.

It was designed to vindicate King William from the odium of foreign birth, had an almost unexampled sale, and obtained for the author direct personal intercourse with the king. In 1701, when the bearers of the famous Kentish petition were imprisoned by order of the house of commons, Defoe composed and presented a threatening remonstrance, signed "Legion," claiming to be sent by 200,000 Englishmen, which produced immense commotion, deterring for a time several of the members from attending the house. Two other tracts speedily followed, in one of which he maintained the original rights of the collective body of the people, and in the other declared the reasons against a war with France. The latter is one of the ablest tracts in the language, and though it was adverse to the favorite policy of William, it did not excite his displeasure; he was till his death the patron and friend of Defoe, who vindicated his character and memory as well as many of his measures. In 1702 he published the "Shortest Way with Dissenters," in which, with exquisite irony, he assumed the tone of a high churchman, and gravely proposed to establish the church and rid the land of dissenters by hanging their ministers and banishing their people. His satires had already mortified and offended many of the tory leaders, through whose influence his pamphlet was now voted a libel on the house of commons and was ordered to be burned by the common hangman. The proclamation issued

for his arrest furnishes our best knowledge of his personal appearance, describing him as "a middle-sized, spare man, about 40 years old, of a brown complexion, and dark brown colored hair, but wears a wig; a hooked nose, sharp chin, gray eyes, and a large mole near his mouth." He was at this time owner of some brick and pantile works near Tilbury fort, from which he absconded; but he gave himself up when a prosecution was begun against his publisher, and was condemned to be fined, pilloried, and imprisoned. He wrote a hymn to the pillory, pronouncing it

> A hieroglyphic state machine,
> Condemned to punish fancy in;

and during his 2 years' imprisonment at Newgate began a periodical paper, entitled the "Review," published twice a week, which was continued till 1713, and was the forerunner of those popular miscellanies which were soon made attractive by the wit and taste of Addison and Steele. His enfranchisement was due to the solicitation of Harley, afterward earl of Orford. Though occasionally employed in the service of the queen, and once upon a secret mission in a foreign country, he continued his literary labors, and published in 1705 the "Consolidator," or memoirs of transactions in the moon, in which he developed a lunar language, and made the lunar politicians discuss the wars of Charles XII. of Sweden; in 1706, the satire of *Jure Divino*, in which he attacked the doctrines of passive obedience and divine right; and also several excellent treatises relating to the union with Scotland, which he was efficient in promoting, being sent by the cabinet of Queen Anne on a special important mission to Edinburgh; in 1709, a "History of the Union," which is the most authentic on the subject; and from 1711 to 1713, a series of pamphlets against the insinuations of the Jacobites and the schemes of the pretender. The irony of some of these was misapprehended, and he was again fined and for a short time committed to Newgate, July 29, 1712, where he finished his "Review," which thus had both its beginning and end in prison. After the death of the queen, his enemies assailed him from every quarter, so overwhelming him with the "rage of men," that in 1715 he published a general defence of his conduct under the title of an "Appeal to Honor and Justice." He had hardly finished this when he was struck with apoplexy, the result of anxiety and despondence, and after languishing for 6 weeks recovered. He now determined to abandon political satire, and write works for the promotion of religion and virtue. Such were his "Family Instructor" (1715) and "Religious Courtship" (1722). In 1719 appeared the "Life and surprising Adventures of Robinson Crusoe," the most popular of novels, which has uniformly been a favorite of the young and old, learned and unlearned, which was to constitute the library of Rousseau's Émile, or perfectly educated young man, which was one of the three books that Dr. Johnson wished had been longer, and which by universal admission is as moral as it is charming. The prototype of Crusoe was Alexander Selkirk, a brief narrative of whose adventures on the desert isle of Juan Fernandez had been published in 1712; and the hint thus given, according with the injured feelings and lonely contemplations of the unprosperous man of genius, was elaborated by him into a complete and delightful romance. It was followed by a series of remarkably ingenious fictions, as the "Life and Piracies of Captain Singleton" (1720), the "Fortunes and Misfortunes of Moll Flanders" (1721), the "Life of Colonel Jack" and the "Journal of the Plague in 1665" (1722), the "Adventures of Roxana" (1724), a "New Voyage round the World, by a Course never sailed before" (1725), the "Memoirs of a Cavalier," the "Political History of the Devil," and several others. He also wrote important economic and commercial treatises, entitled an "Essay on the Treaty of Commerce with France," a "Plan of the English Commerce," and "Giving Alms no Charity." Of his later novels Charles Lamb said: "While all ages and descriptions of people hang delighted over Robinson Crusoe, and shall continue to do so, we trust, while the world lasts, how few comparatively will bear to be told that there exist other fictitious narratives by the same writer, four of them at least of no inferior interest: Roxana, Singleton, Moll Flanders, Colonel Jack, are all genuine offspring of the same father. They are, in their way, as full of incident, and some of them every bit as romantic." The most prominent characteristic of his fictions is the distinctness of reality which he gives to them by the elaborate and precise statement of details. It is this quality which made Dr. Johnson esteem the account of Captain George Carleton a record of facts, Lord Chatham quote the "Memoirs of a Cavalier" as a genuine piece of biography, Dr. Mead regard his narrative of the plague in London as the result of personal observation, and which surprised the mass of readers into giving credence to the apparition of Mrs. Veal at Canterbury, "Sept. 8, 1705." His style is distinguished by a simplicity and homeliness which he may have learned from reading Bunyan. After an indefatigable and checkered life, Defoe died in the parish of his birth, insolvent, and the author of 210 books and pamphlets. He thus summed up the scenes of his career in a distich:

> No man has tasted different fortunes more;
> And thirteen times I have been rich and poor.

He adds: "In the school of affliction I have learned more philosophy than at the academy, and more divinity than from the pulpit; . . . . and in less than half a year have tasted the difference between the closet of a king and the dungeon of Newgate. I have suffered deeply for cleaving to principles." Though remembered chiefly as a novelist, he was during 30 years a leader in the fierce partisan strife by which, under William of Orange, constitutional liberty was realized in England, and has been pronounced "the most

thorough Englishman and writer of his day, a model of integrity, and as consistent, sincere, and brave as he was gifted." The best editions of his works, though incomplete, are that of London (3 vols. 1840–'43), with a memoir by William Hazlitt, and that of Oxford (20 vols., 1840–'41), with memoirs and notes by Sir Walter Scott and others.

DEFRÉMERY, Charles, a French orientalist, born at Cambrai, Dec. 8, 1822, devoted himself to the study of the Arabic and Persian languages, and in 1843 became a member of the Asiatic society in Paris. He is the author of several translations from oriental languages, among others of the travels of Ibn Batuta, published with annotations (1848–'51, 2 vols. 8vo; reprinted, with the original Arabic, 1853–'56, 3 vols. 8vo.), and of many other translations from the Persian and Arabic, and is one of the contributors to the *Journal Asiatique* of Paris. The first part of a series of original articles written by him for that periodical was published in 1856, under the title of *Mémoires d'histoire orientale*.

DEFTER-DAR (a Persian word signifying literally book-keeper), the title in Persia and Turkey of the finance minister. In the Ottoman empire, he sits in the divan, disposes of all the public money, and publishes firmans in his own name without referring to the grand vizier. The *defter-dar capoussy*, or department of the ministry of finance, has 33 bureaus, 3 of which are designed only for the registry of pious foundations in favor of hospitals, mosques, and temples, not only at Constantinople, but in the most distant provinces of the empire. Among the other bureaus are distributed the care of the taxes and tributes, the products of the mines and other state property, and the payment of all the officers, civil and military, of the empire.

DEGER, Ernst, a German painter of the Düsseldorf school, born at Böckenem, Hanover, April 15, 1809. He studied at Berlin and afterward at Düsseldorf, under Wilhelm von Schadow. His first efforts were oil pictures, among which there are some altarpieces of merit, especially a madonna and child in the church of St. Andrew, at Düsseldorf. In 1851 he completed the fresco painting for the church of St. Apollinaris, near Remagen, on the Rhine. Since 1851 he has been engaged upon paintings for the chapel of the castle of Stolzenfels. In 1857 he sent for exhibition at the *salon* of Paris a picture of the infant Jesus. He is a professor in the academy of fine arts in Munich.

DE GERANDO. See Gerando.

DEGRAND, Pierre P. F., a public-spirited Frenchman, born in Marseilles in the latter part of the 18th century, died Dec. 23, 1855, in Boston, Mass., where, since the beginning of this century, he had been established as a broker and merchant. For many years he published a commercial paper, the "Weekly Report." He zealously promoted railroads and other public enterprises. He bequeathed about $120,000 to public uses. A large part of this was left to Harvard college, for the purpose of supplying the library with French books on scientific subjects; another part was given to the city of Boston, the income to be expended in purchasing books of amusement for the use of the children of the public schools; the rest was divided among 8 charitable institutions.

DEGREE, in algebra, the number expressing the greatest number of times which an unknown quantity enters any term as a factor. Thus, if x be an unknown quantity, $4x^3+7x^2=8$, is an equation of the third degree. The unknown quantity may, in general, have as many different values as there are units in the degree of the equation.—A degree in trigonometry signifies $\frac{1}{360}$ part of a right angle, and is indicated by a small circle near the top of the figure; thus, 30° signifies the $\frac{1}{12}$ part of a right angle. Each degree may be divided into 60 minutes, each minute into 60 seconds; thus, 31° 12′ 15″ is read 31 degrees, 12 minutes, 15 seconds. In the French decimal system the right angle was divided into 100°, each degree into 100 minutes, &c.; but that method never came into general use. —A Degree of Latitude is the distance N. or S. between 2 places on the same meridian at which plumb lines would make an angle of one degree with each other. Owing to the flattening of the earth toward the poles, this distance increases in length as the observer goes N. or S.; being about 2,740 feet more at latitude 60° than at the equator. Many careful measurements of a degree have been made, by various European governments, not only in their own territories, but in South America, India, and Africa. The most northern accurate measurement was in Lapland; the most southern at the cape of Good Hope; and measurements have also been taken both in India and South America, almost exactly upon the equator. The longest arcs measured are those in France, measured by Mechain and Delambre, and that in India, measured by Col. Lambton and Capt. Everest; the first being over 12°, the second nearly 16°. From a complete discussion of all the observations, Bessel deduces the following results: the diameter of the earth at the equator is 41,847,194 English feet; the diameter through the poles 41,707,308 English feet; so that the difference of the diameters, divided by the longest diameter, gives us almost exactly the quotient of 1 divided by 300 ($\frac{1}{300}$). These results of Bessel are adopted in the United States coast survey, and agree not only with the results of terrestrial measurements, but with the celestial phenomena that depend upon the ellipticity of the earth. It is remarkable that this, the only way of determining the size of the earth, was invented and put in practice by Eratosthenes, in Egypt, in the 3d century B.C. —A Degree of Longitude is the distance between 2 places of the same latitude, the difference of whose clocks is exactly 4 minutes—in other words, the planes of whose meridians make an angle of 1° with each other. The length of a degree of longitude is at the equator 69.16 statute miles; at latitude 20° it is about

65.015 miles; at latitude 30° it is reduced to 59.944; at 40° to 53.053; and at 50° to 44.342.

DEHAVEN, Edwin J., an officer in the U. S. navy, a native of Pennsylvania, entered the navy as midshipman in Oct. 1829, and is now (Jan. 1859) near the head of the list of lieutenants. He served in the exploring expedition under Lieut. Wilkes, 1839 to 1842, and commanded with distinguished ability and zeal the first expedition fitted out at the expense of Henry Grinnell, Esq., of New York, to search for Sir John Franklin. This expedition sailed from New York, May 24, 1850, and was absent a little over 16 months, wintering within the arctic circle. It consisted of 2 small brigs, the Advance of 140, and the Rescue of 90 tons. A particular account of it has been given by Dr. Kane.

DEHON, Theodore, D.D., bishop of the Protestant Episcopal church in South Carolina, born in Boston, Mass., in 1776, died suddenly of malignant fever in Charleston, S. C., Aug. 6, 1817. He was graduated at Harvard college in 1795, entered the ministry of the Episcopal church, became rector of Trinity church, Newport, R. I., in 1798, and rector of St. Michael's church, Charleston, in 1809. In 1812 he accepted the episcopate of South Carolina, and during the succeeding 5 years labored earnestly and zealously in the discharge of his weighty duties. Beside a number of occasional sermons published during his lifetime, 2 volumes of his "Discourses" were issued in 1821. Bishop Dehon ranked high in his day as a preacher, and died very much lamented.

DEISM (Lat. *Deus*, God), the belief in the existence of God. By usage, the term deist is applied only to those who profess natural and deny revealed religion, and is specially applied to the English free-thinkers of the 17th and 18th centuries. The earliest of these was Lord Herbert of Cherbury, whose work *De Veritate* was published at Paris in 1624. Dr. Leland includes in his "View of the Deistical Writers" Herbert, Hobbes, Blount, Toland, Shaftesbury, Anthony Collins, Woolston, Tindal, Morgan, Chubb, Hume, and Bolingbroke.

DEJAZET, Marie Virginie, a French actress, born in Paris about 1797, began her career at the age of 5, in the *théâtre des Capucines*, and continued on the stage in Paris and the provinces, with but little intermission, till 1855, when she played a farewell engagement at the *Gaieté* theatre—the graceful and sprightly qualities which for so many years had made her a public favorite in France, being but little impaired by age. She excelled in the personification of soubrettes and in male attire; and won perhaps her most brilliant laurels in *Les premières armes de Richelieu* and in *Napoléon à Brienne*. What added powerfully to the interest which she created was her manner of singing the songs interspersed in the plays.

DEJEAN, Jean François Aimé, count, a general and peer of France, born Oct. 6, 1749, died May 12, 1824, gained a high reputation by his administrative and military abilities.—His son, Pierre François Auguste, born Aug. 10, 1780, died in 1845, likewise held a high position in the army, and was an eminent entomologist, and one of the most celebrated collectors of *coleoptera* in modern times. He published a catalogue of his collection (3d ed., Paris, 1837–'38), exhibiting the number of species in each genus, and indicating their localities. He is the author of *Spécies générales des coléoptères* (6 vols. in 7, 8vo., Paris, 1825–'39), and wrote in concert with Boisduval and Aubé, *Iconographie et histoire naturelle des coléoptères d'Europe* (5 vols. 8vo., with 264 colored plates, 1829–'40).

DE KALB. I. A N. W. co. of Ga., bounded N. by Chattahoochee river; area, 291 sq. m.; pop. in 1852, 16,552, of whom 3,708 were slaves. It has an elevated and somewhat uneven surface. Stone mountain, in the eastern part, is considered one of the greatest natural curiosities in the state. The soil of the river bottoms is remarkably rich. Iron is found in the county, granite is abundant, and gold has been discovered in small quantities. At Decatur are chalybeate springs. The productions in 1850 (since which time the county has been divided to form Fulton) were 2,397 bales of cotton, 432,435 bushels of corn, 86,047 of oats, and 73,070 of sweet potatoes. There were 34 churches, and 728 pupils attending public schools. Value of real estate in 1856, $1,077,478. The county was named in honor of Baron De Kalb, who fell at the battle of Camden in 1780. The Georgia railroad passes through Decatur, the capital. II. A N. E. co. of Ala., bordering on Ga., drained by Willis creek, an affluent of Coosa river, and Town creek, of the Tennessee; area, about 775 sq. m.; pop. in 1850, 8,245, of whom 506 were slaves. The valley of Willis creek is a fertile and well cultivated tract of country, about 60 m. long by 5 m. broad, enclosed by Lookout mountain on the S. E. and Sand mountain on the N. W. The county is well supplied with water power, and abounds with magnificent scenery. In 1850 the productions were 363,225 bushels of corn, 75,550 of oats, and 34,377 of sweet potatoes. There were 22 churches, and 565 pupils attending public schools. Capital, Lebanon. III. A N. central co. of Tenn.; area, about 300 sq. m.; pop. in 1850, 8,016, comprising 668 slaves. It is watered by a number of mill streams, and has a diversified surface and a good soil. In 1850 it produced 417,251 bushels of corn, and 57,361 lbs. of tobacco. It contained 12 churches, and there were 1,912 pupils in the public schools. Capital, Smithville. IV. A N. E. co. of Ind., bordering on Ohio, drained by the St. Joseph's and some smaller rivers; area, 346 sq. m.; pop. in 1850, 8,251. The surface is undulating. The soil is fertile, and in 1850 produced 139,986 bushels of corn, 75,995 of wheat, 34,366 of oats, and 4,660 tons of hay. There were 2 churches, and 1,600 pupils attending public schools. The county was formed in 1836. Capital, Auburn. V. A N. co. of Ill.; area, 648 sq. m.; pop. in 1855, 13,636. It has a rolling surface, and a fertile soil. Most of the

land is occupied by prairies, but there are tracts of valuable timber. In 1850 the productions were 221,796 bushels of wheat, 215,733 of corn, 138,903 of oats, 21,193 tons of hay, and 138,989 lbs. of butter. There were 2 churches, and 1,865 pupils attending public schools. Capital, Sycamore. VI. A N. W. co. of Mo., drained by several small streams which flow into Grand and Platte rivers; area, 441 sq. m.; pop. in 1856, 2,689, comprising 77 slaves. The surface is occupied partly by prairies and partly by woodlands. The soil is very fertile, and in 1850 produced 103,865 bushels of corn, 11,731 of wheat, 13,547 of oats, 108 tons of hay, and 30,375 lbs. of butter. De Kalb was formed out of a portion of Clinton co. Capital, Maysville.

DE KALB, John, baron, a major-general in the American army during the war of the revolution, born about 1732, in Alsace, a German province in possession of France, and educated in the art of war in the French army. In 1762 he visited the Anglo-American colonies as a secret agent of the French government. He was a brigadier in the French service, when, Nov. 7, 1776, he made with Franklin and Silas Deane an engagement to serve in the forces of the revolted colonies; and in 1777 he accompanied Lafayette to America. Congress appointed him a major-general, Sept. 15, 1777, after which he joined the main army under Washington, and was active in the events near Philadelphia, which preceded the encampment at Valley Forge. He served in New Jersey and Maryland, till, in April, 1780, he was sent to reenforce Gen. Lincoln, then besieged in Charleston, but arrived too late. He was second in command under Gen. Gates; and in the disastrous battle of Camden, Aug. 16, 1780, was at the head of the Maryland and Delaware troops, who maintained their ground till Cornwallis concentrated his whole force upon them. He fell, pierced with 11 wounds, in the charge upon his regiments before they gave way. He died at Camden 3 days afterward, and a monument was erected there to his memory in 1825, Lafayette placing the corner stone.

DE LA BECHE, Sir Henry Thomas, an English geologist, born near London in 1796, died April 13, 1855. He was the only son of Col. Thomas de la Beche of Jamaica, and was educated for the army, which he entered in 1814. Soon afterward he retired, and in 1818 married and settled in Dorsetshire. In 1817 he became a fellow of the geological society, of which he was subsequently elected secretary, and in 1847 president. During these and some succeeding years he pursued investigations into the geology of the counties of Devon, Dorset, and Pembroke; wrote "Observations on the Temperature and Depth of the Lake of Geneva;" and subsequently, in conjunction with the Rev. Mr. Conybeare, published an account of the plesiosaurus, under the title of "Discovery of a new Fossil Animal forming a Link between the Ichthyosaurus and Crocodile." In 1824 he visited his patrimonial estate in Jamaica, attempted to ameliorate the condition of his slaves, and wrote a paper on the geology of the island. Returning to England, he continued his geological researches with great assiduity. In 1831 he published his "Geological Manual," in 1834 "Researches in Theoretical Geology," in 1835 a volume, "How to observe Geology," and in 1851, "Geological Observer." A suggestion which he offered in connection with the government topographical survey then being made, led to his being appointed director-general of the geological survey of the United Kingdom; and when, mainly by his exertions, a geological museum with free lectures was added thereto, he was further nominated director of the museum of practical geology (now merged in the school of mines and of science), which appointments he held till his death, when he was succeeded in the latter office by the present incumbent, Sir Roderic Murchison. Beside these, he was member of many scientific commissions appointed by the government, as on the health of towns, explosions in collieries, selection of coal for the steam navy, building-stone for the houses of parliament, mining department of the world's fair, &c. Toward the close of his life he was knighted, made a chevalier of the Belgian order of Leopold, and of the Danish order of Danneborg, and a corresponding member of the French academy of sciences. For several years his limbs were paralyzed, but his intellect remained unimpaired, and he retained the tact, capacity for work, and cheerful temperament of his earlier days. He was buried in Kensal Green cemetery, London.

DELACROIX, Ferdinand Victor Eugène, a French painter, born near Paris, April 26, 1799. He first became known by some able criticisms on art; studied painting under Pierre Guérin; but from the very commencement of his career he abandoned the classic school, and may be considered the founder of the romantic. His first picture, "Dante and Virgil," was exhibited in 1822. His second work, the "Massacre of Scio," is considered one of the most striking pictures of the French school of the 19th century. He has since executed an immense number of works on a wide range of subjects. In 1832 he was sent by the government on a mission to Morocco, and while there he sketched a great variety of views and costumes, which were afterward reproduced in some very interesting and original pictures. The decoration of one of the halls of the palais Bourbon, consisting of 4 allegorical paintings, was his work. His productions are distinguished by their life and energy, but his coloring is more powerful than harmonious. His most esteemed works figured at the great exhibition of 1855, as well as a new picture representing a "Lion Hunt."

DELAGOA BAY, the largest bay on the S. E. coast of Africa, in lat. 26° S., and long. 33° E. It is formed by the Indian ocean, and stretches N. and S. about 50 m., with a breadth of from 16 to 20 m. It is accessible and affords a good anchorage to vessels of the largest class,

and will doubtless continue an important place, as there is no other port within a great distance admitting vessels drawing over 8 feet of water. The land near the shore is low and marshy, but rises after a short distance inland.

DELALANDE, Pierre Antoine, a French naturalist and traveller, born at Versailles, March 27, 1787, died July 27, 1823. He was early employed with his father in the museum of natural history in Paris, devoted himself for a time to painting, and became assistant of Geoffroy St. Hilaire, whom he accompanied on his scientific expedition to Portugal in 1808. In 1813 he was sent to the south of France as agent of the museum. In 1816 he went to Brazil to collect objects of natural history. His most important scientific voyage was to Cape Colony, the country of the Hottentots, and Caffraria, in the south of Africa, in 1818 and 1819, in which he made a zoological collection of 13,500 specimens, belonging to more than 1,600 different species; an herbarium of more than 6,000 specimens, comprising 920 species; and collected 300 valuable mineralogical specimens, and 10,000 specimens of insects. Among the animals were a hippopotamus, double-horned rhinoceros, giraffe, whale, and aard wolf. He also brought back many human crania. His death occurred before he was able to write the narrative of his observations. He read a summary of them before the academy of sciences, which was printed in vol. viii. of the *Mémoires du muséum d'histoire naturelle.*

DELAMBRE, Jean Baptiste Joseph, a French astronomer, born in Amiens, Sept. 19, 1749, died in Paris, Aug. 19, 1822. Till the age of 20 years his eyes were so weak that, in anticipation of blindness, he devoted himself with the greatest zeal to his studies. Becoming a private tutor after leaving college, he occupied his leisure in reading Italian, English, and Greek literature, studying mathematics at first only sufficiently to teach his pupils. From 1780 he devoted himself to astronomy, being first the pupil and then the collaborator of Lalande, who said that "Delambre was his best work." In 1790 he gained the prize of the academy of sciences for his tables of Uranus, though that planet had completed but a small arc of its orbit after its discovery by Herschel; and in 1792 another prize was given to him for his tables of the satellites of Jupiter. For these labors he was unanimously elected a member of the academy in 1792. He was associated with Mechain in measuring an arc of the meridian from Dunkirk to Barcelona, an important labor, which, being interrupted by the revolution, was not finished till 1799, and a complete account of which was given by Delambre in his *Base du système métrique décimal* (3 vols., Paris, 1806–'10). He entered the bureau of longitudes in 1795, the institute of France at its formation in the same year, became inspector-general of studies in 1802, perpetual secretary of the institute for mathematical sciences in 1803, successor of Lalande in the college of France in 1807, and treasurer of the imperial university in 1808. This office was suppressed at the restoration, and from that time he pursued his researches in retirement. After having spent 30 years of his career in the most severe astronomical and mathematical calculations, he undertook to write the history of astronomy from the remotest period, 5 volumes of which were published before his death (Paris, 1817–'21), and a posthumous volume on the history of astronomy in the 18th century was issued in 1827. This work abounds in original materials culled from the scientific treatises of different ages and many languages. Among his other writings, all of which are marked by an elegant simplicity of style, are a report on the progress of the mathematical sciences since 1789 (Paris, 1810); *Astronomie théorique et pratique* (3 vols., Paris, 1814); and numerous papers in the transactions of different European academies of science.

DE LANCEY, William Heathcote, D.D., D.C.L., an American Episcopal divine, bishop of the diocese of western New York, born in Westchester co., N. Y., Oct. 8, 1797. He was graduated at Yale college in 1817, studied theology under the direction of Bishop Hobart, and received deacon's orders in 1819. Ordained to the priesthood in Trinity church, New York, in 1822, he soon after became personal assistant of the venerable Bishop White of Philadelphia, in the 3 churches of which that prelate was rector, and in the succeeding year he was unanimously elected one of the regular assistant ministers of those churches. He was annually chosen secretary of the diocesan convention of Pennsylvania from 1823 till 1830, and was secretary of the house of bishops in the general convention of the Episcopal church of the United States from 1823 till 1829. Upon the reorganization of the university of Pennsylvania in 1828, he was chosen provost of that institution, and thereupon resigned his pastoral charge. He remained provost 5 years, and then resumed the office of assistant minister of St. Peter's church, one of the 3 of which Bishop White was rector. He travelled in Europe in 1835, and on his return, after the death of Bishop White, succeeded to the rectorship of St. Peter's church. In 1838 the diocese of New York, comprising the whole state, was divided, the eastern portion retaining the old name; and at the primary convention of the new diocese, held at Geneva, Nov. 1, 1838, Dr. De Lancey was chosen its first bishop, and he was consecrated May 9, 1839. He removed to Geneva, the seat of the diocesan college, now called the Hobart free college, which was chiefly indebted to his efficient efforts for its support. He also instituted a system of diocesan missions, by which a corps of laborers unusually large in proportion to the population and wealth of the diocese have been sustained to the present time, without incurring debt. In 1840, by his recommendation, a fund for the relief of infirm and aged clergy of the diocese was established, which, beside accomplishing its object, has accumulated a capital of about $5,000.

His sermon on the office of bishop, preached Dec. 29, 1842, at the consecration of Dr. Eastburn as bishop of Massachusetts, was widely circulated and highly esteemed. In 1846, at a meeting of the trustees of the general theological seminary of New York city, he made a proposition for the dissolution of that school as a general institution of the church, with the view of counteracting the distrust and hostility of which it was the object, and also of preparing the way for the realization of his own scheme of diocesan schools. Though this measure was not adopted, in 1855 he brought forward his plan for a diocesan "training school," to be supported by a charity foundation, and to afford the requisite education to all persons qualified and disposed to enter upon the work of the ministry. In 1852 he visited England as a delegate from the Episcopal bishops of the United States. In 1858 Bishop De Lancey had ordained 113 deacons and 125 priests, had consecrated 80 church edifices, and admitted to the communion of the church by the rite of confirmation 14,697 persons.

DELANE. I. William Augustus Frederic, an English journalist, born in 1793, died in Norwich, July 29, 1857. He was memorable for his long and successful connection with the "London Times," which earned its sobriquet of the "Thunderer" during his administration of its affairs, from the strong and telling character of the articles contributed by his friend and associate, Capt. Edward Sterling. Mr. Delane was a man of great executive capacity, extreme good sense, and practical sagacity. He wrote indeed but little, and earned the reputation for ability which he enjoyed among his associates, rather by the steady and uniform exhibition of an imperturbable discretion in judging what should be said, and who should say it, than by his own lucubrations. He was also for some time charged with grave financial responsibilities in connection with the "Times," and came in this way to be so vexatiously implicated in certain transactions of Mr. T. M. Alsager that he conceived it to be due to himself to break off his connection with the Messrs. Walter, the proprietors of the "Times." This he did, however, without impairing the friendly relations that subsisted between them in private life, and without any imputation upon his own character. He was afterward for a short time intrusted with the charge of the "Daily News," but eventually accepted the office of treasurer of the Kent county courts, and retired from journalism altogether. He died at Hillesden, the residence of his eldest son, in Norfolk; and it curiously illustrates the studiously impersonal character sought to be stamped upon the "Times," that no notice whatever was taken by that journal of the decease of a man to whom it was so much indebted for the successful establishment of its system of management. II. John Thaddeus, the 2d son of the preceding, born in 1819, took his degree as bachelor at Magdalen hall, Oxford, in 1840, and as master of arts in 1846. He completed his terms as a barrister, but has never engaged in the actual practice of his profession. He was at first employed as a leading writer upon the "Times," but on the reconstruction of the staff of that journal, after his father's retirement, he assumed the political control of it, the financial and general business management passing into the hands of Mr. Mowbray Morris. Mr. Delane is the first English journalist who has achieved a prominent contemporary recognition, by the public at large, of his connection with the "Times." The exposures made by the "Times" and its correspondents, during the Crimean war in 1854, of military mismanagement on the part of the English government, brought Mr. Delane conspicuously forward as an individual, and invested him suddenly with something of the formidable power that had previously been conceded to that mysterious being, "the editor of the Times." In 1856, at the time of the presidential election, Mr. Delane visited the United States, making a tour of 4 months, in the course of which he made himself acquainted with the leading men of all parties, and familiarized himself with the best aspects of American life. The results of this brief but varied experience have since been discernible in the much greater intelligence, justice, and good will with which American affairs have been treated by the journal over which he presides.

DELAROCHE, Hippolyte, better known as Paul, which name he assumed at the age of 15 or thereabout, an eminent French historical painter, born in Paris, July 17, 1797, died there, Nov. 4, 1856. Early evincing a taste for painting, he studied landscape in order not to interfere with the prospects of an elder brother who had devoted himself to the department of history. After several fruitless attempts to secure the academy prize for landscape painting, he renounced that branch of the art, and in 1816, in obedience to his inclinations, entered the studio of Baron Gros, where his talents were rapidly developed. Gros had succeeded to a great extent in freeing himself from the influence of David's dry, classic style, and his pupil avoided it still more, without however adopting all the ideas of the romantic school. He chose rather to take a middle course between the two, and to create a sort of eclectic style, which should represent all the improvements in art and its general progress during the 19th century. Hence he and his school have been called the "Eclectics," in contradistinction to the romantic school of Delacroix and the classic school of David. In 1819 his first picture, "Naphtali in the Desert," was exhibited, and from that time until the great industrial exhibition in Paris in 1855, when a collection was made of his chief productions, almost every year witnessed the execution by his pencil of one or more striking works. His subjects were generally taken from English or French modern history, and he was fond of drawing upon the misfortunes of fallen greatness as a source of inspiration. His "Children of Edward IV. in the Tower," "Joan

of Arc in Prison," the "Execution of Lady Jane Grey," "Charles I. in the Guardroom insulted by the Parliamentary Soldiers," "Strafford on his way to the Scaffold," the "Young Pretender succored by Flora Macdonald," and "Marie Antoinette before the Revolutionary Tribunal," are good specimens of the subdued yet impressive manner in which he was accustomed to handle this class of subjects. Still more powerful was his "Cromwell contemplating the Corpse of Charles I.," generally considered the best of his series illustrating the civil wars in England, and indeed of all his pictures on English subjects. This purely imaginative scene is treated with a simplicity and dignity in keeping with the theme, and aptly illustrates Delaroche's capacity to delineate a striking historical episode without resorting to exaggeration of form or expression. His "Death of Queen Elizabeth," an earlier work, is less severe in style, and less historically accurate. Among his pictures from French history may be mentioned a "Scene in the Massacre of St. Bartholomew;" "Cardinal Richelieu in a Barge on the Rhone conducting De Thou and Cinq-Mars to Execution;" the "Death of Cardinal Mazarin;" the "Assassination of the Duke of Guise," a work of great power, for which the duke of Orleans is said to have paid 52,000 francs; a series of 4, representing the "Baptism of Clovis," the "Oath of Pepin the Short," the "Passage of the Alps by Charlemagne," and the "Coronation of Charlemagne at Rome," painted for the gallery of Versailles; the "Destruction of the Bastile," and the "Girondists in Prison," one of his last works. In addition to these, his "Napoleon at Fontainebleau," and "Napoleon at St. Bernard," of both of which he made several copies, have obtained great popularity. The work, however, which occupied the greatest share of his attention, and upon which he intended that his reputation should rest, is his fresco painting of the hemicycle of the *Palais des beaux arts*, a composition of great size and merit, representing the illustrious masters of art of all ages. Apelles, Phidias, and Ictinus preside over this assemblage; at their feet stand 4 female figures, typifying Greek, Roman, Middle Age, and Renaissance art, while below, on each side in animated groups, are seen the great painters, sculptors, and architects of the world. This picture includes upward of 80 figures of the size of life, and is admirable for its elevated tone, simplicity of arrangement, and fulness and force of expression. It cost Delaroche 4 years of incessant labor, and has been beautifully engraved by Henriquel Dupont. In the winter of 1855 the picture was much injured by fire, and the anxiety and labor attendant upon the work of restoration, which Delaroche lived to complete with his own hand, are supposed to have hastened his death. At various times of his life, but particularly in the latter part of it, he painted sacred compositions, which are inferior generally in elevation and character to his historical subjects. "Herodias with the Head of John the Baptist" is among the best. Some of his purely domestic subjects, such as a "Mother fondling her Children," are full of grace and sweetness. He painted likenesses of Guizot, Thiers, Lamartine, his father-in-law Horace Vernet, and other distinguished Frenchmen, which show considerable talent for portraiture. Delaroche has not escaped censure for an alleged want of force and imagination in his works, as well as for the simplicity and meagreness of his details. The accessories are sometimes also so highly finished as to detract from the general effect of his pictures. But for elevated manner, correctness of design, and beauty of drawing and color, he was unsurpassed by any of his contemporaries. His powers seemed to ripen and mellow with age, and his latest works, like the first, continued to reflect his somewhat melancholy and saturnine temperament. His scholarly attainments and mastery of a wide field of art gave great weight to his opinions, and he was regarded as a sort of oracle among his associates. In personal appearance he bore a considerable resemblance to the emperor Napoleon I. The greater part of his works are familiarly known through the medium of excellent engravings, and in 1858 a magnificent collection of photographs of his finished pictures and of many of his sketches and cartoons was published in Paris.

DELAVIGNE, Germain, a French dramatic author, born at Giverny, Feb. 1, 1790. He was educated at the Napoleon lyceum, and received under Louis Philippe an office from the crown. In his literary labors, as in his college studies, he has been associated with Eugène Scribe, in collaboration with whom he has written a large number of highly esteemed vaudevilles, operas, comic operas, and some short romances, as *Les mystères d'Udolphe* (1852), *La nonne sanglante* (1854). With his brother Casimir he wrote the opera of *Charles VI.* (1843).

DELAVIGNE, Jean François Casimir, younger brother of the preceding, a French lyric and dramatic poet, born at Havre, April 4, 1793, died at Lyons, Dec. 11, 1843. He was the son of a merchant, and at first a laborious rather than brilliant student at the Napoleon lyceum in Paris. Only in the latter years of his course he manifested his poetical tastes and talent, while his brother Germain and his life-long friend Eugène Scribe, then his fellow students, were his most intimate associates. His own early ambition was to compose an epic poem, while that of Germain was for success in dramatic composition, and that of Scribe to become a leader at the bar. In 1811 he composed a dithyramb on the birth of the king of Rome, which was printed, attracted general attention, and obtained for him the encouragement of Andrieux, whose uniform custom was to dissuade young men from a literary career, and the more useful protection of Français of Nantes, a high officer of state, who delighted in playing the part of Mæcenas. From the latter he received a slight office, the condition being that he should appear at his desk only once a month, on the

day of payment. Several of his short pieces had been honorably mentioned by the academy, when he adopted a national subject, and published in 1818 his 3 admirable elegies, the *Messéniennes*, so called in allusion to the songs by which the conquered Messenians lamented their country's disasters. Two of these had before been widely circulated in manuscript. France, completely exhausted, twice conquered, and suffering the indignities of invasion, first learned from him the accents of grief for the issue at Waterloo, of indignation for the devastation of the museum, itself the fruit of conquest, and was urged by him anew to union and patriotism when the foreign occupation had ended. Within a year, 22,000 copies of the *Messéniennes* were sold; they accorded so nearly with the national spirit without exciting partisan passion, that Louis XVIII. ordered a sinecure librarianship to be bestowed upon the author; and Delavigne was from this time the favorite poet of the liberal opposition. He wrote 2 elegies on the life and death of Joan of Arc, and then produced his first tragedy, the *Vêpres Siciliennes*, which was performed at the Odeon in 1819, and was received with enthusiasm. It was soon followed by the *Comédiens*, written to ridicule the company of the *théâtre Français* by which his first drama had been rejected, and in 1821 by the *Paria*, in which he pleads the principle of the natural equality of men. His liberal ideas, repeated in several new lyrics, to which also he gave the name of *Messéniennes*, and his association with some of the leaders of the opposition, caused him to lose his humble place under the government, when the duke of Orleans made him librarian of the *palais royal*. The schism between the favorite author and the first dramatic company of the time having been ended, he produced in 1823 his *École des vieillards*, in which Talma and Mlle. Mars played the principal parts, which is esteemed his masterpiece in his first dramatic manner, and which gained him in 1825 admission into the French academy. He had long aspired to this honor, but when he had presented himself at the first election a bishop had been preferred to him, at the second an archbishop, and he had declined persisting when there was a third vacancy, saying that doubtless the pope would be his rival. Refusing a pension now offered him by the government, which he believed hostile to public liberty, he resided during a year in Italy, and returned to find that a great change had taken place in the public taste. The classical drama seemed to have died with Talma, and the romantic school had brought into vogue, and was winning the popular favor for, another class of ideas and dramatic combinations, and even a new style and new forms of versification. His comedy, the *Princesse Aurélie* (1828), was the least favorably received of all his works. While a war of epigrams raged between the defenders of the three unities and the champions of an audacious eccentricity, Delavigne conceived the idea of conciliating the two schools, of uniting classical elegance and purity with romantic boldness—a project which was the ambition, not to say the illusion, of the remainder of his life. He joined himself with the romanticists, with the purpose of proving to them that pity, terror, and overpowering interest were not incompatible with sobriety of action and correctness of language. His *Marino Faliero* (1829), in which he first departed from the ancient rules, mingling tragedy with comedy, and dignity of expression with light vivacity, obtained great success. He had in Italy begun the tragedy of *Louis XI.*, but had abandoned it on the death of Talma, despairing to find any other qualified to perform the principal part, till he witnessed the powers of Ligier, in the part of Faliero. He now set himself to finish it, and was only briefly interrupted by the revolution of 1830, improvising the *Parisienne*, the most popular song at the time of insurrection, and writing also a new *Messénienne* entitled *Une semaine à Paris*. Declining any personal favor from the triumph of the liberal cause, he resumed his labors, and completed *Louis XI.*, which was produced in 1832; it is the greatest work of Delavigne in his second style, and has remained one of the most remarkable dramas on the stage. It was followed by *Les enfants d'Édouard* (1833), *Don Juan d'Autriche*, in prose, and one of his best pieces (1835), *Une famille au temps de Luther* (1836), *La popularité* (1838), *La fille du Cid*, in which he returned to his early manner (1839), and *Le conseiller rapporteur* (1841). It was his custom to compose his dramas entire before writing a word of them, and he had already completed in his mind another tragedy, *Mélusine*, which was his favorite piece, the hero of which was a sort of oriental Faust, when his health rapidly failing prevented him from writing more than the first act and a part of the second. At the approach of winter he started for Italy, but, unable to support the fatigue of the journey, died at Lyons, while his wife was reading to him Sir Walter Scott's "Guy Mannering." His funeral at Paris was attended not only by the most eminent men in literature, art, and politics, but by the populace in throngs. The personal character of Delavigne was most estimable. His works are distinguished as much for their purity of sentiment as their perfection of art; and notwithstanding the concessions which he made to the reigning school, he may justly be called a great classical dramatist. Among his occasional pieces are lyrics in behalf of Greece and Poland. The standard edition of his works is that of 1846, in 6 vols., which has been several times reproduced, and contains a memoir by his brother Germain.

DELAWARE, one of the original states of the American union, situated between lat. 38° 28′ and 39° 50′ N. and long. 75° and 75° 46′ W., having a length N. and S. of 96 m., and a breadth varying from 9 to 12 m. in the N. to 36 or 37 m. on the S. line; area 2,120 sq. m., or 1,356,800 acres; bounded N. by Pennsylvania, W. and S. by Maryland, and E. by Delaware river and bay

(separating Delaware and New Jersey) and the Atlantic ocean. The state is divided into 3 counties, viz.: New Castle in the N., Kent in the middle, and Sussex in the S.; and these are subdivided into hundreds. Wilmington, the most populous and important city, is situated between Brandywine and Christiana creeks, about 1 m. above their confluence. The principal part of the city is built on the S. W. side of a hill, 109 feet above tide. On the N. E. side of the same hill on the Brandywine are a number of flouring mills which have long been celebrated. Wilmington is also largely engaged in the manufacture of steam engines (land and marine), railroad cars, machinery generally, &c., and also powder. The Christiana creek admits vessels drawing 14 feet of water to the town, and those drawing 7 or 8 feet can ascend 8 m. further. The Brandywine has 7 feet of water to the mills. Pop. in 1850, 13,979, and in 1853, 16,163. Dover, the state capital, is situated on Jones's creek, 5 m. from the Delaware. New Castle, on the Delaware, 5 m. S. of Wilmington, is a manufacturing town, and carries on a considerable trade. The other principal places are Georgetown and Lewes in Sussex co.; Milford and Smyrna in Kent co.; and Port Penn and Delaware City, New Castle co. Newark is the seat of Delaware college. The population of Delaware in 1790, and at subsequent decennial periods down to the year 1850, has been as follows:

Census.	White.	Free colored.	Slave.	Total.
1790	46,310	3,899	8,887	59,094
1800	49,852	8,268	6,153	64,273
1810	55,361	13,136	4,177	72,674
1820	55,282	12,958	4,509	72,749
1830	57,601	15,855	3,292	76,748
1840	58,561	16,919	2,605	78,085
1850	71,169	18,073	2,290	91,532

Of the white population in 1850, there were 29,259 males and 29,302 females; of the free colored (blacks 16,425, and mulattoes 1,648), 9,035 males and 9,038 females; and of the slave (blacks 2,207, and mulattoes 83), 1,174 males and 1,116 females. Density, 43.18 to a square mile; proportion to the population of the whole Union, 0.39 per cent. Families (white and free colored), 15,439; dwellings, 15,290. Deaf and dumb, 54: white 48, free colored 4, slave 2; blind, 39: white 25, free colored 14, slave 0; insane, 68: white 48, free colored 20, slave 0; idiotic, 92: white 74, free colored 14, slave 4. Births (white and free colored), 2,495; marriages, 564; deaths, 1,188. Total deaths (including slaves), 1,209. Ages (all classes): under 1 year, 2,554; 1 and under 5, 10,899; 5 and under 10, 13,071; 10 and under 15, 11,700; 15 and under 20, 10,142; 20 and under 30, 15,994; 30 and under 40, 11,208; 40 and under 50, 7,488; 50 and under 60, 4,491; 60 and under 70, 2,484; 70 and under 80, 1,101; 80 and under 90, 279; 90 and under 100, 54; 100 and upward, 9; unknown, 58. Of persons 100 and upward: white 2, free colored 5, and slave 2. White and free colored (total, 89,242), born in Delaware, 72,351; born in other states of the Union, 11,617; born in foreign countries, 5,211; and born in parts unknown, 63. Natives of Delaware resident in other states, 31,965. Occupations of 22,061 (white and free colored) males over 15 years of age: 5,633, commerce, trade, manufactures, mechanic arts, and mining; 7,884, agriculture; 6,663, labor not agricultural; 743, sea and river navigation; 251, law, medicine, and divinity; 581, other pursuits requiring education; 124, government civil service; 69, domestic service; 113 unspecified. Slaveholders, 809, viz.: holders of 1 slave, 320; of 1 and under 5, 352; of 5 and under 10, 117; and of 10 and under 20, 20. Paupers (in 1849–'50), 667, viz.: 569 native and 128 foreign, costing in the year $17,730. Criminals convicted (1849–'50), 22, all native, and (June 1, 1850) in prison 14, all native. Federal population (all free and $\frac{3}{5}$ slaves), 90,616, which entitled the state to one representative in the national congress.—Delaware comprehends the N. E. portion of the low peninsula between Chesapeake bay, Delaware rivers, and the Atlantic ocean. It contains no mountains, but in the N. the surface is beautifully diversified by hill and dale. Southward of Christiana creek the surface is almost a perfect level, and is only relieved by a low table-land or sand ridge, nowhere more than 60 or 70 feet in height, which traverses the state N. and S. near the W. boundary, and forms the watershed of the peninsula. This table-land abounds in swamps, in which most of the rivers and streams have their sources, some flowing W. into Chesapeake bay, and others E. into the Delaware. The Choptank, Nanticoke, and Pokomoke, the head waters of which are in this state, have their greatest lengths in Maryland and flow into the Chesapeake. The Appoquinnimink, Duck, Jones's, Murderkill, Mispilion, Broadkill, Indian, and other rivers and creeks are affluents of the Delaware and Atlantic. The most important streams of Delaware, however, are the Brandywine and Christiana creeks, the former coming in from Pennsylvania, and the latter from the S. W. These unite below Wilmington, and pour their united waters into the Delaware 1 m. below their junction. Many of the smaller rivers are navigable for coasting vessels, but the Christiana is the only one in the state that admits of the entrance of merchant ships. Delaware bay is a fine estuary, about 60 m. in length by 25 or 30 in greatest breadth, but contracting toward the N. to less than 5 m.; and where it opens to the sea between Cape May (lat. 38° 56′ and long. 74° 38′) and Cape Henlopen (lat. 38° 48′ and long. 75° 6′), the width is not more than 15 m. The main channel admits the largest vessels to the head of the bay and into the river, having from 35 to 75 feet of water; but the course is made tortuous and intricate by the numerous shoals which nearly fill the central portion. The western shore of the bay is marshy and low, and that on the Atlantic is beset with sand beaches which enclose shallow

bays, or more properly lagoons. Rehoboth bay, at the mouth of Indian river, is a basin of this description, but admits vessels drawing 6 feet of water. At the S. extremity of the state is the Cypress swamp, a morass 12 m. long and 6 m. wide. This swamp contains a great variety of trees and evergreen shrubs, and is infested with noxious reptiles. For 8 or 10 m. inland from the Delaware the soils are generally rich clays, but thence to the swamps and southward sand prevails. Bog iron ore is found in the swamps, and shell marl occurs abundantly. In the N. there are deposits of kaolin, or porcelain clay, which have supplied the Philadelphia works with that valuable earth. The climate is in general mild and highly favorable to agricultural pursuits. The N. and more elevated region has a remarkably salubrious atmosphere; but where the surface is swampy, as in the S. parts of the state, endemic sickness prevails to a considerable extent. The natural productions are similar to the middle region of the United States generally.—In 1850 Delaware contained 6,063 farms and plantations, enclosing 956,144 acres of land, of which 580,862 acres were improved. Cash value of farms $18,880,031, and of farming implements and machinery $510,279. Average of farms 158 acres, and of value $3,198. Live stock upon farms, &c. (1850): horses 13,852, asses and mules 791, milch cows 19,248, working oxen 9,797, other cattle 24,166, sheep 27,503, swine 36,261, in all valued at $1,849,281; and value of animals slaughtered (1849–'50), $373,665. Agricultural products (1849): wheat 482,511, rye 8,066, oats 604,518, Indian corn 3,145,542, barley 56, and buckwheat 8,615 bushels; potatoes, Irish, 240,542, and sweet, 65,443 bushels; hay, 30,159 tons; hops, 348 lbs.; clover seed, 2,525, and other grass seed, 1,403 bushels; butter, 1,055,308, and cheese, 3,187 lbs.; peas and beans, 4,120 bushels; market garden products, $12,714, and orchard products, $46,574; beeswax and honey, 41,248 lbs.; home-made manufactures, $38,121; flaxseed, 904 bushels; flax, 11,174 lbs.; molasses, 50 gallons; wool, 57,768 lbs.; wine, 145 gallons. The average grain crops of Delaware (bushels per acre) were as follows: wheat 11, Indian corn 20, oats 20, and buckwheat 10. The total value of agricultural products returned by the census of 1840 was $2,877,350, and by that of 1850, $3,117,565. Manufactures, mining, and the mechanic arts: establishments, 531; capital, $2,978,945; raw material used, $2,864,607; hands employed, 3,888, viz.: 3,237 males and 651 females; annual wages, $936,924; products, $4,649,296; profit, 28.46 per cent. Cotton factories 12, capital $460,100, cotton used 4,730 bales, total value of raw material $312,068, products $538,439; woollen factories 8, capital $148,500, wool used 393,000 lbs., value of raw material $204,172, products $251,000; cast-iron works 13, capital $373,000, pig iron consumed 4,400 tons, value of raw material $153,852, products $267,462; wrought-iron works 3, capital $75,000, value of raw material $35,410, and products $38,200. The manufactures of Delaware (including family products) were valued in 1820 at $1,318,891, in 1830 at $1,991,000, in 1840 at $2,709,068, and in 1850 at $4,687,427.—The exports of Delaware for the year ending June 30, 1858, were valued at $106,571, and the imports at $2,821; and the shipping cleared amounted to 2,871 tons, and entered to 845 tons, all American. The coasting trade is more extensive, and is carried on chiefly for the supply of the Philadelphia markets. Shipping owned in the state 21,258 tons, viz.: 3,643 registered and 11,992 enrolled and licensed; and of this 15,635 (including 1,057 steam) belonged to the Wilmington, and 5,623 (including 203 steam) to the New Castle district. In 1859 (Jan.), Delaware had 12 banks, capital $1,638,185, loans and discounts $3,000,285, stocks $22,610, real estate $81,499, due by other banks $308,222, notes of other banks $61,446, specie funds $114,812, specie $217,312, circulation $960,846, deposits $832,657, due to other banks $86,180. On June 30, 1858, Delaware contained 115 m. of completed railroad, viz.: the Delaware railroad, 71 m. long, extending from Seaford to a junction with the New Castle and Frenchtown railroad, 7 m. W. from New Castle, cost $1,146,310; the New Castle and Frenchtown railroad, 16 m. long, from New Castle on the Delaware to Frenchtown on Elk creek, an arm of Chesapeake bay, cost $380,000; the New Castle and Wilmington railroad, 4.7 m., cost $100,000; and a section of the Philadelphia, Wilmington, and Baltimore railroad, about 23 m. This system connects Wilmington with Philadelphia and Baltimore, and with the state throughout its whole length, and also the waters of the Delaware and Chesapeake. There are also in course of construction 2 other railroads, viz.: the Junction and Breakwater, intended to connect Milford and Lewes with the Delaware railroad; and the Delaware and Maryland, an extension of the same line from Seaford to the head of steam navigation on the Nanticoke. Ultimately, however, it is proposed to carry the main line of road through Maryland and Virginia to Cape Charles. From the Nanticoke and the cape, Norfolk will be reached by steamers. The Chesapeake and Delaware canal connects by a channel navigable for coasting vessels the waters so called. It extends from Delaware City, 46 m. below Philadelphia, to Back creek, a navigable branch of Elk river in Maryland, 13½ m., and is 66 ft. wide at the top and 10 ft. deep, with 2 tide and 2 lift locks, and a deep cut for 4 m. through a hill 90 ft. high. This important work was completed in 1829 at a cost of $2,250,000. The total length of post routes in the state on June 30, 1858, was 562 m., of which 85 m. was railroad, 303 m. coach, and 174 m. not specified. —The census of 1850 presents the following statistics regarding churches, schools, the press, &c. Churches 180, viz.: Baptist 12, Episcopal 21, Friends 9, Methodist 106, Presbyterian 26, Roman Catholic 3, Union 1, and minor sects 2, which together furnished accommodation for

55,741 persons, and were valued at $340,345. Colleges 2, professors 16, students 144, annual income $17,200; academies and private schools 65, teachers 94, pupils 2,011, annual income $47,832; primary and public schools 194, teachers 214, pupils 8,970, annual income $43,-861. The number of children attending school during the year as returned by families was 14,403, viz.: 14,077 natives, and 326 foreigners. Newspapers and periodicals 10 (circulating 75,000, or annually 421,200 copies), viz.: 3 semi-weekly and 7 weekly, of which 2 were literary and miscellaneous, and 8 political. Libraries (other than private) 17, with 17,950 volumes, viz.: public 4, with 10,250 vols.; Sunday-school 12, with 2,700 vols.; and college 1, with 5,000 vols. The number of free schools in operation in 1856 was 233; scholars, 11,468; average length of schools, 7.6 months; receipts, $80,509, of which from school fund, $27,452, and district contributions, $53,057; expenditures, $78,253. The capital of the permanent school fund amounts to $440,505. The collegiate institutions are: Delaware college at Newark, founded in 1833, and which in 1858 had 6 professors, 50 students, and a library of 10,000 vols.; and St. Mary's college at Wilmington, a Roman Catholic school, founded in 1847, and which in 1858 had 7 professors, 110 students, and a library of 2,500 vols.—The constitution of Delaware grants the right of voting to all free white male citizens 21 years of age, who have resided in the state one year, and in the county one month next preceding an election. The general assembly consists of a senate of 9 members (3 from each county), chosen for 4 years, and a house of representatives of 21 members, chosen for 2 years. Senators must be 27 years of age, and be possessed of 200 acres of freehold land, and representatives must be 24 years of age. Pay, $3 per diem and mileage. The sessions are biennial. The governor is elected for 4 years, and has a salary of $1,333; he must be 30 years of age, and have resided in the state 6 years next before election. The state treasurer and auditor (salary $500 each) are elected by the general assembly for 2 years; the term of the secretary of state (salary $400 and fees) is 4 years. There are 5 judges, one of whom is chancellor and president of the orphans' court, and of the other 4 one is chief justice of the state, and 3 are associate justices, one resident in each county. The chief justice and 2 of the associates form the superior court and court of general sessions, and all the judges, except the chancellor, form the court of oyer and terminer. The court of errors and appeals is composed of 3 or more judges. The orphans' court consists of the chancellor and the associate judge of the county. Judges are appointed by the governor, and hold office during good behavior. Probate courts are held by registers of wills, with appeal to the superior court. The public income is derived from corporation taxes, dividends, interest on loans, &c., and in 1857 amounted to $46,000. The disbursements for the year were about $39,000. The state has no debt, but has permanent resources amounting to $549,755, viz.: invested capital $109,250, and school fund $440,505. The valuation of taxable property in 1856 was $30,466,924. There is, however, no taxation for state purposes.—Delaware takes its name from Lord De La Ware, governor of Virginia, who entered the bay in 1610; but the discovery of the Delaware was made by Hudson in 1609. In 1629, one Godyn, a director in the Dutch West India company, in whose service Hudson had sailed, purchased of the natives a tract of land near the mouth of the river; and next year De Vries with 30 colonists, arriving out from Holland, settled near Lewes. Three years later the whole colony was destroyed by the natives. In 1637 the Swedish West India company sent out a colony of Swedes and Finns, which arrived at Cape Henlopen early in 1638, and after purchasing all the lands from the cape to the falls near Trenton, erected a fort at the mouth of Christiana creek. They named the country Nya Sveriga, or New Sweden. The subsequent settlements of the Swedes were mostly within the present limits of Pennsylvania, and in 1643 their headquarters were erected on the island of Tinicum, a few miles below Philadelphia. These proceedings were protested against by the Dutch of New Amsterdam, who claimed the country by right of discovery and settlement, and with a view to the expulsion of the intruders built Fort Casimir (now New Castle), 5 m. S. of Fort Christiana. This, however, was captured by the Swedes in 1654; but the next year the Dutch from New Netherlands attacked and reduced the Swedish forts, and sent to Europe all the colonists who refused allegiance to Holland. Thus ended the transient connection of Sweden with the colonial history of the United States. From this period to 1664, when New Netherlands was conquered by the English, the Delaware settlements continued under the control of the Dutch authorities. The duke of York now came into possession of all the Dutch had occupied, and the English laws were established on both sides of the river. In the mean time, however, Lord Baltimore asserted his claim to the country on the west side of the river as a part of his grant, which extended to lat. 40° N., but excepted tracts then already occupied; and frequent incursions were made from Maryland with the view of driving away the settlers. At length William Penn, having obtained a grant of Pennsylvania, and being desirous of owning the land on the west bank of the Delaware to the sea, procured from the duke of York a release of all his title and claim to New Castle and 12 m. round it, and to the land between this tract and the sea. In Oct. 1682, he arrived at New Castle, and in the presence of the inhabitants produced his deeds and accepted the surrender of the territory. Lord Baltimore still asserted his claim, but Penn resisted it on the ground that at the time of the grant of Maryland the territory was occupied,

and in 1685 the lords of trade and plantations decided in Penn's favor. The conflicting claims, however, were subsequently adjusted by compromise. The tracts now constituting the state Penn called the "territories or 3 lower counties on the Delaware." For 20 years they were governed as a part of Pennsylvania, each county sending 6 delegates to the general assembly. In 1703 the territories obtained liberty to secede, and were ever afterward allowed a distinct assembly. The proprietary, however, until the commencement of the revolution retained all his rights, and the same governor uniformly presided over Pennsylvania and Delaware. Sheltered by the surrounding colonies, Delaware enjoyed an entire exemption from wars, except those in which as a part of the British empire she was obliged to participate. In the war with France which terminated in 1763, she was second to none in active zeal; and in the revolutionary war the Delaware regiment was one of the most efficient of the continental army. In 1776 the inhabitants declared themselves an independent state, and framed a constitution. In 1792 a second constitution was established, which with subsequent amendments still forms the fundamental law of the state. The federal constitution was ratified by Delaware, Dec. 7, 1787.

DELAWARE. I. A S. E. co. of N. Y., bounded N. W. by the E. branch of the Susquehanna, and S. W. by Delaware river, which separates it from Penn.; area, 1,550 sq. m.; pop. in 1855, 39,749. It is drained by the head streams of the Delaware, has a hilly surface, and a soil which in the valleys is extremely fertile. The productions in 1855 were 119,383 bushels of Indian corn, 416,659 of oats, 9,494 of wheat, 209,567 of potatoes, 103,896 tons of hay, and 4,026,575 lbs. of butter. There were 26 flour mills, 224 saw mills, 24 tanneries, 4 woollen factories, and 5 carding and fulling mills. Six newspapers were published in the county; there were 92 churches, and 314 school houses. The Delaware and Susquehanna rivers, from the former of which the county is named, are here navigable by boats, and are the channels through which vast quantities of lumber are annually exported. Capital, Delhi. II. A S. E. co. of Penn., bordering on Del., separated from N. J. on the S. E. by the Delaware river, and drained by a number of small streams; area, 108 sq. m.; pop. in 1850, 24,679. The surface in the S. E. part is generally level, but in other places is hilly. A large proportion of it is occupied as grazing land, and the markets of Philadelphia are supplied with milk, butter, and cheese mainly from the dairies in this county. The soil is not naturally fertile, but by the use of manures has been rendered extremely productive. The most important minerals are mica slate, extensively used for building, and gneiss. Whetstones are procured near Derby, and exported to nearly all parts of the union. The water power with which the county is abundantly supplied is employed in numerous manufactories of cotton and woollen, flour, saw, and paper mills, and other establishments. The agricultural productions in 1850 were 294,209 bushels of corn, 121,096 of wheat, 169,754 of oats, 108,508 of potatoes, 27,932 tons of hay, and 1,342,243 lbs. of butter. There were 58 churches, and 2,995 pupils in the public schools. The county was settled by Swedes in 1643, organized in 1789, and named from Delaware river. Capital, Media. III. A central co. of Ohio, traversed by the Scioto and Olentangy rivers, well supplied with water power; area, 478 sq. m.; pop. in 1850, 21,817. It has an even surface, a fertile soil, and in 1850 produced 774,289 bushels of corn, 44,523 of wheat, 142,992 of oats, 22,021 tons of hay, and 124,064 lbs. of wool. There were 45 churches, and 8,261 pupils attending public schools. At Delaware, the capital, are several excellent sulphur springs. IV. An E. co. of Ind., drained by White and Missinewa rivers, and consisting in great part of low marshy prairies, suitable for pastures; area, 400 sq. m.; pop. in 1850, 10,843. The surface is generally level, and the soil fertile. In 1850 the productions were 429,209 bushels of corn, 55,078 of wheat, 41,992 of oats, and 4,957 tons of hay. There were 15 churches, and 1,894 pupils attending public schools. The county was named from the Delaware Indians, who once owned the soil. Capital, Muncie. V. An E. co. of Iowa, well supplied with water and timber, and having a healthy climate, a fertile soil, and a rough hilly surface; area, 576 sq. m.; pop. in 1856, 8,099. In the same year it produced 117,700 bushels of wheat, 113,747 of oats, 342,271 of corn, 57,368 of potatoes, and 126,330 lbs. of butter. Capital, Delhi.

DELAWARE BAY. See DELAWARE.

DELAWARE COURT HOUSE, or DELAWARE, a post town and capital of Delaware co., Ohio; pop. in 1850, 2,074. It is pleasantly situated on rolling ground, on the right bank of Olentangy river, which is here crossed by a bridge. It is a handsome place, neatly built, and the seat of the Ohio Wesleyan university, established in 1845. A sulphur spring in the vicinity is much resorted to. Two newspapers are published in the town; there are 5 or 6 churches, and a branch of the state bank of Ohio.

DELAWARE RIVER (Indian name, *Makeriskitton*), a large river of the United States, formed by two small streams called the Oquago (or Coquago) and the Popacton, which rise on the western declivity of the Catskill mountains, N. Y., and unite on the boundary line between New York and Pennsylvania, near the N. E. angle of the latter. Flowing S. E., it separates those states for about 70 m., until it reaches Kittatinny (or Shawangunk) mountain, near Port Jervis. At this place it makes a sharp turn to the S. W., and forms the dividing line between New Jersey and Pennsylvania. At the N. extremity of Northampton co. it passes through a precipitous defile, formed by perpendicular rocks on either side 1,000 or 1,200

feet high, and known as the Delaware Water Gap. A few miles below Easton it turns again to the S. E., and after passing Trenton meets the tide water 132 m. from the sea. The stream now becomes much wider, and acquires sufficient depth for the passage of steamboats. Philadelphia, on the right bank, is the head of navigation for ships of the largest size. On the other side of the river are the towns of Burlington and Camden, the latter being just opposite Philadelphia. The channel is here about 1 m. wide, and divided by a small island. A number of other islands, none of them of great extent, occur in various parts of the stream. Bridges connect the opposite banks at Trenton and several other points. About 40 m. below Philadelphia the river discharges itself into Delaware bay, after a total course of 300 m. The Delaware and Hudson and the Morris canals connect the stream with the Hudson, and a canal from Easton to Bristol passes near its banks. The N. Y. and Erie railroad runs in the valley of the Delaware for a distance of nearly 90 m. The shad fisheries in the lower part of the river are very profitable. During the winter of 1851–'52 a solid bridge of ice formed in the channel at Philadelphia, an event which occurs only in seasons of excessive severity.

DELAWARES, called in their own language the LENAPES, one of the Algonquin tribes of American Indians, now established in the territory of Kansas, which occupied at the beginning of the 16th century the valley of the Delaware river and the banks of the Schuylkill. According to their traditions they were in past ages eminent for valor and wisdom, and held a prominent place in Indian history, exerting an authoritative influence from the Chesapeake to the Hudson. This claim seems to be recognized by the other tribes of their lineage, who apply to them the honorable title of grandfather. On the rise of the Iroquois power they lost their independence; and in the large assembly of tribes which concluded the treaty at Lancaster in 1744, the Iroquois denied the right of the Delawares to alienate their lands. The latter, being immediately ordered by their masters to remove to the banks of the Susquehanna, left for ever the region of their native Delaware. In 1751 they are found at Shamokin and Wyalusing on the Susquehanna, positions where they were exposed to the violence both of the Iroquis and of white emigrants. It was their misfortune to be regarded by the English as under French influence, an opinion which lost none of its force from the fact that many of the Delawares had adopted the principles of peace and non-resistance taught by Penn and Zinzendorf. The Iroquois were also offended by their neutrality, and because they applied themselves to agriculture and grazing, refusing to join in forays of plunder and murder, while the Indian and French war was raging on the frontier from Quebec to New Orleans. A tragical result at length followed. In 1781 nearly 400 Moravian Delawares, settled on the Muskingum, were plundered by a hostile Indian party, and ordered to remove to Sandusky, on Lake Erie. Being permitted to return in the next year, their movement was regarded as a hostile one by the British frontiersmen, who united and surprised the unresisting Moravians at Muskingum, and massacred nearly 100 of them. In a treaty at Fort Pitt, in 1778, the Delawares entered into terms of amity with the United States, granting power to march armies through their country on condition that a fort should be built for their protection. This was the origin of Fort McIntosh. In 1795 they were parties, with the Wyandots, Shawnees, Miamies, and other western tribes, to the general pacification of Fort Grenville. These relations were further strengthened by the treaties of Fort Wayne (1803) and Vincennes (1804); and the frontiers were not molested by their war parties till the primary movement of Tecumseh in 1811–'12. They did not long rest upon the Susquehanna, but gradually continued their migration westward, resuming their habits of war and hunting, and stopping for a time on the White Water river, in Indiana. Thence they crossed the Mississippi, and are now established on fertile tracts on the Kansas river, in the territory of that name. A portion of them went into Texas, where they have an excellent reputation as guides, hunters, and woodsmen. They possess 375,000 acres of land at the mouth of the Kansas river, and 3 times this amount at higher points on that river and its tributaries. Their number was returned in 1840 at 830; in 1850, at 1,500; and is now estimated at above 2,000. A considerable portion of them are cultivators of the soil, raise horses, cattle, and hogs, and dress in many respects in civilized costume. The United States hold in trust for them a school fund of $7,806, and a general fund of $915,375.

DELESSERT, BENJAMIN, a French financier and philanthropist, born in Lyons, Feb. 14, 1773, died in Paris, March 1, 1847. After completing his early education, he visited Edinburgh and London, and made the acquaintance of Adam Smith, Dugald Stewart, Playfair, and Watt. He served in Belgium as captain of artillery under Pichegru, but on the death of his eldest brother resigned his commission to assume the direction of his father's bank. In 1801 he established a sugar refinery at Passy, and he contributed much to the success of the manufacture of beet root sugar in France. Such was his reputation for skill and integrity, that before he was 30 he was appointed regent of the bank of France, which post he held for nearly half a century. He was a patron of savings banks, primary schools, houses of refuge, and other charitable institutions. He was an associate of the academy of sciences, and formed magnificent botanical and conchological collections; his herbal, which had been commenced for his sister by J. J. Rousseau, contains no less than 86,000 specimens of plants, 3,000 of which were previously unknown. His botanical collections are illustrated in the important work,

in which he was a collaborator with De Candolle, *Icones selectæ Plantarum* (2 vols. 4to., Paris, 1820–'46), and his conchological treasures were described in 1847 by Dr. Chenu. Beside his political speeches delivered in the chamber of deputies, where for years he occupied a seat among the conservative party, and his pamphlets on savings banks, he published a philosophical tract, *Le guide du bonheur*, which has been several times reprinted, and other writings.

DELFT, one of the oldest Dutch towns, in the province of South Holland, 8½ m. by rail from Rotterdam, on the small river Schie, and connected by canals and railways with the other principal towns of Holland; pop. about 18,000, of whom 6,000 are Catholics, and the remainder chiefly Protestants. It is intersected in all directions by canals, which are crossed by 69 bridges. The principal public buildings are the town hall; the palace or *prinsenhof*, originally the convent of St. Agatha, once the occasional residence of William I. of Orange, and the scene of his assassination (July 10, 1584), now converted into barracks; the new church, with a huge square tower and celebrated chimes, containing the mausoleum of William I., and the tombs of the Orange family, and of Hugo Grotius, who was born in Delft; the old church, distinguished by a leaning tower, containing the oldest organ in Holland, the monument of Admiral Van Tromp, and the tombs of Leeuwenhoeck, the naturalist, and other eminent citizens of Delft; two Roman Catholic churches, several other churches for various Protestant denominations, and a chapel for Jansenists. There are also a gymnasium and 17 other schools, an academy for civil engineers and industry, several associations for the promotion of art, science, and literature, and various benevolent institutions. Delft was formerly celebrated for its potteries (delft ware), but this manufacture is now almost entirely superseded by the superior articles made in England. The little earthenware now made here is of the coarser kind. Of the other manufactures, those of mathematical instruments are most renowned. Near the entrance of the town is the state arsenal of Holland, originally the Dutch East India house, to which a college for engineers is attached. Delft was almost entirely destroyed by fire in 1536, and again in 1654, when an explosion of the powder magazine reduced 500 houses to ashes, and killed 1,200 persons. But by being frequently rebuilt, the town was so much improved that Pepys in his diary (May 18, 1760) describes it as "a most sweet town, with bridges and rivers in every street." In 1797 the Delft religious association (*Christo sacrum*) was established here by members of the French reformed church, with the view of forming a union between all Christian sects, but is now almost extinct.—Delft is connected by a canal with its port, DELFT-HAVEN or DELFTSHAVEN, a small town on the right bank of the Meuse, 2 m. from Rotterdam, with 3,200 inhabitants, engaged in distilleries, herring and cod fisheries, and shipbuilding. Delft-Haven is celebrated in American history as the place where the pilgrim fathers embarked for Southampton, July 22, 1620.

DELFT WARE, a kind of pottery of clay, or clay mixed with sand, and covered with a white enamel, which gives to it the appearance of porcelain. The vessels composed of this preparation are first moulded, then slightly baked, in which state they readily receive the enamel, when a stronger heat is applied for the purpose of fusing the enamel uniformly and to complete the baking process. Sometimes this pottery is finely ornamented with painting. The more common and coarser kinds, however, better resist a sudden heat. The preparation of the enamel is an important part of the process in making delft ware, and various receipts are given for it. It should be made so opaque that the ware cannot be seen through it.

DELHI, or D'HILLI, formerly an administrative division of the N. W. provinces, British India, comprising the districts of Paniput, Rhotuk, Hurriana, Goorgaon, and Delhi; area, 6,274 sq. m.; pop. in 1853, 2,195,180. The district of Delhi lies on the W. bank of the Jumna, between lat. 28° 24′ and 28° 54′ N., long. 76° 49′ and 79° 29′ E.; area, 789 sq. m.; pop. 435,744, of whom 316,065 are Hindoos, and the rest mainly Mohammedans. The surface is rough in some parts, but not mountainous. The soil, like that of the 4 other districts, is naturally barren, but by means of works of irrigation a valuable extent of land has been made arable. More than ⅓ of the whole surface, however, is uncultivated. About 3,300 acres are devoted to cotton, yielding a crop of about 300,000 lbs., cleaned. The other principal productions are barley, pulse, and wheat. The climate is commonly dry; the temperature ranges from 56° in January to 92° in June, but at certain seasons the district is swept by hot winds of fearful intensity, accompanied by tornadoes and rain storms. In Jan. 1859, the Delhi division was detached from the N.W. provinces, and formed, with the Punjaub, the Trans-Sutlej and Cis-Sutlej states, into a lieutenant-governorship called the Punjaub and its dependencies.—DELHI, the capital of the above district, and the Mohammedan metropolis of India, is built principally on a short offset of the Jumna, about a mile from the right bank of the main stream, 115 m. N. N. W. from Agra, 40 m. S. W. from Meerut, and 830 m. N. W. from Calcutta; lat. 28° 39′ N., long. 77° 18′ W.; pop. in 1853, 152,406, of whom 76,372 were returned as Hindoos and 76,034 as Mohammedans, no account being given of the Christian inhabitants. The city is 7 m. in circumference, and enclosed, except on part of the water front, by a wall of red sandstone, with bastions, martello towers, and 11 gates, 4 of which face the river. There is also a dry ditch 20 feet wide, and on the island formed by the Jumna and its offset stands the old fort of Selimgurh, whence a bridge of boats crosses the main stream. The defences were built by Shah Jehan and improved by the British. Delhi con-

tains many good brick and stone houses, and, for an Asiatic city, is remarkably clean. The Chandnee Chowk, or silversmiths' street, the main thoroughfare, is 150 feet wide, lined with gay bazaars, and traversed by a canal bordered with trees. At its head, abutting on the river and defended by a broad moat, stands the imperial palace of Shah Jehan, once of almost unparalleled magnificence, but now filthy and neglected. It is a collection of buildings surrounded by a wall 40 feet high, and ¾ of a mile in circuit, including a private royal mosque, large gardens, and apartments for several thousand persons. Here, too, are the white marble council chamber with its 4 cupolas, and the public audience hall in which stood the famous "peacock throne," formed entirely of gold and jewels, and valued at $30,000,000. The jumma musjid, or chief mosque, in Mohammedan eyes the wonder of the world, built by Shah Jehan in 6 years, stands on a paved platform, 450 feet square, on a rocky height near the centre of the city. It is approached by broad stone steps, and makes one side of a quadrangle, the other sides of which are formed by pavilions and arcades. It is 261 feet long, lined and faced with white marble, surmounted by 3 domes of the same material striped with black, and having at each end of the front a high minaret. Scattered through and around the city there are more than 40 other mosques, some mean Hindoo temples, and tombs of the emperors and Mussulman saints. Nine miles S. is the Cuttub (Kuttub or Kutb) Minar, 242 feet high, said to be the tallest column in the world, and close to it is the emperor's country residence. Among the European buildings are the British residency, St. James's and several missionary churches, a bank, a lunatic asylum, the courts of justice, and a government college attended chiefly by native students. The last is managed by a council of Europeans and natives, has an income of about $18,750, and is divided into 4 departments: English, Arabic, Persian, and Sanscrit. There are, moreover, in and near the city, about 300 schools, and a newspaper office. There are 2 arsenals, one outside the walls, the other within. The latter, prior to 1857, was the most important in India, and contained 300 guns and mortars, 20,000 stand of arms, and 200,000 shot and shells, beside gunpowder and other warlike stores. The Jumna is impregnated with natron, but the city is supplied with water by a canal 70 m. long, built under Shah Jehan and restored by the British. Another, called the Doab canal, for irrigation, built by the same emperor, fed by the Jumna, and joining that river again near here after a course of 135 m., was also repaired by the British in 1830. Delhi has manufactories of cotton, indigo, and shawls. The fabrics of Cashmere are brought here to be embroidered with gold and silk, and an active trade in horses, fruit, precious stones, &c., is kept up with Cashmere and Cabool. The great East India railway, when completed, will connect the imperial city with Calcutta and Lahore, and a tram road has been projected to unite it with Futtehghur.

—If we are to trust Abul Fazl, no less than 7 cities have occupied the site of Delhi. The first was Indraprast'ha, or Indraput, where the Hindoo rajahs had their capital at least as early as the 10th century. In 1193 it was captured by Mohammed of Ghor; and Cuttub-ud-deen, a lieutenant of the victor, founded here a dynasty known to Europeans as the Patan or Afghan, and to oriental historians as that of the "slaves of the sultan of Ghor." The house of Cuttub was overthrown in 1288 by the Afghan Ghiljies or Khiljis, who were in turn displaced by the Togluck princes in 1321. In 1398 the city was desolated by Tamerlane; in 1450 it was acquired by the Afghan tribe of Lodi; and in 1526 it was seized by the renowned Baber, the founder of the long line of Mogul emperors. With these changes of the sceptre the empire alternately waxed and waned, at one time (1340) embracing almost the whole peninsula, at another (1398) restricted to a few miles around the capital. Under the Moguls it recovered more than half its former possessions. Akbar removed the throne to Agra, but Shah Jehan in 1631 built the present city close to old Delhi, and made it the royal residence. The Mohammedans still call it Shahjehanabad, the "city of the king of the world." Nadir Shah, the Persian usurper, captured it in 1739, massacred the inhabitants from the dawn of light till day was far spent, and bore away plunder to the value of nearly $100,000,000, including the famous peacock throne and the great koh-i-noor diamond, now in the possession of Queen Victoria. From this time dismemberment rapidly went on. The Great Mogul lost all but the shadow of sovereignty, and at last fell into the hands of the Mahrattas, who were defeated near Delhi, Sept. 11, 1803, with dreadful slaughter, by the British under Lord Lake. The titular emperor was released from captivity, a pension of $500,000 a year was assigned him, a resident was appointed at his court, and the British exercised the government in his name. In 1827 the empty show of power was taken from him, $250,000 were added to his allowance, and though still revered by Mohammedans as the descendant of Timour, his sway was thenceforth confined to the 12,000 members of his family who filled his palace and swallowed up his pension. At the time of the revolt in 1857, the garrison of Delhi consisted of the 38th, 54th, and 74th regiments of native infantry, and one battalion of native artillery, the only European soldiers being the 48 officers by whom this force was commanded. On May 10 three regiments mutinied at Meerut and marched off to Delhi, where they arrived the next day. The garrison, after a show of resistance, joined their ranks, and in a short time the whole populace was in arms. Some of the officers and civilians escaped to Meerut, Umballa, Kurnaul, and other places, but a large number of Europeans of both sexes were butchered with refined cruelty. The arsenal was held by Lieut. Willoughby and

8 Europeans, who stoutly defended it against several hundred sepoys until their position became desperate, and then blew up the magazine. Hundreds of sepoys—some say 1,000—were killed by the explosion, but the brave young officer in command, and some of his companions, escaped for the time with severe injuries. Meanwhile the aged king took command of the city, appointed officers, and resumed the imperial state to which he had long been a stranger. News of this disaster was telegraphed to Umballa the same day, and the British lost no time in preparing for the reconquest of a city on which the fate of India was thought to hang. Three brigades were ordered to march from Umballa and Meerut, under Brigadiers Wilson, Halifax, and Jones; and Gen. Anson, the commander-in-chief, left Simla to place himself at their head, but on reaching Kurnaul died of cholera, May 27. The command now devolved on Sir Henry Barnard, who, after one or two victories, appeared before Delhi, June 8. The rebels were found posted on a rocky ridge 1,500 yards from the north wall of the city, but by a rapid movement Sir Henry attacked them in flank, swept their position, and captured 26 guns. The British camp was then pitched about 1½ m. from the north wall, screened by the ridge, the left resting on the river, and the rear on a canal. For many days it required all the efforts of the besiegers to hold their own ground. They were too weak either to risk an assault or to cut off the reënforcements which the mutineers continued to receive from all parts of Bengal. Moreover, they were yet without heavy artillery, while the rebels had nearly 200 guns, which they managed with a skill equal if not superior to that of the besiegers. For 2 months a day seldom passed without sorties, in which both parties suffered severely. June 12, the insurgents attacked both flanks, and were twice repulsed. On the 17th they were gallantly dislodged from an unfinished battery near the Subzee Mundee suburb in advance of the besiegers' right; on the 19th a serious attack was made on the camp from the rear; and on the 23d, the centenary of the battle of Plassey, a still harder contest was fought on the right, lasting all day, and signalized by the bravery of the "guides," a native corps of picked men, mostly Punjaubees, who on this occasion fought uninterruptedly for 15 hours without food. On July 1, at sunset, an action, which lasted 22 hours, began on the extreme right, where 300 Europeans and guides held at bay throughout the night a force of nearly 5,000 men. On the 5th Gen. Barnard died of cholera, and was succeeded by Gen. Reed, who before the end of the month resigned on account of sickness to Gen. Archdale Wilson. On the 31st an immense force began a general attack on the advanced posts of the British, assailing them from two quarters at once with unusual skill and determination. The battle raged day and night until Aug. 2 at noon, when the rebels withdrew, leaving the field heaped with their dead. On the 24th, 7,000 mutineers left the city to intercept the siege battery, then on the way from Ferozepoor, and were immediately pursued by Gen. Nicholson, who had joined Wilson on the 8th. He overtook them at Nujuffghur, and routed them so completely, that they fled back to Delhi. By Sept. 8 all the reënforcements had arrived, and preparations were made to besiege the city in form. The force at Gen. Wilson's disposal amounted to 9,866 effective men, without counting the Cashmere contingent, 2,200 strong, some hundred men under the rajahs of Jheend and Putialah, and about 3,000 in hospital. It embraced Europeans (about ⅓), Sikhs, Gorkhas, Punjaubees, Beloochees, and Afghans, and was distributed as follows: infantry 6,089, cavalry 1,705, artillery and engineers 2,072. The mutineers are supposed to have numbered 14,000, beside cavalry. On the 11th the new battery opened fire, and a furious bombardment was kept up day and night by 44 heavy guns and many of small calibre. On the night of the 13th two breaches, one near the Cashmere and the other near the Water bastion, were found practicable. The storming party was now arranged in 4 columns. The 1st, of 1,000 men under Nicholson, was to assault the main breach, and escalade the face of the Cashmere bastion; the 2d, of 850 men under Brigadier Jones, was to move against the Water bastion; the 3d, of 950 under Col. Campbell, preceded by an explosion party, was to force the Cashmere gate; and the 4th, consisting mainly of natives, led by Major Reid, was to assail the enemy's strong position in the Kissengunje and Pahareepoor suburbs. The reserve, 1,300 strong, had orders to await the result of the first attack. At 4 o'clock on the morning of the 14th the troops left the camp, and concealed themselves near some advanced posts on the left until the signal for assault was given by Nicholson. On emerging upon open ground they were met by fearful volleys of musketry, thinning their ranks so fast that for full 10 minutes it was impossible to plant the ladders in the ditch. But the columns never wavered; they soon mounted the scarp, and with a ringing cheer the 1st and 2d divisions sprang upon the breaches, and carried them at the point of the bayonet. Once within the walls, they fought their way inch by inch along the ramparts, occupying the bastions, and turning the guns against the city. They secured the Moree and Cabool gates, but were beaten back from the W. wall with the loss of the gallant Nicholson. In the mean time Lieuts. Home and Salkeld, with 3 non-commissioned officers and a few native sappers, undertook the dangerous task of blowing up the Cashmere gate. In full daylight they marched boldly up through a shower of balls, arranged the powder bags in the face of a murderous discharge of musketry through an open wicket, and fired the train. The gate fell with a crash, but Lieut. Salkeld, a sergeant, a corporal, and 2 natives were killed. The 3d column now dashed forward, entered the city at 10 o'clock, just as the 1st and 2d gained the breaches, and pushed on

toward the jumma musjid, but was beaten back with great loss to the Cashmere gate, where the reserve came to its support. The 4th column sustained a defeat in the suburbs, and retreated to the camp. When night closed, the British found themselves in possession of the N. ramparts, and of several strong posts in that part of the city, and at dawn on the 15th commenced the work of dislodging the rebels from the loopholed houses and public buildings. The arsenal, which Lieut. Willoughby's exploit had but half destroyed, was stormed on the 16th, and its guns were turned against the palace. The Burn bastion was surprised on the same evening; the great mosque was entered on the 17th, and by the afternoon of the 20th, after a desperate street conflict of nearly 7 days, the British were again masters of all Delhi. No quarter was given, even to the sick and wounded. Women and children were invariably spared, but the conquerors did not always discriminate between armed rebels and peaceable inhabitants. Large bodies, however, made their escape while the fighting was going on, and among them was the ex-king, who took refuge in the suburban palace near the Cuttub Minar. The next day he surrendered to Capt. Hodson, on promise of his life, and on the 22d 3 of the royal princes were captured at the tomb of Humayoun, and immediately shot. The trial of the ex-king, now 90 years old, commenced Jan. 27, 1858, in his own palace. He was found guilty of complicity in the mutiny and its attendant atrocities, was condemned to transportation for life, and in Dec. 1858, was removed to the Cape of Good Hope. The British losses in this memorable siege were 3,837 killed, wounded, and missing. On Sept. 14 the casualties were 8 officers and 265 men killed, 52 officers and 822 men wounded. Of the number of insurgents who perished no authentic record could be obtained, but it must have been great. Over 1,500 are supposed to have fallen on the day of assault.

DELILLE, Jacques, a French poet, born at Aigues-Perse, Auvergne, June 22, 1738, died in Paris, May 1, 1813. He was a natural son of a lawyer named Montanier, and his only fortune was a good education and an income of 300 francs a year. He became known in 1769, by his translation of Virgil's Georgics, which won the highest praise from competent critics. Louis Racine, who had urged him to the work, gave it unlimited approbation; and Voltaire insisted upon the title of academician being at once conferred upon him. This distinction he received 2 years later, and he was soon afterward appointed professor of Latin poetry in the college of France. In 1782, on the publication of his original poem, *Les jardins*, he was presented through the favor of Count d'Artois with an abbey, with a yearly income of 30,000 livres. In 1784 he visited Greece and Turkey in company with Choiseul Gouffier, the French ambassador to Constantinople. The revolution deprived him of his office and the greater part of his income. He was arrested during the reign of terror, but saved by the interposition of Chaumette. For the celebration of the *Fête de l'être suprême*, he wrote, at the request of Robespierre, an ode in praise of the immortality of the soul. In 1795 he completed his translation of Virgil's Æneid, and subsequently visited Switzerland, Germany, and England. On his return to France in 1802 he was reinstated in his professorship, resumed his literary pursuits, and published successively the various poems which he had partly prepared during his travels: *L'homme des champs* (1800); *La pitié*, a touching poem on the victims of the revolution (1803); his translation of Milton's "Paradise Lost" (1805); *L'Imagination* (1806); *Les trois règnes de la nature*, with annotations by Cuvier (1809); *La conversation* (1812). His later years, during which he became blind, were spent quietly at Nanterre. His last composition, which, however, he did not live to complete, was entitled *La vieillesse*, and he used to say jestingly that he was "full of his subject." His translation of Pope's "Essay on Man," and his poem *Le départ d'Éden*, were published after his death. The most complete edition of his works was published by Michaud (16 vols. 8vo., 1824–'25).

DELINIERS, Jacques Antoine Marie, viceroy of Buenos Ayres, born at Niort in France, Feb. 6, 1756, shot at Buenos Ayres in 1810. In his earlier years he served in the Spanish navy, and having attained the rank of captain he was sent during the war with Great Britain on a mission to South America. In June, 1806, an English squadron made its appearance before Montevideo, and landed 1,100 men under Gen. Beresford. The Spanish army which opposed them was routed, and on July 2 the English took possession of the city. Deliniers was then at Montevideo. Having received intelligence of what had taken place, he assembled the forces at his command and marched against the English, whom, after some hard fighting, he compelled to capitulate, leaving to the conquerors 1,600 muskets, 26 cannon, and 4 howitzers. For this exploit, in accordance with the wish of the people, he was elevated to the viceroyalty of Buenos Ayres. On July 1, 1808, he fought an obstinate battle with the English in the vicinity of that city; but although the loss of the Spaniards is said to have been less than that of the English, the former were compelled to retire within the walls. The English immediately laid siege to the city, but were unable to make themselves masters of it, and were at last obliged to retire, having suffered great loss. Deliniers shortly afterward compelled them to make a treaty by which they agreed to abandon Montevideo, and the whole country in the neighborhood of the La Plata, within 2 months. This achievement gave him great reputation, and, in return for it, he was appointed brigadier-general by the king of Spain. He was now at the height of his popularity, but the people of Buenos Ayres were anxious for independence, and Deliniers, having espoused the cause of the king, excited a powerful party

against him, and found himself under the necessity of retiring into exile. It was not long, however, before he recovered his power, and he was in possession of it when a new viceroy, Don Balthasar de Cisneros, was sent out from Spain to replace him. He at the same time received the title of count of Buenos Ayres, but was ordered to return to Europe. This he refused to do, and retired to Mendoza. The deposition of Deliniers produced a revolution which compelled Cisneros to abdicate. But when Deliniers with 2,000 men attempted to reëstablish the royal authority, he was met by the revolutionists, his army dispersed, and he himself taken prisoner. He was brought to Buenos Ayres, where he was shot with several other royalist leaders, by order of the revolutionary junta.

DELIRIUM TREMENS, Delirium Ebriositatis, Mania a Potu, a disease caused by the abuse of spirituous liquors, and characterized by tremor, sleeplessness, and delirium. It is remarkable that a disease so well marked and so easily recognized as delirium tremens should up to the early part of the present century have been confounded with inflammation of the membranes of the brain, and that, thus misled by a name, most physicians bled, blistered, and mercurialized their patients, thus adding vastly to the mortality of a complaint already sufficiently fatal. Delirium tremens sometimes makes its appearance in consequence of a single debauch; commonly it is the result of protracted or long continued intemperance. Occasionally, where the indulgence is very excessive, the attack occurs while the patient still continues his potations; more generally it is the result of some cause by which they are temporarily interrupted; the patient's stomach gives out and refuses the accustomed draught, he receives a hurt, or he is affected by some of the ordinary causes of illness. If the patient be now noticed, he will be found to be nervous and uneasy; he is startled by any sudden noise, the opening of a door, the entrance of a visitor; he is restless; the hands and tongue are tremulous; he complains of inability to sleep, and if he dozes for a moment he is awakened by frightful dreams; with all this, his skin is commonly cool and soft, his pulse slow, and his tongue moist. Soon delirium manifests itself; if questioned, the patient often answers rightly enough, but if left to himself he begins to talk or mutter; he is surrounded by frightful or loathsome animals; he is pursued by some one who has a design upon his life; he has terrible and ghastly visions. Though most commonly of a frightful or terrifying character, the delirium is not invariably so; occasionally the appearances are droll or ludicrous, and the patient seems amused by them. He is rarely dangerous; his predominant emotion is fear; but in the effort to escape an imaginary enemy, he may be guilty of a murderous assault, or more probably of taking his own life. The delirium continues until the patient dies exhausted, or until he sinks into a sleep from which he awakes comparatively rational. When the strength of the patient has not been seriously impaired by long continued excesses, delirium tremens is rarely fatal; but those whose constitutions have been broken down by a long course of intemperance frequently succumb. In such cases death is often sudden; the patient rises for some trivial purpose, and falls in a faint from which he never recovers. At other times, after passing many nights without sleep, he sinks into a state of coma, which terminates in death. It must be borne in mind that the same habits which cause repeated attacks of delirium cause likewise organic affections of the viscera, more particularly of the liver and kidneys, and that these seriously influence the result of each new attack.—*Treatment.* When nausea is present, and the tongue large and coated, it is well to commence the treatment by an emetic or an emeto-purgative; in mild cases, and when the strength of the patient will admit, it will be sufficient to keep him walking with a careful attendant until fatigue induces a tendency to sleep. In severer cases, opium is the article mainly relied on by practitioners, and in most instances it will not disappoint their expectations; still there is a class of cases rebellious to its influence, whatever dose may be given. Sometimes here the inhalation of chloroform comes to our aid, and accomplishes that which opium unassisted could not do; in other cases the use of small doses of tartar emetic and laudanum produces the happiest effects. It is necessary to maintain the patient's strength by the administration of suitable nourishment, and in some cases the use of stimulants will be found not only beneficial but indispensable.

DEL NORTE, a N. W. co. of Cal., bordering on the Pacific ocean and Oregon. A great part of the surface is mountainous, and the coast range runs along its border. It was formed in Feb. 1857, from the N. part of Klamath co., to which it is attached for representative purposes. Capital, Crescent City.

DELOLME, Jean Louis, author of a celebrated work on the English constitution, born at Geneva in 1740, died in Switzerland, July 16, 1806. Having published a pamphlet which gave umbrage to the authorities of his native city, in which he had been established as a lawyer, Delolme repaired to England. Here he found in the study of British institutions an ample field for his observant nature, and at the same time a congenial political atmosphere. He was the author of various works and essays on political affairs, but his fame rests upon his book on the English constitution. First written in French and published at Amsterdam in 1771, it met with a favorable reception, which induced Delolme to enlarge and improve it, and to publish a new edition in English, which appeared in 1772. The demand for it became so great that 4 new editions were sold within 20 years, and a German translation appeared at Altona in 1784. A new edition, with life and notes by J. Macgregor, M. P., was published in 1853.

DELOS, or Delus, now Dili or Sdilli, the

smallest island of the Cyclades, called also by the ancients Asteria, Ortygia, or Chlamydia. One of their legends, probably alluding to its origin by a volcanic eruption, represents it as having risen from the waves of the sea at a stroke of the trident of Neptune, and floated on the Ægæan, until it was moored to its bottom with adamantine chains by Jupiter, in order that it might become a place of refuge for Latona, who was delivered there, on a desert rock and under a shady tree, of Apollo and Diana, hence called Delius and Delia. To them the island was sacred, and in accordance with a vow of Latona a temple was erected by Erysichthon, son of Cecrops, at the foot of Mount Cynthus, which in due time was enriched by the gifts of nations, and remained unshaken by the earthquakes that often desolated neighboring islands. The oracle of Apollo, who gave responses here in summer, and at Patara in Lycia in winter, was regarded as the most distinct and trustworthy. Delian festivals were held here every 4 years; the Athenians sent there yearly their Theoria with choruses and dances. Latona had also her temple. Delos was colonized by the Ionians, became the centre of splendid festivals in honor of Apollo, and was ruled by kings, who at the same time performed the functions of priests. In later times it became dependent upon the Athenians, who performed there 2 purifications, first under Pisistratus, and secondly in the 6th year of the Peloponnesian war (426 B. C., as described in the 3d book of Thucydides), by removing the tombs and dead bodies to a neighboring island, and who also enacted a law to guard the sacred ground from the pollution of births and deaths. Its towns, having no walls, were guarded by their sanctity; its temple and immense treasures were untouched by the Persians in their invasion; and during the following wars it became the seat of the common treasury of the Grecian states. When this was removed to Athens, Delos decayed, but was still remarkable for commerce; and after the destruction of Corinth by the Romans (146 B. C.), was the chief emporium of the slave trade, and a flourishing seat of art. The city and temple were plundered and destroyed by Menophanes, general of Mithridates, king of Pontus, and the women and children sent as slaves to Asia. The remains of the splendid ancient buildings were at a later period carried away by the Venetians and Byzantines; but a few broken pillars and architraves are still to be seen on the almost desert island, whither shepherds from the neighboring islands transport their flocks, its climate being regarded as unhealthy for inhabitation.

DELPHI, or Delphos (Gr. ὁι Δελφοι), a small town of ancient Phocis, of high importance in the history of Greece as the seat of the oracle of Apollo. It was built in the form of an amphitheatre, on the steep S. W. extremity of Mount Parnassus, in a secluded mountain region, in the midst of wild peaks, rocks, and cliffs. Its name had its origin, according to the legends of Greece, either from Delphos the son of Apollo, or from a dolphin (δελφιν, or δελφις), in the form of which Apollo rushed into the sea, after having killed the dragon Pytho, and determined on the erection of a temple on the spot. Boarding a Cretan vessel, he made it pass by the place of its destination, Pylos, and entered the harbor of Cirrha, where the Cretans on landing were again struck by the appearance of the god as a beautiful youth, and with songs and hymns followed him to serve as his priests at Delphi, which they founded. The first sanctuary of Apollo was a rude shelter of laurel boughs, soon replaced by a temple which stood 700 years, and was burned in 548 B. C. The Amphictyons contracted with the rich Athenian Alcmæonidæ for its rebuilding, who did more than they promised, making the front of the splendid edifice of pure Parian marble instead of common stone. The cold stream of the Castalian spring flowed by it, as it also did by the temples of Latona, Diana, and Minerva. It enclosed the cavern Pythium, containing a fissure, out of which arose mephitic vapors of intoxicating and convulsing power. This was discovered by a shepherd, who, tending his goats at the foot of Mount Parnassus, and following them to the brink of the chasm, fell into prophetic ecstasy. It was above the chasm that the high tripod, covered with laurels, was fixed, on which the Pythia or priestess of the god was placed, after having bathed in the Castalian spring, and wreathed her hair with a garland of laurel. She was convulsed to ecstasy, sometimes even to fatal frenzy, by the suffocating exhalations, and by chewing the leaves of a laurel branch which she held in her hand; the color of her face changing, her limbs shivering, her hair bristling, her eyes beaming, and her lips foaming, she uttered wild groans and howlings, as well as single confused words and sounds. In the earlier times these were carefully collected, arranged in verse, usually in ambiguous phrases, and rendered in writing as the divine answers. The Pythia, who often fell a victim to the excitement of her office, was bound for life and to the strictest chastity. At first only poor young girls were selected for the service, but afterward women of the age of 50 at least, and natives of Delphi. The management of the temple of Delphi, and especially of its treasury, which was enriched by the donations of those consulting the god, by the tithes of the spoils of the conquered, by consecrated presents, and the regular deposits of states and individuals, was intrusted to the Amphictyons, or the deputies of the surrounding cities and states who assembled there; but the oracle was ruled by the priests, natives of the town, or rather under the influence of an aristocracy of its inhabitants, who were all regarded as the sacred family of Apollo, and delighted in continual sacrifices, festivals, feasts, and processions, as well as in the Pythian games, which were held in the plain between Delphi and Cirrha. The place was believed to be the centre of the earth, and indeed was called its

navel, two eagles sent by Jupiter from east and west having met there. The influence of Delphi through the oracle on the affairs of Greece and other nations was immense. Its treasures, monuments, and statues, particularly those of the temple of Apollo, were prodigious in number, value, and splendor. There could be seen, beside the countless statues of gods, demigods, and illustrious men, the extravagant gifts of Crœsus, king of Lydia, the portico with the inscriptions of the 7 sages, Persian bucklers from the battle of Marathon, the beaks of Persian ships taken in naval victories, the shields of the invading Gauls, an image of Homer, the grave of Neoptolemus, son of Achilles, the chair of Pindar, with many paintings and other works of art. These treasures tempted the avarice of Xerxes, whose troops were frightened away by skilful miracles, as were afterward the invading Gauls; many of them, however, were taken and wasted by the Phocians in their wars against the Amphictyons; they were borrowed by Sylla, who could not be awed by miracles, and plundered by Nero. The decayed place was still further stripped by Constantine the Great, and Julian the Apostate could as little restore its splendor as he could the worship of the ancient gods.

DELPHIN, the name applied to a celebrated edition of the Latin classics, which was prepared in the reign of Louis XIV., by 39 of the best scholars of the time, for the use of the dauphin (*in usum Delphini*).

DELPHINIUM, the name of an extensive genus of annual or perennial herbaceous plants belonging to the natural order of *ranunculaceæ*. They have handsome irregular flowers, resembling somewhat the fanciful figures of the dolphin or the spurs of larks, and are commonly known as larkspurs. The genus is nearly allied to the aconites. The seeds, especially of *D. staphisagria* (stavesacre) and *D. consolida* (branching larkspur), are powerfully cathartic, and owing to the violence of their operation are seldom given internally; they are, however, employed in destroying vermin. The extract (*delphinia*) has recently been used in tic douloureux, paralysis, and rheumatism. The blossoms of the delphiniums are very showy, and in some sorts they are even extremely rich and magnificent. Those known as the rocket larkspurs have elegantly colored flowers, though they are apt to exhibit too light and less showy tints. The double kinds of these are very attractive to the eye in early summer. Their seeds are sown in finely pulverized and rich soil in the autumn, either in beds, in patches, or in single rows, as fancy or taste may dictate, and the young plants thinned out when it is necessary. If allowed to stand too close together, the flower spikes are not so well developed. Sometimes they are used to succeed the blooming of hyacinths, and are accordingly sown in or near hyacinth beds. The interstices of tulip beds are sometimes sown with them in the same way; and thus the period of the fading of the flowers of the bulbs is enlivened by the spikes of the larkspurs bearing their hyacinth-like blooms. The few weeks previous to the proper time for taking up the bulbs suffice to exhaust the beauty of the larkspurs, so that they can be removed together. The perennial delphiniums are conspicuous for size and altitude. They vary, however, in both these particulars. Some grow from 5 to 6 feet high in a few weeks, having spikes of coarse blue or pale blue flowers. Others are more supine, have weaker flower stems, and a more divided and more graceful and delicate foliage. The blossoms of such are proportionably more beautiful, varying from the intensest blue or azure to a paler color, and so shading off by degrees to a pearly or opalescent tint. Cultivation has produced many extraordinary and double sorts, of which the *D. grandiflorum*, or Chinese, as it is sometimes called, and Buck's seedling are among the finest. These perennials are, however, herbaceous, all dying down to the root and rising again with strong shoots in the next year. From a singular resemblance of the inner petals, especially in the single flowers, to the body of a bee, they have been called bee larkspurs, the pubescence accompanying them helping the illusion by its seeming to be hairs. The species native in the United States are *D. exaltatum* (Mx.), with a stem from 2 to 5 feet high and purplish blue flowers, occurring in Pennsylvania; *D. tricorne* (Mx.), a pretty species of a foot high, seen in Ohio; and *D. azureum* (Mx.), a characteristic species in Iowa and Minnesota. One other is becoming naturalized, *D. consolida* (Linn.), having escaped from grain fields and appearing on the sides of the roads, like many other foreign species introduced by seeds from abroad, either for the garden or in field husbandry. A splendid scarlet-flowered delphinium was discovered by Dr. Parry in 1850, on the mountains east of San Diego. It is *D. coccineum* (Torrey, in "Mexican Boundary Survey"). Another scarlet-flowered species is known as *D. nudicante*. Both are deemed likely to become great acquisitions to the gardens.

DELTA, the name given to the triangular alluvial region included between the mouths of the Nile, from its resemblance in form to the Greek letter of this name, Δ. The term afterward came to be applied in general to similar alluvial formations at the mouths of large rivers, whatever might be their shape.

DELTA, the southernmost co. of the upper peninsula of Michigan, washed by Lake Michigan and by Green Bay; area, about 3,500 sq. m. The Menomonee river on the S. W. separates it from Wisconsin. It has a hilly, well wooded surface, and contains abundance of limestone and sandstone. The census of 1850 gives no information respecting this county, which was then but partially organized. It was probably named from its triangular shape.

DELUC, Jean André, a Swiss natural philosopher, born in Geneva, Feb. 8, 1727, died in Windsor, near London, Nov. 7, 1817. His

father, an author of considerable merit, was able to give him an excellent education, though he devoted him to commercial pursuits, in which the first half of his life was spent. During the numerous journeys which his business required him to make into the neighboring countries, he made, with the assistance of his brother, Guillaume Antoine, a fine collection of objects of natural history. In 1773, obliged by commercial misfortune to leave his native city, he went to England, was elected a fellow of the royal society of London, and was appointed reader to the queen; this situation he held for 44 years, in the latter part of his life making several tours in central Europe, passing 6 years in Germany, and after his return in 1804 making a geological tour in England; he received at Göttingen the appointment of honorary professor of geology in that university, though he never entered upon its duties; he was also a corresponding member of the French academy, and fellow of several other scientific associations. His principal writings treat of geology and meteorology; his first important work in the order of publication was *Recherches sur les modifications de l'atmosphère* (2 vols. 8vo., Geneva, 1772), which contains many valuable suggestions on the applications of barometers, thermometers, and hygrometers to practical purposes; he substituted mercury for spirits of wine in Réaumur's thermometer, and invented a portable barometer, establishing correct rules for determining by this instrument the height of mountains and the depth of mines; other papers on subjects connected with meteorology are scattered through the "Philosophical Transactions" from 1771 to 1792. He inherited a great veneration for the Holy Scriptures from his father, who had written much in refutation of the doctrines of Mandeville and other sceptical authors, and his religious fervor is manifest in all his works, contrasting strikingly with the prevailing infidel spirit of the age. In 1778–'80 he published the *Lettres physiques et morales sur l'histoire de la terre* (6 vols. 8vo., La Haye); this work treats particularly on the comparatively recent origin of the present continents and their mountains, and the difficulty of carrying back this origin to a period more remote than that assigned by the Mosaic chronology to the flood. Though all his conclusions are not now admitted in geology, he extended the limits of this science, and established many important points by his experiments in various branches of natural philosophy connected with it. His reverence for the Bible led him to explain any apparent contradiction between geological phenomena and the Mosaic account of creation; he considers the 6 days of Genesis as so many periods of immense and indefinite duration preceding the epoch of the actual condition of the globe, and attributes the deluge to the filling up of cavities supposed to have been left void in the earth's crust; the work is written in a truly religious spirit, and abounds in noble thoughts and interesting observations on men and manners. In his *Traité élémentaire de géologie* (8vo., Paris, 1809), he opposes the system of Hutton and Playfair, which attributes the changes in the earth's structure to the action of fire, and advocates the agency of water, and the lesser antiquity of the present state of the continents. Cuvier ranks him among the first geologists of his age. He contributed many papers to the *Journal de physique*, the *Journal des mines*, and the "Philosophical Magazine," on mineralogy, geology, and electricity; he separated the chemical from the electrical effects of the voltaic pile, and constructed an ingenious but incomplete instrument, the dry electric column, for measuring the electricity of the air. Some of his theories are not a little fanciful, and he strenuously opposed the discovery of the chemical composition of water; still his meteorological experiments on heat and moisture are of great value. He published also several volumes of his geological travels in England, and northern and central Europe, and works on the Baconian philosophy, the religious education of children, and on Christianity.—Guillaume Antoine, brother of the preceding, born in 1729, died in Geneva, Jan. 26, 1812. He travelled extensively, visiting Vesuvius and Etna in 1756–'57, making fine collections of volcanic products, fossil shells, and other objects of natural history; he was a close observer, exact reasoner, and clear and vigorous writer. His papers on mineralogy and geology may be found in the *Journal de physique*, 1798 to 1804; *Bibliothèque Britannique*, 1801 to 1809; and *Mercure de France*, 1806–'7. He was exceedingly fond of music, and an enthusiastic collector of coins, of which he had a fine cabinet.

DELUGE, an overflow of water, flooding the land, commonly applied to designate the Noachian flood of the Scriptures. This great natural phenomenon is described in the first book of Moses as occurring, as ordinarily calculated, in the 1656th year after the creation, and the 600th year of the life of Noah. A similar catastrophe is also recorded in the legends and traditions of almost all races upon the earth; and in most instances the descriptions, though sometimes in an allegorical form, so closely resemble the particulars of the account given by Moses, that they have been generally regarded as referring to the same great event. Among the nations of eastern and southern Asia, with whom the modes of life are least changed from those of remote antiquity, these traditions have been handed down from the period of their earliest histories. The Chinese have been understood to refer to it as the great event which divided the race of men into the higher and lower ages. Davis, however, in his work on the Chinese, attaches less importance to the traditional effects of their deluge, and suggests that from their own account of it the flood may have been but an overflow of the waters of the great Yellow river, which by their inundation might now sweep over extensive and thickly populated plains. But in the fanciful picturing of the Hindoo tradition of the god Vishnu meeting and

warning the prince Satyavarata, and furnishing him with a large vessel, in which the prince with 7 Nishis and their wives were saved, we appear to recognize the same event which occurred to the Jewish race, the identity made still more positive by the same narrative of what afterward happened to the prince and his sons. The Parsees in the sacred books of the Persians preserve the record of a universal flood of waters brought upon man for the corruptions introduced by Ahriman, the evil spirit. The Chaldeans retained a similar account to that of Moses, representing like it a race of giants as living before the time of the flood, on account of whose impieties this punishment was inflicted. Berosus, in whose writings this narrative was found and appealed to by Josephus, as corroborating the Jewish account, states that the remains of the ark were still to be seen in the mountains of Armenia, and that the people continued to collect the asphaltum from it for a charm. Abydenus found in the archives of the Medes and Babylonians a similar statement of the ark being in preservation at these mountains, and visited by people for the purpose of obtaining relics of it. He speaks of Noah as a king, whom he calls Seisithrus, and narrates, as many of the other traditions do, the sending out of birds from the ark, and their return with traces of mud upon their feet. Some of the Christian fathers, as Theophilus and Chrysostom, speak of the ark as existing even in their time. The Noah of the Greeks was Deucalion, and the account given of the flood, in which he and his wife Pyrrha were saved in a ship, is remarkably similar to that of the Noachian deluge. While connected with this in most of its particulars, one incident on the other hand serves to give it a close relation to the more obscure traditions preserved by very different races in a far distant part of the globe. After leaving the ship, it is stated to have been the first care of Deucalion to consult the oracle of Themis as to the means by which the earth should be repeopled. The response of the oracle was that Deucalion and Pyrrha should veil their faces, unloose their girdles, and throw behind their backs the bones of their great mother. Construing this to mean the earth, they threw behind them the stones gathered from the surface. Those thrown by Deucalion became men, and those thrown by Pyrrha became women. The Mexicans are described by Humboldt as having, with many of the rude nations of the new world, their traditions of the great deluge. They say a man and woman were saved upon a high mountain named Tamanacu, and casting behind them over their heads the fruit of the mauritia palm tree, they saw men and women spring up from the seeds of these fruits. Prescott ("Conquest of Mexico," vol. iii. p. 373) notices other traditions resembling the Scripture account of the deluge. The Peruvians date back the period of the deluge to a time long anterior to the existence of their incas. The original inhabitants of the island of Cuba are said to have been found possessed of the story of the deluge with the incidents of that of Noah, the ark, the animals introduced into it, the sending out a bird (in this instance a crow) to look for dry land, and its return to the ark. Our native Indians possessed traditions of a great chief being preserved upon a raft with pairs of all the animals, and finally reaching the new earth prepared for him by the Great Spirit. The inhabitants of the South sea islands preserve similar records; but among these and most barbarous tribes the traditions are modified by the peculiar habits of thought of the people, each giving a color reflected from familiar circumstances and modes of life, and each placing the scene of the great event in their own country.—These numerous traditions are variously regarded by different writers. To some they are the strongest testimony corroborating their understanding of the Scripture statement—that at some time in the early history of the race the whole human family were nearly exterminated by a terrible and universal flood. Others regard them as proving too much; for on the supposition of the various tribes having continued to occupy the territories they make the scene of the deluge from the period of its occurrence, each must have had its own ark and its own Noah; while, they say, modern researches into the characteristics and history of the species are opposed to the probability of the different races having sprung and been distributed from one common centre within the time passed since this catastrophe, as assigned by their traditions. Many, therefore, consider these histories as referring to local floods, to which all countries are more or less subject, and the accounts of which have been often unwittingly modified by those who received them, generally through languages imperfectly understood, and with feelings predisposed to find resemblances to the story which formed a part of their faith. What really was the extent of territory covered by the waters has long been a question of great interest to scholars and theologians. An account of their various theories and reasonings would here be out of place. Though the direct evidence of the deluge, which geology might naturally be expected to unfold, has been controverted repeatedly, the pursuit of the science has nevertheless brought together multitudes of instances of partial catastrophes of this nature, which have occurred at various times in different parts of the world. The possibility of elevated lakes, by the sinking of their barriers, flooding large territories, was long since shown by Sir Charles Lyell; and he also, by reference to the sinking of extensive areas, such as is now known to occur, showed in how simple a manner the vast low district bordering the Euxine and the Caspian might be flooded. The late Hugh Miller takes up and develops this view in the last of his works, the "Testimony of the Rocks;" and as this presents the opinions now entertained by many minds of the highest order in both science and religion, it may well be

presented in these pages as the most plausible exposition of this subject: "There is a remarkable portion of the globe, chiefly in the Asiatic continent, though it extends into Europe, and which is nearly equal to all Europe in area, whose rivers (some of them, such as the Volga, the Ural, the Sihon, the Koor, and the Amoo, of great size) do not fall into the ocean, or into any of the many seas which communicate with it. They are, on the contrary, all turned inward, if I may so express myself, losing themselves in the eastern part of the tract, in the lakes of a rainless district, in which they supply but the waste of evaporation, and falling in the western parts into seas such as the Caspian and the Aral. In this region there are extensive districts still under the level of the ocean. The shore line of the Caspian, for instance, is rather more than 83 feet beneath that of the Black sea; and some of the great flat steppes which spread out around it, such as what is known as the steppe of Astrakhan, have a mean level of about 30 feet beneath that of the Baltic. Were there a trench-like strip of country that communicated between the Caspian and the gulf of Finland to be depressed beneath the level of the latter sea, it would so open up the fountains of the great deep as to lay under water an extensive and populous region, containing the cities of Astrakhan and Astrabad, and many other towns and villages. Nor is it unworthy of remark, surely, that one of the depressed steppes of this peculiar region is known as the 'Low Steppe of the Caucasus,' and forms no inconsiderable portion of the great recognized centre of the human family. The Mount Ararat on which, according to many of our commentators, the ark rested, rises immediately on the western edge of this great hollow; the Mount Ararat selected as the scene of that event by Sir Walter Raleigh, certainly not without some show of reason, lies far within it. Vast plains, white with salt, and charged with sea shells, show that the Caspian sea was at no distant period greatly more extensive than it is now. In an outer region, which includes the vast desert of Khiva, shells also abound; but they seem to belong, as a group, rather to some of the later tertiary eras than to the recent period. It is quite possible, however, that, as on parts of the western shores of our own country, where recent marine deposits lie over marine deposits of the pleistocene age, while a terrestrial deposit, representative of an intervening paroxysm of upheaval, lies between; it is possible, I say, that in this great depressed area, the region covered of old by a tertiary sea, which we know united the sea of Aral with the Caspian, and rolled over many a wide steppe and vast plain, may have been again covered for a brief period (after ages of upheaval) by the breaking in of the great deep during that season of judgment when, with the exception of one family, the whole human race was destroyed. It seems confirmatory of this view, that during even the historic period at least one of the neighboring inland seas, though it belongs to a different system from that of the Caspian and the Aral, covered a vastly greater area than it does now—a consequence apparently of a more considerable depression in the Caucasian region than at present exists. Herodotus, as quoted by Cuvier in his 'Theory of the Earth,' represents the sea of Azov as equal in extent to the Euxine. With the known facts then regarding the depressed Asiatic region before us, let us see whether we cannot originate a theory of the deluge free from at least the palpable monstrosities of the older ones. Let us suppose that the human family, still amounting to several millions, though greatly reduced by exterminating wars and exhausting vices, were congregated in that tract of country, which, extending eastward from the modern Ararat to far beyond the sea of Aral, includes the original Caucasian centre of the race; let us suppose that, the hour of judgment having at length arrived, the land began gradually to sink, as the tract in the Run of Cutch sank in the year 1819, or as the tract in the southern part of North America, known as the 'sunk country,' sank in the year 1821; further, let us suppose that the depression took place slowly and equally for 40 days together, at the rate of about 400 feet per day—a rate not twice greater than that at which the tide rises in the straits of Magellan, and which would have rendered itself apparent as but a persistent inward flowing of the sea; let us yet further suppose that, from mayhap some volcanic outburst, coincident with the depression, and an effect of the same deep-seated cause, the atmosphere was so affected, that heavy drenching rains continued to descend during the whole time, and that though they could contribute but little to the actual volume of the flood—at most only some 5 or 6 inches per day—they at least seemed to constitute one of its main causes, and added greatly to its terrors by swelling the rivers, and rushing downward in torrents from the hills. The depression which, by extending to the Euxine sea and the Persian gulf on the one hand, and to the gulf of Finland on the other, would open up by 3 separate channels the fountains of the great deep, and which included, let us suppose, an area of about 2,000 miles each way, would, at the end of the 40th day, be sunk in its centre to the depth of 16,000 feet—a depth sufficiently profound to bury the loftiest mountains of the district; and yet, having a gradient of declination of but 16 feet per mile, the contour of its hills and plains would remain apparently what they had been before; the doomed inhabitants would see but the water rising along the mountain sides, and one refuge after another swept away, till the last witness of the scene would have perished, and the last hilltop would have disappeared; and when after 150 days had come and gone the depressed hollow would have begun slowly to rise, and when after the 5th month had passed the ark would have grounded on the summit of Mount Ararat, all that could have been seen

from the upper window of the vessel would be simply a boundless sea, roughened by tides, now flowing outward, with a reversed course, toward the distant ocean, by the 3 great outlets which, during the period of depression, had given access to the waters. Noah would of course see that 'the fountains of the deep were stopped,' and that the waters returned from off the earth continually; but whether the deluge had been partial or universal, he could neither see nor know. His prospect in either case would have been equally that described by the poet Bowles:

> The mighty ark
> Rests upon Ararat; but naught around
> Its inmates can behold, save o'er the expanse
> Of boundless waters the sun's orient orb
> Stretching the hull's long shadow, or the moon
> In silence through the silver-curtained clouds
> Sailing, as she herself were lost and left
> In hollow loneliness."

DEMADES, an Athenian orator (died 318 B. C.), who, from being a sailor or fishmonger, raised himself to a prominent position at Athens. He belonged to the pro-Macedonian or peace party, and was the virulent opponent of Demosthenes. He fought, however, at Chæronea in defence of Grecian liberty, and was taken prisoner, but Philip restored him his freedom, and treated him with marked distinction. He used his influence with the conqueror to obtain favorable terms for his native city. After the death of Philip he became the steady supporter of Alexander's supremacy; and when after the destruction of Thebes Alexander demanded the surrender of Demosthenes, Demades, under the incentive of a bribe from the friends of the latter, interceded with the king, and mitigated his vengeance. Afterward, when Demosthenes and his friends left the city on the approach of Antipater and Craterus, he induced the people to pronounce sentence of death against them. Having been sent as ambassador to Antipater, the latter put him to death on discovering letters of his in which he urged the enemies of that general to attack him. Demades was a great wit, and excelled as an extemporaneous orator. A large fragment of an oration commonly ascribed to Demades, in which he defends his political conduct during Alexander's reign, is contained in the collective edition of the Attic orators, but its genuineness is contested. Cicero and Quintilian both assert that Demades left no orations behind him.

DEMAVEND, Mount, the highest summit of the Elbrooz mountains in Persia, between the provinces of Irak-Ajamee and Mazanderan, lat. 35° 50′ N., long. 52° E. It is an extinct volcano, conical in shape, and about 15,000 feet high. It yields large quantities of pumice stone and pure sulphur, and around its base are several hot springs.

DEMBINSKI, Henryk, a Polish general, born in the palatinate of Cracow, Jan. 16, 1791. His father, a zealous adherent of the anti-Russian party, and of the constitution of May 3, urged upon his young sons in his will the duty of defending the same principles through life; his mother, a patriotic and accomplished woman, educated them accordingly. Having studied for 2 years at the Vienna academy of engineers, Henryk left it in 1809, refusing to accept a commission from the Austrian government, and enlisted as a common soldier in the national army of the newly created duchy of Warsaw. He became a lieutenant at the opening of the campaign against Russia in 1812, was made captain by Napoleon on the battle field of Smolensk, distinguished himself in the battle of Leipsic, was subsequently attached to Gen. Wielohorski, then at Paris, and returned to his native country after the fall of the French empire. Having married, he engaged successfully in agricultural pursuits, and in 1825 was elected a member of the Polish diet, where he acted with the opposition. After the outbreak of the revolution at Warsaw (Nov. 1830), he was appointed major of a regiment formed in his native palatinate, was intrusted with the command of the mobile national guard of the same, marched with his troops to the capital in Feb. 1831, received from Skrzynecki the command of a cavalry brigade, and fought bravely at Dembe and Liw, and with still greater distinction at Kuflew, against the overwhelming army of Diebitsch. Sent to defend a bridge of the Narew, he repulsed the Russians after a bloody battle of 14 hours. He was next attached to the expedition to Lithuania, which, being undertaken too late and under Gielgud and Chlapowski, proved a failure after a few successful engagements. Gielgud was shot as a traitor by one of his followers; Chlapowski crossed the Prussian frontier and surrendered. Dembinski alone led his detachment through the marshes and forests of Lithuania, partly amid and partly behind the Russian armies, back to the capital, where he unexpectedly appeared on Aug. 5, and was received with great enthusiasm by the people, and with public thanks by the diet. Made governor of Warsaw, he was also for a few days successor in the chief command to Skrzynecki, but soon disappointed the hopes he had excited. After the fall of Warsaw in September he followed Rybinski to Prussia, went thence to France, where he published his *Mémoires sur la campagne de Lithuanie* (Strasbourg, 1832), and in 1833 to Egypt, to assist in the organization of the army of Mehemet Ali, whose offensive operations, through Ibrahim Pasha, against the Porte, which was supported by Russia, promised to offer a new theatre of war against the latter power. This hope, however, soon vanished, and Dembinski returned to France, where he lived in comparative retirement till 1848, when after the outbreak of February he went to Germany, and was present at the so-called Slavic congress of Prague. Having returned to Paris, he was persuaded by Count Teleky to accept a command in Hungary, while his old colleague Bem was already engaged in reconquering Transylvania. He succeeded in passing through Germany and over the Austrian frontier, arrived at Debreczin in

Jan. 1849, made his first appearance on the battle field in the camp of Perczel, who was then executing a successful manœuvre against the Austrians on the right bank of the Theiss (Jan. 23), and received the chief command of the main Hungarian army on Feb. 5 The machinations of Görgey, however, who was impatient of being subordinate to another, and he a foreigner, soon hindered the plans and operations of Dembinski. The Austrian general Schlick, allowed to retreat from Kaschau, baffled Dembinski's attempt to stop him at Putnok, forced his way through the mountains of Gömör and Heves, and appeared on the right flank of the Hungarian army, in the great battle of Kápolna (Feb. 26, 27), where the latter was attacked while marching to take the offensive. This unexpected event, and the want of precision in the execution of the orders on the part of Görgey's divisions, owing in part to their distribution on the vast battle field in consequence of Dembinski's distrust of that general, caused the retreat of the Hungarian army to Kövesd, where an attack of the enemy (Feb. 28) was successfully repulsed, and finally beyond the Theiss, amid difficulties caused by the marshy nature of the ground, deficiency of provisions, and attacks of the Austrians. On their arrival at Füred several of the officers openly declared their want of confidence in the abilities of the Polish general, and the government was thus compelled to deprive him of the chief command. In the spring he received the command of a corps in the north of Hungary, which, however, he soon resigned to Gen. Wysocki, being unable to agree with the ministry of war regarding the operations. On July 2, when Görgey's continued disobedience amid the advance of the Russians and Austrians from every quarter finally forced Kossuth to more decisive action, Dembinski received the virtual, and his friend Lieutenant Field Marshal Mészáros the nominal command of all the Hungarian armies. But the order for concentration was not executed; Görgey still acted independently, and reached the Theiss only after a lengthened though victorious retreat, and when the Russians had crossed it; Dembinski was defeated at Szöreg (Aug. 5), and forced to give up the lines of the Theiss and Maros. Instead of falling back upon Arad, where Görgey's army was expected to arrive, Dembinski, dreading either the treachery of that rival, or the relief of Temesvár, which was about to surrender, by the enemy, retreated toward the latter fortress, and there lost (Aug. 9) the bloody battle which sealed the fate of the revolution, in spite of the coöperation on that day of Bem, Guyon, Kmety, Perczel, Wysocki, and other leaders. The remnants of the army retreated toward Lugos, Görgey surrendered (Aug. 13), and Dembinski sought refuge with Kossuth in Turkey, whence, as a citizen of France, he was allowed to return to that country in 1850. A Polish pamphlet entitled "A Glance at the Last Events of the Polish Revolution," was published by him in Paris, in 1837; his memoirs of the Hungarian campaign are still expected.

DEMERARA, one of the 3 counties into which the colony of British Guiana in South America has been divided since 1831, derives its name from the river Demerara. It lies between lat. 0° 40′ and 8° 40′ N., and long. 57° and 61° W., is situated between the other 2 counties, Essequibo and Berbice, and occupies the centre of the seaboard for about 90 m. Pop. according to the census of 1851, 75,767, including that of Georgetown (25,508), which is the capital of the county and of the colony. (See Guiana.)

DEMETER. See Ceres.

DEMETZ, Frédéric Auguste, a French philanthropist, born May 12, 1796. He was bred to the law, and officiated for several years as one of the judges of the court of *police correctionelle* at Paris. Thus his attention was called to the great number of juvenile offenders, for whom at that time there was no house of correction, or place of confinement, except with the adult prisoners, from whom they soon learned to become adepts in crime. Fortunately, about this period M. Lucas, the inspector-general of prisons, conceived the idea of establishing a benevolent institution, with a view to aid in the reformation of some of these juvenile criminals. Of this society M. Demetz early became an active member, and was finally sent with M. Léon Faucher by the society to investigate the condition and results of the agricultural colonies which had been established in Belgium and Holland for the reformation of young offenders. M. Demetz also visited Hamburg, and at the *rauhes Haus*, near that city, then as now under the superintendence of Dr. Wichern, he found the model of a reformatory colony which he had thus far sought in vain. Having returned to France, M. Demetz, in connection with the viscount de Courteilles, established in 1839 the colony of Mettrai, near Tours, the viscount offering a portion of his own estate for the experiment. In July of that year they assembled 23 young men of good families there, and occupied themselves in training them for teachers for the young offenders who were to be brought there. In Jan. 1840, they admitted 12 young criminals, and gradually increased the number, till now they have more than 700 of this class under training. Since the death of Courteilles (1854) the superintendence of the establishment has devolved on M. Demetz. The success of this colony has led to the organization of many similar establishments in Great Britain and in continental Europe. M. Demetz has aided many of these enterprises by his presence and personal influence, particularly in England. He has published *Rapports à M. le comte de Montalivet sur les pénitenciers des États Unis*, the result of his investigations during his visit to the United States in 1836, in company with M. de Tocqueville.

DEMETRIUS, or Dmitri, the name of several Russian princes, who reigned in the 13th, 14th, and 17th centuries. The most important of them is known under the name of Dmitri

Samozvanietz, or the Pseudo Demetrius, and is generally believed to have falsely assumed the name of the younger surviving son of Ivan the Terrible, who during the reign of the elder son, the feeble Fedor, was confined by Boris Godunoff, the brother-in-law and ruler of the czar, in the town of Uglitch, and died there in 1591 a violent death, which was attributed by his mother to the treachery of Boris. The young prince was found in his blood, the knife with which he had been playing in his throat; some visitors from the court were pointed out by the lamenting mother as the murderers, to the gathering people of the place, who, fanatically revering the house of Rurik, and hating the usurper, rushed upon the strangers and massacred them. Boris took fierce revenge for this insult on the people and town of Uglitch, and ample testimony was procured to prove before his tribunal that Demetrius died accidentally. His despotic though energetic reign before and after the death of Fedor, the last of the Ruriks (1598), had prepared the minds of the Russians for a rebellion, when rumors of Demetrius having escaped the hands of the assassins by the substitution of another victim spread over the country. The pretender, whose real name and origin are still a mystery, made his first disclosures in 1603 at the court of Prince Adam Wisniowiecki in Lithuania, where he was serving in the capacity of a page. Prince Constantine Wisniowiecki, the brother of Adam, introduced him to his father-in-law, Mniszek, palatine of Sandomir. Some of the Polish nobles and their friends were gained by the persuasive skill of the pretender, others were incited by hopes of adventures or gain to support him, while Mniszek was fascinated by the prospect of seating upon the throne of Russia his beautiful and ambitious daughter, Maryna, for whom the youth declared his love. An audience of the king, Sigismund III., was easily gained, and, the interests of both the state and the Catholic church decisively pleading in favor of the cause, the nobles were allowed to set on foot an expedition to Moscow, independently of the government. The future czar was zealously assisted by the Jesuits, whose influence had now begun to be of great weight in the councils of Poland, and some historians, therefore, suspect him to have been the *élève* and tool of the order. A simultaneous revolt of the Russian Cossacks against the rule of Boris, under the lead of Grishka (Gregory) Otrepieff, a runaway monk, seconded the enterprise. The menaced prince, in order to degrade his rival, identified him with the leader of the Cossacks, a statement which afterward misled some intelligent writers. The invading army, about 5,000 strong, was reenforced in Russia by detachments of Cossacks. Some of the strongest cities, summoned in the name of the son of Ivan, voluntarily opened their gates; others were taken. Novgorod Seversk alone, defended by Basmanoff, successfully checked their march, thus effectually assisting the operations of the opposing army. Having vanquished Prince Mstislavski in Dec. 1604, the pretender was in his turn defeated by the same general in Jan. 1605, and pressed back to Pootivl; but the sudden death of Boris by apoplexy or poison soon terminated the war. Basmanoff, made commander of the army by his son and successor, Fedor, came into the camp of the enemy to implore his mercy. A deputation from Moscow offered to surrender the capital, the new czar and his family were surprised in the Kremlin and thrown into prison, and the victor entered Moscow in triumph amid the shouts of the people (June, 1605), and was crowned as Czar Demetrius. Fedor and his mother had been murdered, perhaps by his command; other members of the unhappy family also were made victims of his cruelty or policy, but a daughter of Boris was spared to become his concubine. The widow of Czar Ivan was now brought forth from the convent, in which she had so long been secluded, and her tears and embraces gave public sanction to the identity of the new czar with her son Demetrius. His reign was marked from the beginning by vigor and energy as well as ability; but his love of innovations, his undisguised predilection for the culture, institutions, and even religion of Poland, and his often expressed contempt of the customs, superstitions, and barbarous ignorance of his subjects, soon made him the object of national hatred. The arrival of his foreign spouse, with a large and pompous train of Polish nobles, warriors, and Jesuits, the arrogant and reckless behavior of some of these followers, and rumors of the czar's intended apostasy from the Russian church, finally undermined his throne. A few days after the celebration of his nuptials with Maryna, and her coronation, a band of conspirators, led by Prince Shuiski, who was indebted to Demetrius for the generous pardon of a former plot, assaulted the Kremlin. Demetrius found some faithful defenders, and evinced extreme boldness in the defence of his life, but in vain. Thousands of his men, including nearly all the Poles, were mercilessly butchered with him, by the infuriated people (May 16, 1606). Prince Shuiski was proclaimed czar under the name of Basil III., but being attacked by a new pretender, also calling himself Demetrius, and by the Poles and Swedes, was obliged to resign his throne. The origin and previous history of the new Demetrius are unknown; his abilities were of an inferior kind, but his depredations made him an object of terror, and even the capital was held by him in a kind of blockade for more than a year. Some of his men having captured Maryna, who had been released from prison to return to her country, the ambitious princess acknowledged him as her lawful husband. But the pretender was soon after murdered by a Tartar chief of his guards, and the degraded tzaritza perished miserably, according to some, in the waters of the Ural, but according to others, in prison. Even after the accession of the house of Romanoff to the throne of Moscow (1613), the convulsions caused

by pretenders, one of whom called himself a son of the first of them, were but slowly suppressed. The history of the first *samozvanietz* has been poetically adorned by Bulharin, Pushkin, and Chomiakoff, and made the subject of an unfinished drama by Schiller.—Compare P. Mérimée, *Les faux Demetrius* (Paris, 1854).

DEMETRIUS PHALEREUS, so called from being a native of the district of Phalerus, an Athenian orator and statesman, born about 345, died about 282 B. C. The son of poor parents, he studied oratory, poetry, philosophy, and statesmanship, particularly under the guidance of the philosopher Theophrastus, and began his political career in 325, as an eloquent champion of the democratic or anti-Macedonian party. This party being expelled from power, he retired into voluntary exile, but was afterward reconciled with his former opponents; and when, in 317, Cassander of Macedon became virtually master of Athens, he became governor in his behalf, being supported by a Macedonian garrison. He thus ruled Athens for 10 years with moderation and success, though not without perverting the rich revenues of the state to his personal luxury and dissipation. The degenerate Athenians rewarded his services by erecting in his honor as many statues as their year contained days, but these were scornfully broken when Demetrius Poliorcetes surprised the city, in 307, and compelled Phalereus to retire. Condemned to death in his absence, he went to Thebes, and afterward to Egypt, where he was well treated by Ptolemy, son of Lagus, but banished to the upper part of the country by his son Philadelphus, who had been made heir against his advice. He is said to have died of the bite of a snake. The foundation of the Alexandrian library has been attributed by some writers, but with little reason, to his influence with the 1st Ptolemy. In Egypt Demetrius composed numerous historical, philosophical, and literary works, of which only a few fragments are extant, the work on elocution which is known under his name being the production of an Alexandrian sophist. He is one of the last Athenian orators who deserved the name; his eloquence, however, was distinguished by grace and refinement rather than by power.

DEMETRIUS POLIORCETES (the city-besieger), one of the most conspicuous personages in the history of the long and bloody contentions which followed the death of Alexander the Great, born shortly before the accession of that conqueror to the throne of Macedon, was the son of Antigonus, who, in the first division of the Macedonian empire, received several provinces of Asia Minor for his share. In the wars of his father against Eumenes and Ptolemy, Demetrius early evinced valor and devotion to his father's cause. Commanding in Syria, he was defeated by Ptolemy in the battle of Gaza (312 B. C.), but soon restored the balance of the war by a victory over one of his generals, on which occasion he dismissed without ransom several thousands of his captives, thus repaying a similar magnanimous act of his enemy. A treaty of peace was concluded soon after, but this was of short duration, and the war was continued with various success. More decisive were his services to his father in the expedition to Greece, the most important places of which had been occupied and garrisoned by Cassander, son of Antipater of Macedon. Sailing from Ephesus (307) to Athens, Demetrius entered the harbor of the Piræus with his fleet, which was mistaken for that of Egypt, without meeting with any resistance. Demetrius Phalereus, who had ruled Athens for 10 years, in allegiance to Macedon, was compelled to retire to Thebes; Munychia and Megara, which were defended by garrisons in the interest of Cassander, were unable to withstand the skill and engines of the besieger, and he finally made his triumphant entry into Athens. Having announced the restoration of the ancient democratic institutions, and promised distributions of corn and ship timber, he was received with the most abject flatteries as god and deliverer (*σωτηρ*) by the degenerate people, who now broke the 360 statues recently erected in honor of Demetrius Phalereus. Summoned to the assistance of his father in his war against Ptolemy, he crossed over to Cyprus, defeated the Egyptian fleet, and made himself master of that island, having taken Salamis, its chief city; after which both his father and himself assumed the title of king, and their example was followed by the rival potentates of Egypt, Thrace, and Syria—Ptolemy, Lysimachus, and Seleucus. Demetrius next undertook an invasion of Egypt by sea and land, which failed, his forces being repulsed with great loss. He now turned toward Rhodes, which he besieged for more than a year; but the Rhodians, supplied and reënforced by the allied enemies of his father, withstood bravely, and the siege was terminated by a treaty. Poliorcetes then sailed to Greece, which was again threatened with the sway of Cassander. He compelled the Bœotians to relinquish their alliance with Macedon, expelled Cassander from Attica, and made himself master of Corinth, Argos, Sicyon, and most of the towns of Arcadia. In Athens the deified deliverer was received with the wonted honors, and resided as the guest of Minerva in the Parthenon, which he polluted by shameless debauchery. His pleasures and the equally degrading manifestations in his honor were again interrupted by the call of his father, which he was always ready to obey. He hastened to Asia, and fought in the great battle of Ipsus, in Phrygia. The rival forces were nearly equal; but Demetrius, with imprudent valor, pushed too far the victorious advance of his wing; the centre, commanded by his father, was broken, and the old man was slain while yet expecting relief from his son. His dominions were broken up, the greater part falling into the hands of Seleucus. Demetrius, retiring with the remnant of his army, embarked at Ephesus for Athens, but met on his voyage with envoys from that city, who announced to him that he would

not be admitted. This defection was followed by the loss of his other possessions in Greece, his garrisons being expelled from every town. He succeeded, however, in restoring his fortunes by an alliance with Seleucus, to whom he gave his daughter Stratonice in marriage. The treaty of alliance stipulated that Demetrius should retain possession of Cilicia, Cyprus, and a part of the coast of Syria. He now armed for the reconquest of Greece, besieged and after a long resistance took Athens (295), and made a successful expedition into the Peloponnesus, when his attention was turned to Macedon. Cassander and his eldest son Philip had died; the two remaining sons, Antipater and Alexander, were engaged in a bloody struggle for the throne, and the latter invoked the aid both of Demetrius and Pyrrhus of Epirus. Pyrrhus appeared first and vanquished Antipater; Demetrius came after him, and deprived Alexander, who is said to have attempted his assassination, both of his throne and life (294). While he was thus successful in Europe, he lost his possessions in Asia, which were taken by Ptolemy and Seleucus. The following 4 years were occupied by two sieges of Thebes, an invasion of Thrace, and a war with Pyrrhus and the Ætolians, after the termination of which he was preparing for a new campaign in Asia, when he was attacked (287) by a triple invasion from Thrace, Epirus, and Egypt. While marching against the Epirotes he was deserted by his Macedonian troops, who proclaimed Pyrrhus as their king. Demetrius escaped to his son Antigonus Gonatas, who had maintained possession of Greece, and succeeded in saving a part of his dominion by a treaty with Pyrrhus. Leaving his son in Greece, he crossed over to Miletus, and fought his way as far as the northern mountain range of Syria, but was finally compelled to surrender to Seleucus, who kept his father-in-law in confinement at Apamea in Syria till his death in 283. Antigonus, who had lost almost all Greece, offered in vain the remainder of his possessions and himself for the freedom of his father, who in turn ceded to him all his claims, spending his last days in effeminate amusements unworthy of his warlike career.

DEMETRIUS (I.) SOTER (the deliverer), king of Syria, born about 187, died 150 B. C. He was the son of Seleucus Philopator, and grandson of Antiochus the Great. Sent as hostage to Rome by his father, he remained there during the whole reign of Antiochus Epiphanes, after whose death, in 164, he besought the senate to release him and acknowledge him as king of Syria. This being refused, he followed the advice of his friend, the historian Polybius, and escaped secretly from Rome. He landed at Tripolis, in Phœnicia, and was hailed as king by the Syrians; the young Antiochus V. and his tutor Lysias were put to death (162); and rich presents and ready subservience procured the acknowledgment of the new reign by the Romans. Delivering Babylon from the tyranny of a despotic governor, he received his surname of Soter, from the gratitude of that city. In his war against the revolted Jews his lieutenant Nicanor was routed by Judas Maccabæus, who also concluded a treaty of alliance with the Romans against Demetrius. His interference in the affairs of Cappadocia still more alienated from him the senate of the republic, and his oppressive rule and debauchery disgusted his own people. Instigated by the deposed governor of Babylon, one Balas rose against him, claiming to be Alexander, son of Antiochus Epiphanes, and meeting with assistance from the Romans, Jews, and Cappadocians, finally vanquished him in a battle. Demetrius was slain in his flight, after having performed prodigies of valor. Both Demetrius Nicator and Antiochus Sidetes, his sons, reigned successively after him.

DEMIDOFF, a noble and wealthy Russian family, the most distinguished members of which are the following: I. Nikita, with whom the name and nobility of the house originated, born after the middle of the 17th century, the son of a serf in the government of Toola, became a blacksmith and a manufacturer of arms, and having acquired great skill in the working of metals, established for the government the first iron foundery in Siberia at Neviansk, near Ekaterinburg (1699). This served as a model of many other flourishing establishments in the Ural mountains, and was presented to him with its dependencies by Peter the Great, who also ennobled him. II. Akinfi, son of the preceding, discovered important mines of gold, silver, and copper in different regions of Siberia, which he and his son Nikita were allowed by the government to work for their own profit by German miners. He founded the extensive iron founderies of Lower Tagielsk, was made councillor of state, and died about 1740. III. Paul, nephew of the preceding, born at Revel in 1738, died in 1826. He travelled through several countries, studied metallurgy at Freiberg in Saxony, and natural science under Linnæus at Upsal, founded at Moscow a public cabinet of natural history, a botanical garden, and a professorship of natural science, and a flourishing lyceum at Yaroslav. IV. Nicolai, nephew of the preceding, born in 1774, served in two campaigns against the Turks, travelled through Germany, Italy, France, and England, equipped at his own expense and commanded a regiment during the invasion of Napoleon, was made colonel, count, and privy councillor, and died in 1828. He enlarged the wealth of his family by mining enterprises, and added to the collections of the Moscow university a new cabinet of natural history. He is also remarkable as an author on political economy in French. V. Anatol, son of the preceding, born in Florence in 1812, was educated in France, travelled through southern Russia and adjoining countries, was made prince of San Donato by the grand duke of Tuscany, and married the princess Mathilde de Montfort, daughter of Jerome Bonaparte and Catharine of Würtemberg. But having obliged himself

to bring up his children, if any should be born, in the Roman Catholic religion, contrary to the rule of his own country and his own religion, he lost for some time the favor of the emperor Nicholas, was summoned home to answer for this offence, but was soon allowed to continue his residence in foreign countries, and lived alternately in France and Italy. His marriage, however, had no issue, and was soon dissolved. On the outbreak of the Russian war against Turkey in 1853, he was attached to the Russian legation at Vienna, and made councillor of state. On various occasions he has evinced a liberality not inadequate to his immense possessions, by donations and foundations for public charity and the promotion of science. He wrote in part the *Voyage dans la Russie méridionale et la Crimée, par la Hongrie, la Valachie, et la Moldavie* (4 vols. Paris, 1839–'41), in which he was assisted by several French scholars and artists who accompanied him.

DEMIURGE, a Greek word, meaning literally a handicraftsman, but which was applied by the Platonists to an exalted agent or *Æon* employed by the Deity in the creation of the universe. The Platonizing Christians regarded the second person in the Trinity, the Divine Word, as one of an infinite series of creators or demiurgi. The adjective demiurgic is used in sacred geology to designate the 6 days in which the world was created. (See GNOSTICS.)

DEMMIN, the capital of a circle of the same name in the Prussian district of Stettin; pop. of the circle 48,400, and of the town 7,759. The latter is situated on the frontiers of Mecklenburg-Schwerin, 70 m. from Stettin, in a valley surrounded by hills, on the bank of the river Peene. It consists of the town proper and 3 suburbs, and has manufactories of woollens, linens, hats, and hosiery, and an active trade in tobacco, corn, and timber. The town proper is surrounded by a wall with 3 gates, and was a place of great importance in the time of Charlemagne. It has sustained numerous sieges, suffered severely during the 30 years' war, and was in 1807 the scene of several engagements between the French and Russians.

DEMOCEDES, a Greek physician, born at Crotona, in Magna Græcia, about 550 B. C. He was supposed to have had the benefit of general training under Pythagoras. The severity of his father, Calliphon, caused him to leave his home and settle at Ægina, where he was very successful. Thence he went on invitation to Athens, and soon afterward he entered the service of Polycrates, tyrant of Samos. Accompanying his patron on his visit to Orœtes, satrap of Sardis, he shared that patron's misfortune, and became a slave. When Orœtes was put to death by order of the great king, Democedes was seized as one of his slaves, and sent to Susa. Darius Hystaspes, then monarch of Persia, having sprained his foot badly when leaping from his horse, suffered severely, and could obtain no relief until some one recollected the Greek surgeon who had been seized at Sardis, and who, in chains and rags, was brought to the royal chamber. At first Democedes denied his surgical skill, but threats of torture were sufficient to make him confess the truth. He cured the king, and was royally rewarded, both by Darius and by the women of the harem. Democedes wished to return home, but the king would not grant him permission; and he had before him, of all things the most unpleasant to a Greek, the prospect of spending his days in a foreign land, when circumstances wrought his liberation. His professional services were sought by Atossa, the principal wife of Darius. She was afflicted with a tumor on the breast, and called in the Greek, who promised to cure her if she would swear to do for him any thing he might ask. Having promised, and the cure effected, she readily sought to procure him permission to return to Greece, which was what he asked for his reward. Knowing that direct means would be useless, he taught her to deceive the king, though it is not probable she was aware of his purpose. When Darius told her that he was about to undertake an expedition against the Scythians, she asked him to change his purpose, and to attempt the conquest of Greece, alleging that she desired some Greek maidens for slaves, and telling him that Democedes was the best person to give information about his country. The king was induced to send the surgeon to Greece, accompanied by 15 Persians, on a secret mission. The Greek promised to return, and to delude the king refused to take any of his own property, saying he should like to find things as they were on coming back to Susa. Laden with rich presents, he went to Sidon, where he and his comrades embarked, and a survey of Greece was made (518 B. C.). Passing to Italy, Democedes persuaded the ruler of Tarentum to seize the Persians as spies, while he continued his journey to Crotona. The Persians were soon released, and proceeding to Crotona, seized Democedes in the market place; but he was rescued by his fellow citizens, who also robbed the Persians of their store ship. On parting with his Persian companions, he bade them tell Darius he was about to marry the daughter of Milo the wrestler, whose fame had reached to Susa. The Persians were shipwrecked on their way home and made slaves, but were recaptured and restored to their home by a Tarentine named Gillus. Nothing more is known of the career of Democedes; he is said to have written a work on medicine, and his professional reputation was almost equal to that of Hippocrates.

DEMOCRACY (Gr. δημος, people, and κρατεω, to rule), the government of the people by themselves. By the Greeks democracy was understood to mean the government of a state by a large body of citizens, in opposition to aristocracy, the government by a few rich or high-born families. In most of the Greek republics there was a perpetual struggle for political power between two classes or factions of the citizens, whose general broad distinction was into poor and rich, or into the many and the few, which, as Aristotle

remarks, are convertible terms, for it is always the rich who are the few and the not rich who are the many. The contests of these factions led to frequent revolutions, and a state was said to be democratic or aristocratic as the one or the other prevailed. But the Greek republics were never at any time democracies in the modern sense of the term. They were all aristocracies, some of them with a broad, others with a narrow basis of citizenship. Of government by the people, meaning by the people all the adult males of a nation, ancient history gives us no example. The fundamental basis of democracy is the recognition of the rights of man as man. Its central principle is the equality of all men before the law, without regard to birth, property, or social rank; from which principle is deduced the right of all men to an equal voice or vote in deciding upon public affairs, or in selecting agents and representatives to perform the functions of legislation and to execute the laws. The principles of democracy are forcibly and clearly stated in the American declaration of independence, in the words of Thomas Jefferson, who has been called "the apostle of democracy": "We hold these truths to be self-evident: that all men are created equal; that they are endowed by their Creator with certain inalienable rights; that among these are life, liberty, and the pursuit of happiness. That, to secure these rights, governments are instituted among men, deriving their just powers from the consent of the governed." These principles are still more fully developed in the constitutions of the states of the Union. The constitution of New Hampshire (1792) says: "All men are born equally free and independent; therefore all government of right originates from the people. . . . All power residing originally in and being derived from the people, all the magistrates and officers of government are their substitutes and agents, and at all times accountable to them." The bill of rights prefixed to the constitution of Virginia in 1776, adopted by the convention of 1829–'30, and re-adopted by the convention of 1850–'51, says: "All men are by nature equally free and independent, and have certain inherent rights, of which, when they enter into a state of society, they cannot by any compact deprive or divest their posterity; namely, the enjoyment of life and liberty, with the means of acquiring and possessing property, and pursuing and obtaining happiness and safety. All power is vested in, and consequently derived from, the people; magistrates are their trustees and servants, and at all times amenable to them." The constitution of Florida (1838) says, "that all elections shall be free and equal, and that no property qualification for eligibility to office, or for the right of suffrage, shall ever be required in this state." The Greek republics were founded on principles very different from these. Political power among them was never given to the mass of the people. It was carefully kept in the hands of a privileged class, even when the most liberal parties were in the ascendant. In the Athenian republic, the most democratic of the Greek states, when the population and the suffrage were most extended, in 317 B. C., there were but 21,000 persons entitled to vote out of a total number of more than 500,000. In 444 B. C. there were 19,000, but upon a revision of the lists being made at the suggestion of Pericles, nearly 5,000 names were struck off because those who bore them did not belong to the privileged class. Thus at the most splendid period of Athenian history, only 14,000 persons, or about 1 in 40 of the population, had a right to vote. In aristocratic England about 1 in 20 are voters, while with truly democratic institutions in any country the proportion of voters to the population will be as 1 to 5 or 6. Sparta was still more undemocratic than Athens. The number of voters in Laconia at the time of the Persian wars, according to Herodotus, was only 8,000, while the number of free citizens who were rigidly excluded from political power is computed to have been 16,000, exclusive of women, children, and slaves. In 369 B. C. the number of Spartan voters had fallen to 2,000; fifty years later there were scarcely 1,000, and in 244 B. C. they had diminished to 700. The Roman citizens, 93 B. C., numbered 463,000, which was probably about $\frac{1}{50}$ of the population of Italy at that period. The Italian republics of the middle ages were also far from being democratic in their institutions. In fact, real democracy was first put in practice in government by the colonies of New England. In Connecticut, in 1639, the elective franchise was given to all men who had taken an oath of allegiance to the commonwealth; the magistrates and legislature were chosen annually by ballot; and the representation was apportioned to the population. To this day the most perfect democracies in the world are the towns of New England, where the whole adult male population assemble together and decide by their votes their own public affairs.—Much confusion of ideas on the subject of democracy has been caused by not discriminating between political and social democracy, between the democracy of laws and the democracy of sentiment and manners. The principle of the legal and political equality of men is not inconsistent with the utmost variety of natural and social distinctions. It only forbids the creation by law of artificial distinctions. The example of the American people shows that democratic political institutions are compatible with very great inequalities in cultivation, manners, style of living, social consideration, and the distribution of property.

DEMOCRITUS, the father of the atomistic philosophy, born in Abdera, Thrace, about 460 B. C., died in 361. He inherited a large fortune, travelled extensively in Asia, made himself acquainted with the various schools of philosophy of his day, and was promoted to high offices on his return to his native country. He was called the "laughing philosopher," in contrast to the "weeping philosopher" Heraclitus, because he taught that a philosopher must never

trouble himself about the follies of man, but regard them with the most serene equanimity. He wrote many works on physical, moral, mathematical, musical, and technical subjects. The most complete collection of the small remnants of his writings extant is that of Mullach (Berlin, 1843). "Every thing," he says, "is composed of atoms or infinitely small elements, each with a definite quality, form, and movement, whose inevitable union and separation shape all different things and forms, laws and effects, and dissolve them again for new combinations. The gods themselves and the human mind originate from such atoms. There are no casualties; every thing is necessary and determined by the nature of the atoms, which have certain mutual affinities, attractions, and repulsions."

DEMOIVRE, Abraham, a French mathematician, born at Vitry, in Champagne, May 26, 1667, died in London, Nov. 27, 1754. Upon the revocation of the edict of Nantes, he took refuge in England, and devoted himself to teaching mathematics. He soon became connected with Halley and Newton, was admitted into the royal society of London in 1697, and was one of the committee appointed to decide on the rival claims of Leibnitz and Newton to the invention of the method of fluxions. He survived most of his early associates, and his subsistence latterly depended upon his solutions of problems relative to games of chance, which he was accustomed to give in a coffee house. Beside memoirs in the "Philosophical Transactions," he published the "Doctrine of Chances" (1718), the "Annuities on Lives" (1724), and *Miscellanea Analytica, de Seriebus et Quadraturis* (1730).

DEMON (Gr. δαιμων), a name given by the ancients to a spirit, or immaterial being, supposed to hold a middle place between men and the celestial deities. Demonology plays a prominent part in the oldest religions of the East, and it was an element in the original worship of the dark-colored primitive inhabitants prior to the Aryan migration—of the whole Finnish-Turkish-Mongolian stock, including the occupants of China, Thibet, and Further India. More ancient in India than the Vedas, it has maintained itself there either secretly or by public sanction alike in Brahminism, Buddhism, and Islamism. Its fullest and most systematic development is found in Buddhism, which reckons 6 classes of beings in the universe, 2 only of which, those of men and gods, are accounted good; the other 4—the Asuras, irrational animals, Pretas or goblins, and the denizens of hell—being esteemed evil. The Asuras are the most powerful of the wicked spirits, and, like the Greek Titans and the Scandinavian Jotuns, are in constant warfare with the gods (*Devas*), the contest being already begun in the age of the Vedas. They dwell beneath the 3-pronged root of the world-mountain, occupying the nadir, while their great enemy Indra, the highest Buddhist god, sits upon the pinnacle of the mountain in the zenith. The Meru, which stands between the earth and the heavens, around which the heavenly bodies revolve, causing day and night according as they are on one side or the other of it, is the battle field of the Asuras and the Devas. The 3 lower divisions of the Meru are held by various races of demons, the 4th being the lowest heaven, and occupied by the 4 Maharadshas, who are appointed to be kings of the demons. Around the Asuras cluster numerous associated groups, as the Rakshasas, probably of Aryan origin, appearing sometimes as gigantic opponents of the gods, sometimes as terrible ogres with bloody tongues and long tusks, eager to devour human flesh and blood, and lurking in fields and forests; the Jakshas, malignant and mischievous, yet little to be feared, honored by the original Asiatics as aërial spirits, and exalted by the Brahmins to be servants of Kuvera; the Nagas, snakes with human countenances; the Mahoragas, great dragons; the Khumbandas, shapeless dwarfs, of uncertain origin, but unknown to the Brahminic demonology; the Kinnaras, horned, and having a horse's head, the musicians of Kuvera, and dangerous to men; the Gandharbas, the musicians of Indra; the Garudas, kings of birds; and the Picatshas, or vampires. According to their nature and office, the different species of demons dwell in the air, the water, the earth, in holes and clefts, in the lower portions of the Meru, with the gods whose servants they are, or on the golden mountains which enclose the inland seas in the Buddhistic system of worlds.—Among the Persians the Indian terminology is transposed, the great Asura representing the good creating principle, and the devs being the evil spirits; thus indicating that religious antagonism at some time existed between the eastern and western Aryans. As completed by Zoroaster, the Persian system made the principle and personifications of evil nearly an equal balance and eternal parallel with the good principle and its personifications. Ormuzd created 6 resplendent angels of love and holiness, called Amshaspands, himself being the 7th and highest; Ahriman then created the 6 archdevs, to oppose the Amshaspands, to paralyze their efforts for good, and substitute evil. Ormuzd created 28 Izeds, or beneficent spirits, who presided over the heavenly bodies, and showered good gifts upon men; but Ahriman made the 28 devs to counteract their influence, and to cause all manner of turmoil and distress. The most powerful and pernicious of the devs was the two-forked serpent Ashmogh. The next series of Ormuzd's creations was an infinite number of Fervers, spirits representing the archetypes of all things, and which became the guardian angels of men, animals, and plants. Ahriman made an equal number of corresponding evil spirits, so that every man and thing has its attendant bad as well as good genius. To arrest the progress of evil, Ormuzd made an egg filled with spirits of light, but Ahriman made an egg which contained an equal force of spirits of darkness, and then broke both together, so that good and

evil were only the more confounded. Ormuzd created the material world, but could not exclude Ahriman and his ministers from its deep opaque elements. Ormuzd created a bull, the symbol of life, which Ahriman slew. From its blood grew the original plants and animals, to harass and destroy which Ahriman made wolves, tigers, serpents, and venomous insects. From its bleached elementary particles grew the ribas tree, into the stems of which Ormuzd infused the breath of life, and they became the first man and the first woman; but every human being is tempted through his whole career by Ahriman and his devs, which slip into the body and produce all diseases, and into the mind and produce all malice. While human life thus hangs wavering between two antagonistic agencies, each of which would be infinite but for the other, it is declared that ultimately Ahriman shall be overpowered, driven through torrents of melted lead, purified, and forgiven, and Ormuzd shall reign supreme.—In the ancient Egyptian religion, Seth (or Typhon) was the manifestation of the abstract idea of evil, as Osiris was of good. It is abundantly illustrated in the early sculptures that they were regarded as brothers, as parts of the same divine system, and both worshipped as gods. The emblems were designed to show that good and evil affected the world equally, and existed together as a necessary condition of human existence; thus the Indian systems had admitted both the creator and destroyer as characters of the divine being. So nearly equal in esteem were Seth and Osiris, that their names are sometimes interchanged as if synonymous in the titles of the older kings; and Seth is represented in attendance with other gods pouring from a vase the symbols of life and power over the newly crowned king. At a later period, probably through the influence of foreigners from Asia, evil was resolved into sin; Seth was confounded with the snake-giant Apophis, the enemy of gods and men; and the brother of Osiris no longer received divine honors. His name and square-eared figure were effaced; he ceased to be esteemed a necessary antagonistic companion to Osiris, and was regarded as acting in opposition from his own free will, as Ahriman opposed Ormuzd, or as the Manichæan Satan opposed God; and he was expelled from the Egyptian pantheon, perhaps in the time of the 22d dynasty. The representation of the great serpent Apophis, the symbol of sin, as pierced by the spear of Atmoo (or Horus), may have been the antetype of the python slain by Apollo.—Demons first appear distinctly in the religious world of the Greeks, in the "Works and Days" of Hesiod. In Homer they are not distinguished from the gods, and the name is applied to the Olympian divinities. The Homeric personages most nearly corresponding to the oriental and mediæval demons are the Titans, the representatives of force acting against the divine government, and especially Ate, the representative of guile and mischief. Ate is the power that tempts and misleads men to their own cost and ruin, as they afterward find out. She may even tempt the Deity also, for she beguiles Jupiter himself when Hercules is about to be born (Iliad, xix. 95). Mr. Gladstone thinks her traditionally connected with the Hebrew conception of the Evil One, and says that her nature and function are best expressed by the English word "temptress." Hesiod makes the demons generically different from the gods, but yet essentially good. They were, according to him, the long departed golden race of men, who after death had become guardian terrestrial demons, watching unseen over the conduct of mankind, with the regal privilege, granted by Zeus, of dispensing wealth and taking account of good and bad deeds. They formed the intermediate agents and police between the gods and men. The demon of Socrates is an eminent example of faith in a ministering and benevolent spirit, specially devoted to the welfare of a single person, and inspiring him with wisdom; and bears resemblance to the guardian angels in Christian conception, and to the familiar spirits of mediæval magicians. The Hesiodic creed received an important modification from the later philosophers. Empedocles first introduced the distinction of beneficent and maleficent demons, with every grade of each; and was followed by Xenocrates, Plato, Chrysippus, and Plutarch. Perhaps the reckless and half wicked silver race which Hesiod represents as buried in the under world, where, though not recognized as demons, they nevertheless had a name, dignity, and substantive existence, may have been the germ of the conception of perverse and malignant demons. This modification of the doctrine, as Plutarch says, relieved the philosopher from great difficulties in the consideration of divine providence, since many phenomena which could hardly be attributed to the gods, could thus be explained by referring them to the agency of demons. The old myths had erred in assigning to the great divinities proceedings inconsistent with their dignity; and both the truth of the legends and the exaltation of the divine character were saved by supposing that the terrific combats, Titanic convulsions, the abductions, flights, concealments, and other discreditable mythological actions, had been the work of bad demons, who were far beneath and unworthy the notice of the tranquil and immortal gods. The objectionable religious mysteries and ceremonies, too, which custom retained, were necessary as the only means of appeasing, not the gods, but the malignant demons. This distinction served an important purpose in the first controversies between paganism and Christianity, the Christian writers, as Clement and Tatian, finding ample warrant in the earlier pagan authors for treating all the gods as demons, and in the later for denouncing the demons generally as evil beings. The insensible change which had taken place in the meaning of the word was thus overlooked, and it could be answered by the pagan authors

that the audience of Empedocles would repudiate one branch of the Christian statement, and that of Hesiod the other. How many of the minor Greek divinities were latterly included in popular conception or even by the philosophers among demons is indeterminate, but the early Christians traced the whole system of paganism to the agency of Satan, making all the characters of the mythology fallen angels. The pagan demons were long lived, but not immortal; Plutarch records, "Great Pan is dead;" and it is a very ancient belief that the oracles became dumb at our Saviour's birth.—In the angelology of the Jews the distinction between upright and fallen spirits appears clearly in many passages of the Old Testament, though at a later period it was corrupted by popular superstitions. With the mingling of Jewish and Hellenic ideas in the first Christian centuries, and with the speculations especially of the Alexandrian philosophers, began the manifold developments in the doctrine of demons by the cabalists and other students of the black art, which were increased by the introduction of foreign elements from the Scandinavian mythology, from the Saracens of Spain, and from the Orient through the returning crusaders, and formed the complicated and fantastic systems that in the middle ages were important elements alike in popular belief, poetry, and magic. From the Saracens were derived the djinns of Arabian and Persian romance, and from the Northmen came a knowledge of Loki, the calumniator of the gods, the grand contriver of deceit and fraud, who is beautiful in figure, but whose mind is evil, and who is unsurpassed in the arts of perfidy; in vengeance for his stratagems against gods and men he has, according to the Edda, been seized and confined in a cavern formed of 3 keen-edged stones, where he rages with a violence which causes all the earthquakes, and where he shall remain captive till the end of the ages, when he shall be slain by the doorkeeper of the gods. The Talmudists say that Adam had a wife called Lilis, before he married Eve, and that of her he begat nothing but devils. This Lilis or Lilith was a famous mediæval witch, and is introduced by Goethe in the Walpurgis night scene in "Faust." The cabalists made Adam the natural king of the world of spirits prior to his fall, and described Solomon as a most accomplished magician. They people the fire, air, earth, and water with salamanders, sylphs, gnomes, and undines, to one of which classes all evil spiritual agencies belong. This classification appears to have been borrowed from Michael Psellus, a Byzantine writer of the 11th century, who however reckoned 6 classes. Other writers made 9 kinds of demons, the same number that Dionysius made of angels. The 1st rank consists of the false gods of the gentiles, whose prince is Beelzebub; the 2d, of liars and equivocators, as the Pythian Apollo; the 3d, of inventors of mischief and vessels of anger, whose prince is Belial; the 4th, of malicious revenging devils, whose prince is Asmodeus; the 5th, of cozeners, as magicians and witches, whose prince is Satan; the 6th, of those aërial devils spoken of in the Apocalypse who corrupt the air and cause plagues, thunders, and fires, and whose prince is Meresin; the 7th is a destroyer, causing wars, tumults, combustions, uproars, who is mentioned in the Apocalypse, and called Abaddon; the 8th is that accusing, calumniating devil, called Diabolus, that drives men to despair; the 9th embraces tempters of several sorts, whose prince is Mammon. Gregorius Tolosanus makes 7 kinds of ethereal spirits, according to the number of the 7 planets, and esteems the good angels to be those which are above and the demons those which are below the moon. Marsilius Ficinus made devils the 6th in his 9 classes of intelligent beings. Wierus, a celebrated demonographer of the 16th century, in his *Pseudomonarchia Dæmonum*, following old authorities, establishes a complete infernal court, with its princes, nobles, officers, and dignities. According to him, Satan is no longer the sovereign of hell, but Beelzebub reigns in his place. The following is an outline of the court: Beelzebub, supreme chief of the infernal empire, founder of the order of the fly; Satan, leader of the opposition; Eurynomus, prince of death, and grand cross of the order of the fly; Moloch, prince of the realm of tears, grand cross of the order; Pluto, prince of fire; Leonard, grand master of the sabbats, knight of the fly; Baalberith, master of alliances; Proserpine, archdevil, sovereign princess of malignant spirits; Nergal, chief of the privy police; Baal, commander-in-chief of the infernal armies, grand cross of the order; Leviathan, lord admiral, knight of the fly; Belphegor, ambassador in France; Mammon, ambassador in England; Belial, ambassador in Turkey; Rimmon, ambassador in Russia; Thamuz, ambassador in Spain; Hutgin, ambassador in Italy; Martinet, ambassador in Switzerland; Lucifer, highest officer of justice; Alastor, executive officer in great undertakings; Nisroch, chief cook; Behemoth, chief cup-bearer; Dagon, chief pantler; Mullin, chief *valet de chambre;* Kobal, director of spectacles and amusements; Asmodeus, superintendent of gambling-houses; Nybbas, master of pageants; Antichrist, conjurer and necromancer. According to Paracelsus, the air is not so full of flies in summer as it is at all times of invisible devils. Not so much as a hair's breadth is free from them in heaven, earth, or waters, above or under the earth. Yet the sublunary spirits who alone interfere in human life have no power over the stars and heavens; they could not seduce the moon from its orbit, turn the planets from their courses, or stop rivers; they are confined beneath the moon till the day of judgment, and can work no further than God and the four elements permit them. Demons and sorcerers celebrate their nocturnal orgies in an assembly called the sabbat, which was first convened, say some cabalists, by the great Orpheus. Others, however, derive it from

the Bacchanalian revelries, but no allusion to a sabbat is found in the fathers of the church or in the decrees of councils. Sorcerers or witches bear a mark upon their bodies imprinted by the devil, which by a certain inward sensation gives notice of the hour of gathering; or in a case of urgency, a sheep is made to appear in the sky in a cloud, which is seen only by the ministers of Satan, who hasten in a moment. Ordinarily it is necessary either to sleep or to close one eye before proceeding, and sorcerers always fly to the sabbat through the air on staffs or broomsticks, or on the backs of subaltern demons, and are often transformed into goats, cats, or other animals. They usually issue from their houses through the chimney. Master Leonard, in the favorite form of a three-horned goat with a black human countenance, presides at the sabbat, and every guest does homage to him. Stolen children are brought to him, and swear through their godparents to renounce God, the Holy Virgin, and the saints, and are marked by one of his horns with a sign which they bear during their novitiate. Singing, dancing, and horrible feasting are continued till the first crowing of the cock, when the assembly suddenly disperses. Demons also retreat from the sound of bells. Angels and demons have been said to be incorporeal as compared to mankind, but corporeal as compared to God. It is remarkable that the Europeans more frequently represent demons as black, but the negroes of Africa on the contrary suppose them to be white. Bodin makes them and also the souls of departed men not only corporeal, but round in shape like the sun and moon, because that is the most perfect form, being without roughness, fractures, or prominences; yet they can assume any shape at their pleasure, appear in what likeness they will, traverse miles in an instant, transform the bodies of others into whatsoever shape, and remove them from place to place; the most powerful magicians, too, as Simon Magus, Apollonius of Tyana, Pasetes, Iamblichus, and Odo de Stellis, can force them to deceive all the senses, build castles in the air, represent armies and prodigies, command treasures, reveal secrets and future events, and perform many other such wonders. Jason Pratensis says that the devil, being a slender incomprehensible spirit, can easily wind himself into human bodies, couch in the bowels and hinder their operation, vitiate the health, and terrify the soul. Burton calls melancholy the devil's bath (*balneum diaboli*), since it is caused by the devil's mingling himself with the bodily humors.—Sorcery, or black magic, is the art of invoking the infernal powers in order to obtain from them supernatural knowledge, or the power of performing supernatural things. Cardan relates that his father, after the accustomed solemnities, conjured up, Aug. 13, 1491, 7 devils in Greek apparel, about 40 years of age, some of ruddy and some of pale complexion, who boasted their superiority to men, and affirmed that their average life was 700 or 800 years. Eric, king of Sweden, is recorded to have had an enchanted cap, by virtue of which and some magical words he could command spirits to trouble the air, make the wind blow which way he would, and raise tempests. There are witches in Sweden and Norway who make a business of selling favorable winds to sailors. The most mighty cabalistic word is *agla*, which being uttered toward the east will either drive away malignant spirits or produce marvellous revelations. In Webster's "Witchcraft" an account is given of a child, who, having heard some fearful spell muttered, caught the words, and afterward repeated them till such tempests and thunderings were produced that a whole village was burned by the lightning. Jacob Boehm declared that he could not without peril to his soul's safety disclose the original name of Lucifer, so tremendous would be its influence. In the black art there is either a compact with the devil, when he is ever at hand to do the behests of his victim, or the sorcerer invokes diabolical aid on special occasions. The devil usually appears uncalled to persons in distress, and avails himself of the temptation of the moment to conclude a pact with them, by which he extricates them, and serves them for a specified number of years, after which he shall own their soul. Thus Faust, in vain pursuit of perfect knowledge, sold himself to Mephistopheles, the second in power of the fallen archangels; and thus young men, ruined by play, were often supposed to do. The compact must be written in blood. To invoke a demon, it is necessary, for safety, that the person first enclose himself in a magic circle drawn with charcoal and blessed water, which no evil spirit can cross. The awful formulas of conjuration being then repeated, the demons first appear with frightful howlings, flashings, and tremblings, vomiting fire and fumes of brimstone all about the circle. The conjurer must not exhibit a tremor if he would keep his ascendency, but must firmly pronounce all the forms of constriction, till at length he reduces them to the human form and to gentle countenance and behavior. The conjuration must be in different words to different demons, and at different hours on the various days of the week; it is also different according to the purpose to be served; but rightly performed, it is a spell which no demon can resist. Even the most malignant of them can be compelled by a great magician to be a dutiful servant; thus Paracelsus was believed to carry a demon about with him in the hilt of his sword, which the alchemists, however, maintained to be the philosopher's stone, and no demon; and the magicians of Salamanca and Toledo imprisoned demons in rings, vials, boxes, and caskets. Solomon is reputed to have had a signet ring with the mystic word *Shemhamphorash* engraved upon it, which gave him command of the spirits, and transported him every day at noon into the firmament, where he heard the secrets of the universe. Cardan affirms that no man was ever great in any art or action that

did not have one of these demons to aid him. The conjurer should warily guard against wiles and fraud on the part of the fiends, and can only leave his circle and depart home in safety after the shrieks of the retiring demons have died away, and every trace of brimstone has disappeared. If a demon has entered into a person and "possessed" him, he can be expelled by means of exorcism. Exorcists were recognized by the council of Antioch (341) as a special ecclesiastical order, and in the Latin church are still one of the 4 minor orders of the clergy. Holy words, as the names of God, Christ, and the saints, holy water, the sign of the cross, the recitation of psalms, litanies, prayers, and adjurations, are used to expel the evil spirits who by divine permission, it is believed, not only tempt the soul of man, but sometimes also possess the human body. At the time of the reformation, the power of casting out devils was claimed, like the power of working miracles, as one of the tests of the Catholic church, and the Jesuits denied that heretical teachers had ever exhibited such power. There was also a popular belief in charms and talismans, as capable of warding off their attacks.—As exhibited in the grim superstitions and fantastic illusions of mediæval science, demonology is poetically interesting; but it has historical and tragical interest, as manifested in demoniacal possessions. To attribute certain nervous maladies and mysterious diseases to demoniacal agency has been as universal as the belief in demons. The phenomenon of preternatural and involuntary activity is often presented, followed by a cataleptic or trance-like state which overwhelms the sufferer. So wonderful is the power of sympathy, that the mania is often contagious, constraining the beholder, by a sort of fascination, to become an actor. A noted ancient example is the Corybantic and Bacchantic fury of the Greeks, manifested in violent dancing, subsequent exhaustion, and optical delusions, by which men were mistaken for wild beasts; thus Euripides (Hipp. v. 141) makes the chorus address Phedra: "O young girl, a god possesses thee; it is either Pan, or Hecate, or the venerable Corybantes, or Cybele, that agitates thee." At the commencement of our era the belief was general throughout the known world, and was recognized in the Gospels, where Christ is represented as casting out demons. Avicenna first designates, under the name of lycanthropia, the madness of men who lie hid by day, and howl about graves and deserts in the night, and will not be persuaded but that they are wolves. It was to this disease, perhaps, that Pliny referred (lib. viii. cap. 22), when he said that some men were turned into wolves in his time, and from wolves back to men again. Donat ab Altomari says that he saw two of them in his time, and that they had hollow eyes, scabbed legs and thighs, and were very dry and pale. Wierus gives an account of one that appeared in the streets of Padua in 1541, and Olaus Magnus says that they were common in Sweden. This hallucination spread through the whole of central and southern Europe. Voltaire relates that in the district of the Jura, between 1598 and 1600, more than 600 lycanthropes were put to death by a single judge. Another of the early modern epidemics, attributed to demoniacal agency, began at Aix la Chapelle. Amid the festivities of midsummer day, in 1374, a large troop of men and women from the adjacent country rushed into the city, and in the public squares and churches danced in circles with the utmost violence for hours together, apparently unconscious of the presence of spectators, till at last they sank to the ground exhausted, groaning fearfully. In this state they professed to see visions of good and evil spirits, whose names they shouted out. Incredulous spectators, who came to witness the phenomenon, were themselves seized with an irresistible impulse, and danced and became ecstatic in their turn. The epidemic spread in a few months through the Netherlands and the Rhenish provinces, and though regarded as an affair for the clergy rather than the medical faculty, yet the powers of exorcism could not always drive away the evil spirits. The authorities of the Rhenish provinces having decided to banish from the country every person who was attacked, the disease soon subsided. It reappeared at Strasbourg in 1418, and the persons who were taken with it could, according to Paracelsus, do nothing but dance until they were dead or cured. Sufferers found a resource in the legend of St. Vitus, and entitled the malady St. Vitus's dance (*chorus sancti Viti*), and they were accustomed to appeal to that saint for healing. The disease continued in Germany, and Paracelsus boasts of the number he had cured of it. About the middle of the 15th century a rumor spread through the Pays de Vaud that the environs of Bern and Lausanne were filled with sorcerers and cannibals. Children were reported to have disappeared; persons being arrested and tortured confessed that they were possessed by devils, and great numbers of them were executed. In 1549 many of the inhabitants of Artois were charged with sorcery, and confessed not only the murder and bewitching of infants and adults, but also participation in the orgies of the sabbat and association with the horrible incubi and succubi. In spite of tortures and burnings, the epidemic of bewitchment spread before the close of the century through Mentz, Treves, Saltzburg, Constance, and Ravensburg. In 1491 the nuns of Cambrai were seized with demonomania, and for 4 years ran like dogs across the country, sprang into the air like birds, climbed trees like cats, hung on the branches, imitated the cries of animals, and divined hidden things. At last the exorcists forced the devil to confess himself the cause of these things. The schools, convents, and nunneries were long favorite localities of the malady, which in these assumed its most hysterical forms. The remarkable possession of the Ursuline nuns of Loudun in 1634, which was attributed to the

black arts of the priest Grandier, presented the usual fantastic contortions and hysterical ravings, though it was perhaps chiefly a scheme of Cardinal Richelieu to wreak vengeance on a personal enemy. The delusion of witchcraft continued, thousands suffering death by fire annually throughout Europe. In the reign of Francis I. more than 100,000 witches are said to have been put to death. The first settlers in America brought with them the demoniacal traditions of Europe, and the fearful judicial condemnations of witchcraft which began at Salem in 1692, were an exhibition of the ideas and a repetition of the measures which had been in vogue for centuries. The mania, first detected in the strange caprices of a little girl, spread through the community, and Cotton Mather regarded "the assault of the evil angels upon the country as a particular defiance unto himself." Since then occasional religious excitements in this country and Europe have presented violent phenomena which associate them with the demonomanias of the middle ages. —Among the best treatises on the subject are: Horst, *Dämonomagie* (Frankfort, 1817); Ukert, *Ueber Dämonen, Heroen, und Genien* (Leipsic, 1805); Bodin, *Démonomanie* (Paris, 1587); Colin de Plancy, *Dictionnaire infernal* (3d ed., Paris, 1844); Sir Walter Scott, "Letters on Demonology and Witchcraft" (1830); and Henry Christmas, the "Phantom World" (London, 1850).

DE MORGAN, Augustus, an English mathematician, born on the island of Madura, in the East Indies, in 1806. His father was an officer in the British army, and he was educated at Trinity college, Cambridge, where he took the degree of bachelor of arts in 1827. He had begun his studies for the bar when, in 1828, on the foundation of the university of London (known since 1837 as University college, London), he was appointed to the professorship of mathematics in that institution. He resigned this position in 1831, but returned to it on the death of his successor, in 1836, and has since retained it. He has written voluminously on the principles and history of mathematics, and has published works on arithmetic, algebra, geometry, trigonometry, the differential and integral calculus, the theory of probabilities, the use of globes, a bibliography of arithmetical books from the invention of printing to the present time, and a work entitled the "Book of Almanacs," by which the full almanac of any year up to A. D. 2000, in either the old or new style, may be turned to at once. He furnished many articles on mathematics and astronomy to the "Penny Cyclopædia," was a contributor to the publications of the society for the diffusion of useful knowledge, and is the author of many papers in the transactions of learned societies. His work on "Formal Logic" (1847) occasioned a controversy with Sir William Hamilton, as to which of them was the discoverer of a certain new principle in the theory of syllogisms. Mr. De Morgan has also been a prominent writer in favor of the system of decimal coinage.

DEMOS (δημος), a Greek word, meaning people, and also found in the compound word democracy, meaning rule of the people. It was also the name applied to the 100, in later times 177, smaller districts into which Attica, including Athens, was divided, and 10 of which formed a *phyle*. Each demos had its own municipal officers, its assemblies, and even separate religious usages. The demarch was the representative of its interests. The chief of the executive summoned the assemblies, and had the management of the public estates and police.

DEMOSTHENES, the most illustrious of the Athenian statesmen and orators, was born in Pæania, one of the δημοι, or districts, of Attica, a few miles from the city of Athens, in the interior, on the east side of Mt. Hymettus, near the present village of Liogesi. His father was an Athenian citizen of the same name; his mother was a daughter of Gylon, also an Athenian, who, having been exiled from Athens on a charge of betraying Nymphæum to the enemy, established himself near the Bosporus, and married a woman of that neighborhood, probably the daughter of a Greek settler. There were two daughters of this marriage, both of whom were sent to Athens by their father, and married to Athenian citizens, one to Demochares, father of Demochares the orator, and the other, Cleobule, to Demosthenes, the father of the subject of the present notice. The date of the birth of Demosthenes is uncertain. The statements vary from 385 to 381 B. C. The received opinion now is in favor of 385. Demosthenes and a younger sister were left orphans by the death of their father, he at the age of 7 years, and the sister at the age of 5. A considerable fortune, consisting partly of capital, and partly of a manufactory of bedsteads and cutlery, was left in charge of 3 guardians, Aphobus, Demophon, and Therippides. Under a provision of the Attic law, it was stipulated by the will of the elder Demosthenes that Aphobus should marry the widow, with a dowry of 80 minæ ($1,533); that Demophon should marry the daughter, when she reached the proper age, with a dowry of 2 talents (about $2,000); and that Therippides should receive the interest of 70 minæ ($1,166 62, at 12 per cent., the legal rate at Athens, $139 99 annually) until the son should come of age. The whole estate was valued at something more than 14 talents (about $14,000), which made, according to the standard of those times, a handsome fortune. The guardians were unfaithful to their trust, and not only failed to comply with the provisions of the will in the matter of the marriages, but squandered a large part of the property, or appropriated it to their own use. Instead of receiving his fortune, largely increased, as it should have been, when Demosthenes attained the legal age he found it reduced to 70 minæ. The early education of the future statesman was not neglected. According to his own assertion, in the oration on the crown, he received the literary training which was suitable to his rank and fortune. Several of the most eminent men of his age

are mentioned as his teachers, and among them Plato, Isocrates, and Isæus. There is considerable doubt with regard to the first two, but the influence of Isæus is thought to be perceptible in the style of the earliest speeches, especially of those delivered in the suit against the guardians. On coming of age, in 366, Demosthenes commenced legal proceedings for the recovery of his property. The case was not finally decided until 2 years later, although the diætetæ, or board of arbitrators, by whom the case was twice examined, had rendered a decision in favor of Demosthenes. In the year 364 Demosthenes brought an action against Aphobus alone, before the archon. Aphobus was condemned to pay 10 talents ($10,000). The pleas of the young orator in these trials are preserved. They are models of clear statement, logical argument, and close application of the principles of the law; but they show scarcely any traces of that vehement and overpowering oratory for which Demosthenes was afterward so distinguished. They give us a favorable opinion of the discretion of the young man, and of the calm, judicial character of the court. The prosecution of the guardians brought upon Demosthenes the hostility of Midias, a rich and powerful citizen, who manifested his insolence and hatred, and his disregard of the laws, by a series of outrages, public and private. He forced his way into the house of Demosthenes and insulted his family, for which the latter prosecuted him and obtained a verdict (361); but Midias found pretexts for evading the payment of the penalty. In 354 Demosthenes came forward and, with great public spirit, offered to assume the cost of the *choregia* of his tribe, which had for the two preceding years neglected to make the usual provision for the lyrical, musical, and dramatic entertainments at the Dionysian festival. Midias showed his malignant disposition by every species of impertinent annoyance, and he finally proceeded to open violence, by entering the goldsmith's shop and endeavoring to destroy the golden crowns which Demosthenes had provided for his chorus, by inflicting blows upon Demosthenes in the orchestra, while he was performing his duties in the sacred character of choragus, and by tearing the festal robe which he wore on that occasion. Demosthenes brought an action against him, first under the form of προβολη (a process like the modern inquest before the grand jury), before the people, who decided that there was a sufficient ground for referring the case to one of the courts. Whether it ever came to trial is doubted. Midias endeavored to intimidate Demosthenes, but without success; it is asserted, however, by Plutarch that he finally consented to accept 30 minæ, and to withdraw the accusation. Æschines, in the oration against Ctesiphon, reproaches Demosthenes with having accepted money for blows; but Mr. Grote is of opinion that the trial actually took place, and the language of the oration itself seems to imply that all offers of compromise were rejected. The date of these transactions is 353 B. C. Demosthenes had already, two years before, delivered the oration against the law of Leptines. This oration is of great importance as illustrating the high moral principles which Demosthenes applied to public no less than to private conduct. In it the orator discusses with consummate ability the whole doctrine of the sacredness of the public faith and the inviolability of contracts. In the same year he delivered the oration against Androtion, and in 353 that against Timocrates. In 354, having been appointed by lot a member of the βουλη, or senate, he passed the scrutiny required by law, in spite of the opposition of Midias and his party. In the following year he was chief of the *Theoria*, or state deputation sent from Athens to the festival of the Nemean Zeus. He took an active part at this time in the public debates on questions of foreign policy. He opposed, but not successfully, the expedition to Eubœa in 354, and delivered an able oration against the scheme, then much favored by the political leaders of Athens, of making war against Persia (περι συμμοριων). In the following year he delivered the oration in behalf of the Megalopolitans, and in opposition to the request of the Spartans for aid in conquering them. The relations between the states of Greece and King Philip of Macedon called the genius and eloquence of Demosthenes into fuller play. That ambitious monarch aimed at the subjugation of the Hellenic world as a preliminary step to the conquest of Asia. He was a man of great talent, craft, and subtlety, and not destitute of a taste for the intellectual culture which distinguished the Hellenic name. The Athenians had colonial possessions along the north-western coast of the Ægæan sea, in the neighborhood of the territories of Philip. As early as 358 B. C. he had commenced a series of encroachments, which brought on a state of hostilities between him and the Athenians. He gained possession of Amphipolis, Pydna, Potidæa, and Methone. Demosthenes early saw through his designs, and had the courage to set himself in stern opposition to them. He felt the necessity of union among the Grecian states, and urged every consideration that patriotic ardor and unsurpassed ability suggested, with a perseverance that no fatigue could wear out, and a courage greater than that shown by the warrior on the field of battle. The Philippics, so called because they are aimed against the policy of Philip, are animated by the loftiest spirit of devotion to his country, and are among the most brilliant specimens of his eloquence. But the demoralized condition of the states, the corruptibility of the public men, the fondness for pleasure, the reluctance to submit to the hardships and discipline of former times, made his efforts unsuccessful, except for brief moments of alarm, and he failed to bring about a permanent union. The first Philippic was delivered in 352. In 349 Philip attacked the Olynthians, who had made a treaty with Athens. They sent embassies to

Athens, imploring aid against Philip, and Demosthenes supported their cause by delivering the three admirable Olynthiacs, which roused the Athenians to vigorous efforts to save them. These efforts, however, were not sufficient, and finally Olynthus fell into the hands of Philip, through the treachery of Lasthenes and Euthycrates. The town was destroyed, and the men, women, and children sold as slaves. During the Olynthian war Philip had thrown out hints of a desire to make a treaty of peace and alliance with Athens. On the motion of Philocrates, an embassy was sent to open negotiations with the king. Philocrates, Æschines, and Demosthenes were members of the embassy. Philip appears to have evaded their demand that Phocis, then in alliance with the Athenians, should be included in the treaty. The ambassadors returned, and with them came ministers from Philip. The terms of the peace were discussed in two assemblies of the people, and were finally agreed to on the part of the Athenians, the customary oath having been given to the ambassadors. A second embassy, of which Æschines and Demosthenes were again members, was sent to Philip, under instructions to make all haste to receive the oaths from him; to go wherever they should learn that Philip was at the moment of their arrival, in order that as short a time as possible might intervene, because it was apprehended that Philip would not cease his encroachments until the treaty was completely ratified. But instead of going to Macedonia by sea, they took the longer way by land; instead of finding Philip at once, they waited 3 months for his return from an expedition to the Bosporus in which he was then engaged; and finally they allowed him to defer taking the oaths until he had completed his preparations against the Phocians. They accompanied him on his march into Thessaly, and the oaths were not administered until they arrived at Pheræ. The Phocians were excluded from the treaty. The ambassadors having returned to Athens, Demosthenes accused his colleagues of treachery and of being bribed by the king. Philip's object was accomplished. He passed through Thermopylæ, and conquered Phocis without resistance. The oration on the peace was delivered in 346. From this time Demosthenes was the head of the anti-Macedonian party, and the vehement political antagonism between him and Æschines, whose oratorical ability made him the leader on the other side, commenced. The oration *περι παραπρεσβειας* (the corrupt conduct in the embassy) belongs to the year 343. Philip continued his intrigues in the mean time in the Peloponnesus, and Demosthenes was unwearied in his labors to thwart them. He went on embassies to the several states, and employed all his powers of argument, persuasion, and denunciation. Philip sent a deputation to Athens, charging the Athenians with favoring the Spartans in their designs against the liberties of the Peloponnesians. An assembly was called, Philip's ministers were heard, and in the discussion of the answer to be made, Demosthenes (344) delivered the second Philippic. In the following year Philip took Halonesus from the pirates. The Athenians claimed it as an ancient possession of their own. Philip, denying their right to it, offered it to them as a gift; and it was on this occasion that the oration *περι Ἁλονησου* was delivered, though it is doubtful whether this is a work of Demosthenes. The Athenians now made vigorous efforts to counteract the schemes of Philip in Acarnania, in the Peloponnesus, and in Thrace. Philip again complained of their course, and in this year, 342, Demosthenes delivered the oration on the Chersonesus, and the 3d Philippic, a most vigorous and daring attack. Demosthenes next caused the expulsion of the tyrants who had been established and supported by Philip in Eubœa. In 340, the Athenians, under the influence of Demosthenes, took the most energetic measures to relieve Byzantium, which the king was besieging. They sent a fleet which compelled him to withdraw, without accomplishing his purpose. In the same year he introduced a reform into the naval system, by which the burdens of this department of the public service were more equitably distributed, and its efficiency increased. At the Amphictyonic assembly, held at Delphi in the spring of 340, Æschines proposed a decree against the Locrians of Amphissa, for having sacrilegiously occupied a portion of the lands belonging to the temple. The Amphissians forcibly resisted the execution of the decree, and an extraordinary meeting of the Amphictyons was summoned to consider what should be done. Demosthenes, foreseeing the evil consequences likely to result from such a step, persuaded the Athenians to send no deputies to the meeting. The assembly met, declared war against the Amphissians, and placed Cottyphus, an Arcadian commander, at the head of the Amphictyonic forces. But many causes conspired to render the undertaking a failure, so that in the following year, at the regular meeting of the assembly, the partisans of Philip were sufficiently powerful to supersede Cottyphus by appointing Philip in his place. This gave him the opportunity he had long desired, of marching with a strong force into the heart of Greece. He occupied at once the important post of Elatea. The news of this movement, arriving at evening, caused the greatest alarm at Athens. An assembly was called early the next morning, and all business was suspended in the Agora. In the midst of the universal dismay, Demosthenes took the bema, and in a powerful speech, the substance of which he recapitulates in the oration on the crown, advocated an alliance with Thebes, as the only means of warding off the impending danger. The proposal was carried without a dissenting voice, and Demosthenes himself immediately went to Thebes as head of the embassy. The alliance was concluded, and the united armies marched northward to encounter Philip. The

great defeat of Chæronea (338) struck a disastrous blow, and overturned the hopes of the patriotic party. Yet Demosthenes did not lose the confidence of the country. With a just pride, he relates that, in all the freshness of their sorrow, the people appointed him to deliver the funeral oration over the remains of those who had fallen on that disastrous day. He was also charged with the duty of superintending the fortification of the city, in anticipation of an immediate attack. But his antagonists and enemies failed not to seize the opportunity of assailing him by every form the laws of Athens allowed, and he was daily harassed by the vexatious annoyances of such contemptible characters as Sosicles, Diondas, Melanthus, and other *sycophants*, with whom the city swarmed. To put an end to this warfare, and to test the strength of public feeling in favor of the great orator, Ctesiphon, a political friend, not otherwise known to history, introduced into the senate a resolution to confer a golden crown on Demosthenes as a suitable acknowledgment for his patriotic spirit and his public services. Before the proposition could become a law, it was necessary to pass it through the popular assembly, and in the interval any citizen might prosecute the author of it by an action called γραφη παρανομων, or indictment for illegal propositions. Æschines accordingly came forward and arrested the proceeding by prosecuting Ctesiphon. Technically the accused party was Ctesiphon, but in reality Demosthenes was put on trial for the whole of his political life. For some reason, not clearly explained, the trial did not take place within a year, as the Attic law apparently required. It was postponed 8 years, and finally was held in 330. Demosthenes appeared in the formal character of counsel for Ctesiphon, but in reality, of course, in his own defence. The orations delivered by the rival statesmen were elaborated to the highest point of their abilities, and must be considered their masterpieces; but that of Demosthenes, in force and cogency of argument, in severity of invective, in loftiness of ethical spirit, and in ardent patriotism, far surpassed the oration of Æschines. The result was remarkable. Æschines exposed himself to the penalties of malicious prosecution, inasmuch as he failed to obtain a fifth part of the votes. In consequence of this he left Athens, and never returned. King Philip was assassinated in 336, two years after the battle of Chæronea, and 4 years before the trial on the crown. This event led Demosthenes to renew his efforts to unite the Grecian states against Macedon. But the unexpected vigor of the youthful Alexander quenched his kindling hopes. An embassy was sent from Athens to sue for peace, and Demosthenes was one of those selected for this painful duty. He set out upon the mission, but after proceeding part of the way, his feelings overcame him, and he returned. A false report of the death of Alexander caused another rising among the Greeks, and Demosthenes, at his own expense, sent a supply of arms to Thebes, the only state which showed energy in the movement. But Alexander suddenly appeared before that ill-fated city, and completely subdued the spirit of the people by levelling to the ground its walls and all its buildings except the house of Pindar, 335 B. C. Soon after, Alexander started on his Asiatic expedition, having appointed Antipater regent of Macedon during his absence. Greece remained quiet for several years, but the leaders were eagerly watching every opportunity for another outbreak. Nothing of consequence occurred, however, until the arrival of Harpalus in Greece. This person had been left by Alexander in charge of immense treasures at Babylon, while he prosecuted his victorious march to India. He proved faithless to his trust, and came to Athens in 325 for the purpose of securing the protection of the city. The Macedonian regent demanded the surrender of the fugitive, and the trial of the popular leaders who were accused of having accepted his bribes. Demosthenes, being among the orators thus implicated, voluntarily offered himself for trial. His whole conduct was inconsistent with the theory of guilt, the motives of his enemies in bringing the charge were quite apparent, and there is not a tittle of trustworthy evidence against the illustrious patriot. But so great was the influence of the Macedonian faction that he was declared guilty, and thrown into prison; from which, however, he escaped, it is said, with the connivance of the magistrates. He passed the time of his exile partly at Troezen and partly in Ægina, gazing daily over the sea to the shores of his native land, which are in sight from those famous places. When the news of Alexander's death arrived, the Greeks made a fresh effort to throw off the Macedonian yoke. Demosthenes joined the ambassadors sent from Athens to the several states, and again put forth all the power of his eloquence in the cause of freedom and independence. Demon, a relative, now proposed a decree recalling him from exile. He was brought from Ægina in a public ship, and was met on landing at the Piræus by crowds of Athenian citizens and the principal magistrates, who welcomed him home with the most enthusiastic demonstrations of joy. He pronounced it the happiest day of his life. The new hopes of the Greeks met with speedy disappointment. The battle of Cranon (322) and the gradual desertion of the common cause by the confederate states, one after another, left Athens to contend single-handed with Antipater. Peace was accordingly made upon his own terms. Antipater and Craterus marched upon Athens, and Demosthenes and his friends fled. In the midst of the panic Demades proposed that they should be condemned to death, and the cowardly decree was passed. Demosthenes took refuge in the temple of Poseidon, on the little island of Calaurea; but the right of asylum could not protect him from the rage of Archias, the brutal officer of Antipater, who pursued him to his retreat.

Finding himself at the mercy of his remorseless enemies, he took poison which he had kept in a quill, and died 322 B. C. at the age of 63.—There is a statue of Demosthenes in the Nuovo Braccio of the Vatican—the noblest portrait statue in existence. It represents the orator in the act of addressing an assembly. The nervous temperament, the spare figure, the concentrated fire and energy exhibited in the face and brow, embody his character with wonderful truth. Demosthenes inherited a delicate constitution, which prevented him from engaging in the gymnastic exercises and field sports of his contemporaries; but he overcame this natural defect by the most rigid temperance in food and drink. He never indulged in wine; he was one of the earliest water-drinkers on record. He was naturally afflicted with a hesitation in speech and a shortness of breath; but by incredible force of will he cured himself of these impediments. It is said that he forced himself to speak with a pebble in his mouth, and that, in order to accustom himself to the tumults of the popular assembly, he declaimed on the beach of Phalerum to the waves as they swept along the shore. In the formation of his style he took unwearied pains. Whether he copied Thucydides 8 times, according to the tradition, may be doubted; but there can be no doubt that from his early youth to the last oration he ever spoke, he never ceased to give the profoundest study both to matter and form. He seldom or never addressed an assembly in an extemporaneous speech; his rivals and detractors used to say that his speeches smelt of the lamp. If by this charge it was meant that the style of the great orator was unduly elaborate in the structure of his sentences, or overloaded with ornaments, or artificially balanced and formal, nothing can be more untrue. The labor of Demosthenes was expended in making the thought clear, and then in making his language a perfectly transparent medium for his thought. He worked upon his orations in order to remove from his ideas every obscurity, and from his expression every thing imperfect, inexact, or ambiguous. Demosthenes was never misunderstood by his hearers. Moreover, he adapted his style with a curious felicity to his subject. In his legal arguments, it is precise, clear, technical when necessary, with no attempt at the impassioned eloquence which would be out of place on such subjects and such occasions. In his deliberative and political speeches, he blends with the closest logic every form of vehement appeal to the feelings which the moment of public peril or of patriotic excitement is fitted to arouse. He begins in a moderate tone, with the simplest language and the most undeniable propositions. He grows warm with his subject; the mighty forms of the great departed seem to rise before him; the illustrious dead start from their tombs; the august image of his beloved country is a living presence to his excited mind; his language continues simple, while his meaning becomes deeper, and his feeling more intense. Nothing can stand before such a combination of power, enthusiasm, honesty, reason, and passion. No wonder he swayed his contemporaries as no other man did. No wonder his orations are still studied, as the highest models of all that is pure and exalted in eloquence. And so it happened that his style grew better as he grew older. Compare the oration against Midias with the oration on the crown. In both the instrument is admirable, but the superior mastery displayed in the latter has been acquired by constant practice during the 24 intervening years. In private life, the manners of Demosthenes appear to have been somewhat austere. He was a man of ardent and concentrated feelings, with but little taste for the festive enjoyments in which the Athenians generally delighted. His tone of sentiment was lofty and pure; his domestic life was as stainless as his public life was incorruptible. In all the virtues of the republican citizen, he left an example which none of his countrymen ever surpassed, and which the men of other races and after ages can never cease to venerate. Athens, his beloved city, is again redeemed to letters, art, and freedom. The Bema still stands, venerable with the associations of ancient glory. The Propylæa and the Parthenon, splendid and pathetic in their ruins, are the more grand and imposing because his eye rested upon them, and his voice appealed to them in the moments of his country's greatness. Across the Saronic gulf, on the little island of Poros, the ancient Calaurea, are traces still of the temple of Poseidon, sacred to memory as the last resting place of the hunted and wearied patriot; and the waves of that classic sea, as they gently lave the island's rocky shore, seem eternally to chant his requiem.—Of the works of Demosthenes there are many editions. One of the most convenient is that of Dobson, in the *Oratores Attici*. Others are those of Taylor, Reiske, Dukas, Bekker, Baiter, and Saupe. The orations of Demosthenes alone have been edited by Wolf, Auger, and Schaefer. Dindorf's text (Leipsic, 1825) is excellent; still better, that of Bekker in 3 vols. (Leipsic, 1855). The editions of single or selected orations are too numerous to be mentioned. For the use of the American student the oration on the crown, edited by Prof. Champlin, the popular orations by the same, and the Philippics by Prof. Smead, are the best. Dissen's *Oratio de Corona*, with a Latin commentary, is admirable. The translations in Bohn's "Classical Library" are furnished with useful introductions and illustrative essays. (See also Athens, vol. i. pp. 275–278.)

DEMOTIC ALPHABET. See Hieroglyphics.

DEMOTICA, a town of European Turkey, in Roumelia, 20 m. S. of Adrianople; pop. about 10,000. It is situated on the Maritza, at the foot of a conical hill, on the summit of which stands a citadel, wherein is a palace that was occasionally occupied by the Turkish sultans while Adrianople was the capital of their empire. Charles XII. of Sweden found a retreat in this town for some time after his defeat at Pultowa.

DEMPSTER, Thomas, a learned Scottish professor and author, born at Cliftbog, Aberdeenshire, Aug. 23, 1579, died at Butri, near Bologna, Sept. 6, 1625. He was the 24th out of a family of 29 children by the same mother, and at the age of 3 gave a proof of his literary precocity by mastering the alphabet in one hour. The brutal violence of his eldest brother, James, who ended a lawless life in the military service in Flanders by being torn to pieces by 4 horses, for an act of gross insubordination, having brought the family into disrepute at home, he went in his 10th year to the university of Cambridge, and studied for some time at Pembroke hall, whence he passed over to France. For several years he wandered from one university to another, and in 1596, being then 17 years of age, he received the degree of D.C.L., and was appointed regent of the college of Navarre in Paris. At this time, and indeed throughout his whole life, he was scarcely less remarkable for his violence and quarrelsome disposition than for his learning, and was continually involving himself in broils with professors and fellow students, being as ready to draw his sword as his pen. He soon terminated his connection with the college of Navarre, was subsequently professor for brief periods at Toulouse and Nimes, and in the early part of the 17th century returned to Scotland to recover a portion of the paternal property. Having previously espoused the Roman Catholic faith, he found little favor from his family or the Scottish clergy, and returned to Paris, where for 7 years he was connected with various colleges of the university. While occupying temporarily the office of principal of the college of Beauvais, he proved his capacity and intention to preserve discipline by causing a student of high family, who had sent a challenge to another, to be "horsed" and flogged in the presence of the whole college. The young man procured the assistance of several of his kinsmen, who were members of the king's body guard; but such was the energy of Dempster that his assailants were overpowered and imprisoned in the college belfry. Deeming it prudent after this to absent himself from Paris, he went to England, and was appointed by James I. historiographer royal. In 1615 he received from the king a handsome present in money, but his hopes of preferment being defeated by the opposition of the clergy on account of his religious opinions, he betook himself in 1616 to Pisa, where for several years he lectured on the civil law. A personal difficulty induced him to go to Bologna, where, after engaging in a more than ordinary number of disputes, he rose to great eminence as professor of humanity, was knighted by the pope, and loaded with distinctions. In the midst of this prosperity his wife, a woman of great beauty, eloped with a student, and the mental and physical suffering which he experienced in an attempt to overtake the fugitives put an end to his life. Dempster's works are exceedingly numerous, numbering probably over 50, and embrace a variety of subjects. He wrote and spoke with great facility the Greek and Latin languages, was thoroughly versed in philosophy, civil law, and history, and in such elaborate works as his *Antiquitatum Romanarum Corpus Absolutissimum* and *De Etruria Regali*, which are chiefly of an antiquarian character, evinced remarkable industry and erudition. His *Historia Ecclesiastica Gentis Scotorum*, the work by which he is now best known, is a sort of biographical dictionary of Scottish worthies, in which fable and fact are pretty equally mingled. Many names of authors who never were in Scotland are claimed as Scottish, and the history of many others who never existed is given with such particularity, that we must conclude that Dempster either wilfully fabricated his statements entire, or that his credulity was imposed upon; the latter opinion being the more probable, if the testimony of Bishop Lloyd may be credited, that "he was as well inclined to believe a lie as any man in his time." Baillet, on the other hand, accuses him of wilful forgery. He was an indefatigable student, working 14 hours a day, and possessed so extraordinary a memory that he is said never to have forgotten what he had once learned.

DEMURRAGE (Lat. *demoror*, to delay), in maritime law, the detention of a vessel beyond the time allowed by the charter party (or by custom if there is no special contract) for loading or unloading or sailing; also the compensation paid or damages claimed for such detention. It is usually stipulated in the contract between the owner of the ship and the freighter that the ship shall not be detained beyond a certain time for the loading of goods on board, or for the delivery of such goods, or for sailing. If there is no such stipulation, the time is fixed by usage, and called lay days. The claim for demurrage is reciprocal, by the owner against the freighter, and by the freighter against the owner—the latter case being, however, only for delay in sailing. Demurrage is allowed only for voluntary detention, and not for any accidental delay; as if a vessel is detained for a cargo over the stipulated time, and after sailing is driven back by a storm, which would have been avoided if she had started at the time appointed, no damages are allowed for the incidental delay. Yet it would perhaps be otherwise if by the detention a further delay is caused by any thing which could be foreseen, as a periodical wind, or the freezing up of a harbor, or the like. In inland transportation, where the latter cause of delay most frequently occurs, as upon rivers or canals, the rule is that the carrier is not responsible for the delay when there has been no fault on his part, but is entitled to deliver the cargo after the breaking up of winter, and earn the entire freight; or if the freighter elect to take the goods at the place of detention, he must pay *pro rata itineris*. But if there has been voluntary delay by either party, in consequence of which the vessel is frozen up by the coming on of winter, he is responsible to the other for

damages; but the measure of such damages would not be according to the rule of demurrage in respect to sea vessels.

DEMURRER, in law, a suspension of the proceedings in a cause until some point is determined by the court; in other words, the interruption of the preparation for a final trial or hearing until some preliminary objection is disposed of. A demurrer is a pleading in equity as well as at law, and in both it raises a question as to the sufficiency of the case as stated by the opposite party, or some particular part thereof. At law a demurrer may be general or special; the former specifying no particular ground of objection, and therefore raising only the question of the sufficiency in substance of the pleading demurred to; the latter being a specification of certain objections to the form of the pleading. By the recent changes in the practice both in England and this country the distinction has become unimportant, as no objection can now be insisted upon under a general demurrer but what can be raised at the trial or hearing, while the special demurrer has become of comparatively little consequence by reason of the liberty of amending pleadings which is now allowed.

DENAIN, a French town, in the department of Nord, arrondissement of Douai, on the left bank of the Scheldt, which is here navigable, 6 m. from Valenciennes, 14 m. from Douai. Owing to the successful working of the neighboring coal and iron mines, the population has increased from 900 in 1826, to about 9,000 in 1852. Denain was the scene of the brilliant victory achieved in 1712 by the French under Villars over the allies.

DENARIUS, a Roman silver coin, containing at first 10, and afterward 16 asses. Also a gold coin of 25 silver denarii. The average weight of a large number of denarii shows them to have contained about as much silver as 3 half dimes of our currency.

DENBIGH, a municipal and parliamentary borough, market and co. town of Denbighshire, North Wales, built on an eminence near the centre of the vale of Clwyd, 22 m. W. of Chester, and 213 m. N. W. of London; pop. of the borough in 1851, 5,498. The principal edifices are 2 churches, a lunatic asylum, and a spacious market hall. The shoe and leather trade is the main support of the town, but Denbigh is best known as a pleasant spot for retirement. Denbigh castle, a magnificent edifice, parts of which are well preserved, is supposed to have been built by Henry Lacy, earl of Lincoln, who received the lordship of this place from Edward I. Edward IV. was besieged in it by the army of Henry VI., and Charles I. took refuge here after the battle of Rowton Moor in 1645. During the civil war it was garrisoned by royalists, but after a siege of two months surrendered to the parliamentarians by order of the king. Its walls and defences were blown up after the restoration of Charles II.

DENBIGHSHIRE, a maritime co. in the N. of Wales, bounded N. by the Irish sea, and bordering on England; area, 603 sq. m.; pop. in 1851, 92,583. Its surface is much diversified. There are some level tracts in the N., but along the E. and W. borders extend mountain ridges. The valleys and level tracts are remarkably fertile, producing grain, beans, and peas; the uplands yield some crops of barley, oats, and potatoes, but are mostly occupied by pastures; black cattle, sheep, and goats are reared in great numbers, and excellent cheese is made. Among the minerals are coal and iron, both very valuable, lead, slate, freestone, and millstone. Immense quantities of limestone, used for fluxing ironstone, are exported into Staffordshire, and the yield of one quarry, near Llangollen, is said to be sometimes between 70,000 and 100,000 tons in a single year. The principal rivers are the Conway, the Dee, and the Clwyd, none of which are navigable within its borders. It has no seaport, and its chief channel of transportation is the Chester and Holyhead railway, which crosses it near the coast. The Chester and Shrewsbury railway runs S. about 14 miles, just within its E. boundary. A branch of the Ellesmere canal traverses the vale of Llangollen. Chief towns, Denbigh, Ruthin, and Wrexham. Before the Roman conquest Denbighshire was the territory of the Ordovices, and was annexed to the empire only after long struggles. It contains several interesting Roman remains. It was the scene of many a fierce contest under the Saxons and the Normans, in the wars of the roses, and in the revolution of the 17th century.

DENDER, or DENDRE, a river of Belgium, in the provinces of Hainault and E. Flanders, 53 m. long, joining the Scheldt at Dendermonde. It is made navigable by locks to Ath, 40 m., and is largely used for the transportation of coal.

DENDER, a river in Abyssinia and Nubia, tributary to the Blue Nile, which it joins 40 m. N. of Sennaar. It rises in a mountain range W. of Lake Dembea, skirts Abyssinia for about 95 m. before entering Nubia, and has a total course of about 260 m.

DENDERAH (anc. *Tentyra*), a ruined town of upper Egypt, near the left bank of the Nile, famous for its antiquities, which are among the most interesting and complete in that country. The principal building is a magnificent temple, enclosed with some other edifices, in a space 1,000 feet square, by a wall of sun-dried brick, 15 feet thick, and 35 feet high. It was dedicated to the goddess Athor or Aphrodite, or, as some believe, to Isis. Facing it there is a richly sculptured gateway in the enclosing wall, on which the emperors Domitian and Trajan, whose names occur in accompanying inscriptions, are represented in the act of worship. The portico or *pronaos* of the temple is 135 feet in width, and has 24 columns arranged 4 deep, each 32 feet high, and nearly 22 feet in circumference. The capitals have a full face of the presiding divinity on each of their 4 sides; the architrave is covered like the portal with sculptures representing a religious procession, and the projecting fillet of the cornice bears an inscription in Greek,

setting forth that the portico was added to the temple in the reign of Tiberius Cæsar, in honor of the goddess Aphrodite. On the ceiling of the portico is the famous zodiac, discovered in 1799 by the French savans under Bonaparte, and on the ceiling of one of the inner chambers there was a small and somewhat similar planisphere, which was removed to Paris in 1821. Taken as an ancient representation of the zodiac, intersecting the equator at a very different point from the present equinoxes, it was rashly considered to prove, by the procession of the equinoxes, its own date to be from 15,000 to 17,000 years B. C. All scholars are now agreed that it is not older than the Ptolemies, and that a zodiac was not used by the ancient Egyptians. Seyffarth finds in the zodiac of Denderah the planets placed in such order as to indicate the year of Nero's birth, A. D. 37; the temple having been, as he supposes, built or rebuilt under that emperor. In the pronaos or on the front of the temple may also be distinguished the names of Augustus, Caligula, Claudius, Nero, Ptolemy Cæsarion, and his mother Cleopatra. The last 2 personages are also represented by rude portraits. The interior consists of 3 large halls, an isolated sanctuary, and several small chambers. Rows of columns stand in some of the rooms, displaying on their capitals the budding lotus, and all the apartments but 2 are profusely sculptured. The roof is flat and formed of oblong masses of stone. Small holes cut in the ceiling or sides admitted the only light which the interior of this gloomy but magnificent building received, and some of the rooms on the ground floor were lighted only by the few rays which found their way through apertures communicating with the rooms above. There are 2 smaller temples of Roman date near that of Athor, one dedicated to Isis, and the other, it is said, to the evil genius, though some believe it to appertain to the great temple. Works are now established at Denderah for extracting saltpetre from the ruins.

DENDERMONDE, or Termonde, a Belgian arrondissement in the province of E. Flanders, pop. in 1857, 97,289, with a strongly fortified capital of its own name. The latter is situated at the junction of the Scheldt and Dender rivers, at a distance of 16 m. by rail from Brussels; pop. in 1857, 8,662. It contains 9 places of worship, many charitable and educational institutions, an academy of design and architecture, and several fine private collections of art. In the church of Notre Dame are 2 pictures by Vandyke and other works of art, and David Teniers was for some time a resident of the town. The surrounding country is fertile and famous for producing the finest flax in Flanders. An active trade is carried on in this article, in grain, linseed, hemp, and oil, and in the various manufactures, the most important of which are woollen cloths, cotton yarn, and lace. The town is among the oldest in Belgium, and many Roman antiquities have been found in the neighborhood. In 1667 it resisted a siege of Louis XIV. by opening the sluices. In 1706 it was taken by Marlborough, and in 1745 by the French. The present fortifications date from 1822, and the bridge over the Scheldt from 1825.

DENDROBIUM, a genus of epiphytes or parasitical plants, found chiefly in the damp tropical parts of Asia, and belonging to an order remarkable for the grotesqueness as well as beauty of its flowers. The species are numerous; and in some instances they affect dry and open places on the bark of trees in New Holland, and even on bare rocks exposed to the sun. Dr. Royle found *D. alpestre* on the Himalaya mountains, at an elevation of 7,500 feet. The flowers are generally very beautiful, varying in color from a deep yellow to nearly white. They possess a high fragrance. In cultivation they thrive best when planted in pots filled with earth, but require an artificially elevated temperature to insure success.

DENGUE, called also Dingee, Dunga, Dandy, Bouquet Fever, Bucket Fever, Breakbone Fever, &c., a peculiar febrile epidemic, which at varying periods has pervaded the East and West Indies and the southern and middle states of the United States. Its first known appearance was in 1780, when it broke out at Philadelphia suddenly in the autumn, and raged for 2 or 3 months. Both sexes and all ages were affected by it, and in the district where it occurred hardly any one was exempted from its attack. It was named by the people, Dr. Rush states, the breakbone fever. Its next appearance was at Calcutta in 1824–'5; here it is very fairly described by Dr. Mellis. In 1826 it seems to have occurred in a mild form at Savannah, and perhaps elsewhere. In the autumn of 1827 it appeared in the West Indies, occurring as before as a universal epidemic. In St. Thomas the negroes gave it the name of the "dandy fever," from the stiff gait and appearance of those affected by it. When it appeared in Cuba this name, in undergoing the Spanish pronunciation, was changed into dunga or dengue, which it has since retained. It appeared again at Savannah in 1827, and in the autumn of 1828 raged through most of the southern cities. It disappeared in the winter. A few cases were seen in 1831. In 1844 it appeared at Mobile, and in 1848 at Natchez. In 1850 it again spread over the southern states, and presented the same characteristics as in the previous epidemics. The usual symptoms of dengue are pain, stiffness and swelling of some of the smaller joints, usually of the hand or foot, or of the muscles of a limb, stiffness of the neck, aching of the back and loins. These symptoms are soon followed by fever, headache, suffusion of the eyes, full, quick, frequent pulse, hot, dry skin, restlessness and thirst. The fever seldom remits, but generally declines and disappears on the 2d or 3d day. At this time the skin loses its dryness, and abundant perspiration takes place, with considerable relief of the pains in the joints; during this deceptive lull of the disease many consider themselves recovered, but soon

discover their error, as usually on the 4th day a disturbed and irritable condition of the stomach, vomiting, languor, lassitude, and debility, occur. On the 5th or 6th day an eruption appears, relieving the lassitude and uneasiness, but bringing on a recurrence of the pains in the joints and muscles. The eruption, which resembles scarlatina in some particulars, and is accompanied with a sensation of itching and burning, usually subsides in 2 or 3 days, and is attended with desquamation of the cuticle. The arthritic pains are usually of longer duration, and often render the patient lame for some weeks. The disease is very rarely fatal. In 1780 the breakbone fever occasionally proved so, perhaps from the resort to depleting measures, which seem to be contraindicated in this disease. The treatment adopted has usually been the administration of one or more emetics or a mild purgative, followed by diaphoretics and anodynes; occasionally opium has been administered in some form to allay the arthritic pains. After the subsidence of the eruption the use of tonics, and particularly of the various preparations of cinchona, is indicated.

DENHAM, Dixon, an African traveller, born in London, Jan. 1, 1786, died at Sierra Leone, June 8, 1828. He served with credit throughout the Peninsular war, and at Waterloo. In 1822 he joined Clapperton and Dr. Oudney in their exploring expedition. Setting out from Tripoli, the travellers crossed the desert and reached Lake Tchad, the coasts of which to the west and north were examined by Denham. He was separated from his companions, and after great sufferings returned to England in 1825. The result of their travels was published in 1826 under the title of "Narrative of Travels and Discoveries in Northern and Central Africa, in the years 1822, 1823, and 1824." Soon afterward Denham was appointed lieutenant-colonel, and superintendent of the liberated African department of Sierra Leone, and in 1828 governor of the colony, but died in the same year.

DENHAM, Sir John, an English poet, born in Dublin in 1615, died in 1688. In 1641 he published "The Sophy," a tragedy which was praised by Waller, and had an immediate success, and in 1643 appeared his poem "Cooper's Hill," on which his fame rests. The following two famous lines occur in the apostrophe to the river Thames, in that poem:

> Though deep, yet clear; though gentle, yet not dull;
> Strong without rage, without o'erflowing full.

DENINA, Giacomo Maria Carlo, an Italian historian, born at Revello, Piedmont, Feb. 28, 1731, died in Paris, Dec. 5, 1813. He took holy orders, acted as professor at Pinerolo and Turin, was subjected to persecutions on the part of the Jesuits, repaired (about 1782) to Berlin, in compliance with an invitation of Frederic II., for the purpose of writing a history of the German revolutions (which appeared at Florence, 8 vols., 1804), and wrote there several other works relating to the king himself, and to Russian literature, also an effusion in praise of Peter the Great (*La Russiade*, Berlin, 1790; written in French, as well as some of his other works). While at Mentz in 1804, he was introduced to Napoleon, to whom he dedicated his *Clef des langues* (Berlin, 1804), and who shortly afterward appointed him imperial librarian at Paris. Denina wrote many other literary, critical, and historical works. One of them (*Discorso sopra le vicende della letteratura*, 2 vols., Turin, 1761; 4 vols., Berlin, 1792–1811; German translation, 1785–'88) displays considerable bibliographical erudition in treating of the progress of the literature of various European nations. But his literary fame rests chiefly upon his great work on the revolutions of Italy (*Istoria delle rivoluzioni d'Italia*; last edition, 5 vols., Venice, 1800), translated into several European languages, containing a general history of that country from the time of the Etruscans down to 1792. He left in MS. 3 vols. of a history of Piedmont, which have not been published in Italian, but have appeared in a German translation (*Geschichte Piemonts und der übrigen Staaten des Königs von Sardinien*, Berlin, 1800–'3).

DENIS, Saint, apostle and first bishop of Paris in the 3d century. He was one of a company of missionaries who, after the persecution of Severus, were sent from Rome, about 250, to revive the drooping church in Gaul; and after preaching in various parts of that country and suffering much at the hands of the pagans, he arrived at Lutetiæ or Paris, where he made many converts. He built a church there, and made it the seat of his bishopric. During the persecution under Aurelian he was condemned to death by the Roman governor Pescennius, and with a priest named Rusticus, and a deacon Eleutherus, was beheaded in 272. The bodies of the martyrs were thrown into the Seine, but were recovered by a Christian woman, Catulla, who caused them to be interred near the scene of the execution. A chapel was built over the spot, and after it had fallen to ruin was replaced by St. Genevieve with a church in 469, which was afterward united to the famous abbey of St. Denis. A number of French churches are said to have been founded by this saint or his companions; he became the patron of the kingdom, and his name served as a war cry to the French, who used to rally in battle at the words *Montjoye Saint Denis*. His festival is kept Oct. 9. The popular belief that after his decapitation he walked about with his head in his hands, may have originated in the ancient paintings, which represented him so engaged, as an emblem of the manner of his death.

DENIZEN, in English law, an alien born who has received by letters patent from the king certain privileges belonging to natural born subjects. Thus he may take lands by purchase or devise, but not by descent. In American law there is no middle class of this kind between aliens and citizens, unless we may designate as such those who have declared an intention to become citizens, but have not become fully naturalized under the laws of the United States. In

some of the states, by statute, such persons are allowed to take and convey real estate, the difference between them and aliens being that, although the latter can take real estate and hold it until some proceeding is taken by public authority to divest his title, commonly called office-found (*i. e.* an inquest by official action), yet upon such proceeding being had, the land would escheat to the state although the alien should have conveyed to another. Another signification is sometimes attached to the term, in a more popular sense, though it is also to be found in some law writers, viz., a resident. This meaning is not wholly inconsistent with the other, as it may at an early period, when the doctrine of citizenship was not well settled, have been understood of the children of aliens born in England. By the present law of that country such children are recognized as subjects, except in certain cases, as the children of persons representing or in the service of foreign governments who are temporarily in England. The same rule is recognized in the United States, and as a consequence it was thought necessary to provide by law that the children of Americans born abroad should be held to be American citizens.

DENMAN, Thomas, lord chief justice of England, born in London, July 23, 1779, died of apoplexy, at Stoke Albany, Northamptonshire, Sept. 22, 1854. The only son of an eminent physician and medical writer, he was graduated in 1800 at St. John's college, Cambridge, was called to the bar in 1806, returned to parliament for Wareham at the general election of 1818, and in 1820 for Nottingham. In the latter year he took a distinguished part as solicitor in the trial of Queen Caroline. In 1822 he was appointed common serjeant of the city of London; from 1830 to 1832 he officiated as attorney-general; in March, 1834, he was raised to the peerage, and from 1832, when he retired from parliament, until 1850, he was chief justice of the king's bench. His high personal character, his great abilities as a lawyer and magistrate, and his zeal in behalf of the abolition of slavery and of various liberal measures, gained for him a distinguished place among the chief justices of England.

DENMARK (Dan. *Danmark;* Ger. *Dänemark;* Fr. *Danemark*), "the land or mark of the Dane," called also the *Danske Stat*, "states of Denmark," a kingdom in the north of Europe, between lat. 53° and 58° N., long. 7° and 13° E., bounded N. by the Skager Rack, N. E. by the Cattegat, E. and S. E. by the Sound and the Baltic, S. by the free states of Lübeck and Hamburg, the grand duchy of Mecklenburg-Schwerin, and the kingdom of Hanover, and W. by the German ocean. It consists of the peninsula of Jutland, the islands of Seeland, Funen, Laaland, Falster, Langeland, Alsen, Möen, Samsöe, Läsöe, Femern, Bornholm, and many smaller ones, and the duchies of Schleswig, Holstein, and Lauenburg; beside which it possesses the Färöe islands, Iceland, Greenland, and the islands of Santa Cruz, St. Thomas, and San Juan, in the West Indies. The following table shows the population of Denmark proper in 1858, and of the duchies and colonies in 1855:

Circles	Area in sq. m.	Population.
Copenhagen	2,833	143,591
Seeland and Möen		400,166
Bornholm	213	28,949
Funen and Langeland	1,284	196,811
Laaland, Falster, &c.	647	84,096
Jutland	9,696	646,237
Duchies.		
Schleswig	3,545	395,860
Holstein	3,269	523,523
Lauenburg	413	49,475
Colonies.	21,900	2,468,713
Färöe islands	395	8,651
Iceland	38,200	64,603
Greenland	384,000	9,892
West India islands	110	37,137
Total	445,705	2,588,996

The sea-coast of continental Denmark, extending about 460 m. along the German ocean and the Skager Rack, and 650 m. along the Cattegat, the Little Belt, and the Baltic, is generally low, flat, and sandy. The W. coast of Schleswig is protected from the ocean by dikes, but the E. coast of that duchy and the shores of some of the islands present abrupt chalk or limestone cliffs. The fiords, or arms of the sea which indent the coasts, are among the most remarkable natural features of the kingdom. The Lym fiord, which entirely insulates the N. part of Jutland, occupies nearly 252 sq. m. It was formerly separated from the German ocean by a narrow strip of land, through which in 1825 the sea broke in 2 places. The Ringkiöbing and Ise fiords are also notable for their size; and the Kieler fiord, in the duchy of Holstein, forms the spacious harbor of Kiel, in which the British fleet anchored in 1854. The lakes of Denmark are numerous, and some contain excellent fish, but all are small. With the exception of the Elbe, which forms part of the S. boundary, there are no large rivers, the most considerable being the Eider, 105 m. long, navigable almost to its source, and flowing into the German ocean; the Trave, 65 m. long, and also navigable, flowing into the Baltic; and the Guden, 80 m. long, discharging itself into the Cattegat. The broad passage called the Great Belt separates the islands of Seeland and Funen, and the Little Belt the latter from the coasts of Jutland and Schleswig. The surface of the kingdom is an almost unbroken plain, elevated in most places but a few feet above the ocean, and in others depressed below the level of the sea. The N. W. part of the peninsula is a desolate region, over which tempests and drifting sands sweep with destructive fury. To consolidate the soil and break the force of the winds, various kinds of trees and shrubs, of which the improvidence of former generations had nearly stripped the country, are now planted here, and their destruction is forbidden under severe penalties. From the promontory of Skagen at the extreme N., a low barren ridge runs through continental Denmark into Germany, the highest summit at-

taining an elevation of about 1,200 feet. The island of Funen contains a range culminating at the height of 400 feet, called the Funen Alps, and Seeland has eminences 560 feet above the sea. All the rocks belong to the tertiary and upper secondary formations, and, with the exception of the hill of Gipsberg, which seems to have been upheaved from far below the surface, have apparently been deposited from water in regular strata. Several species of chalk are found, above which is an extensive bowlder formation traversed by seams of lignite, and above this again beds of clay and marl are spread over a large part of the country. The soil is almost wholly alluvial, and in the E. part of Jutland and in the duchies is covered with rich vegetable mould. The N. and W. parts of Jutland, however, are sandy wastes, and for a distance of 200 m. along the coast there is an almost continuous line of sterile flats called *klitten*. The larger islands are fertile and characterized by a rich marshy loam, interspersed with occasional tracts of moor. The climate, owing to the low and almost insulated position of the country, is temperate and humid, the cold being greatest in Jutland. The winters are seldom severe for that high latitude, the mean temperature from November to March ranging from 7° to 25° F., though in January and February the thermometer sometimes falls 22° below zero. From June to the middle of August the mean temperature ranges from 59° to 73°, and the extreme heat is 89°. The shortest day is 6½ hours, and the longest 17½. The weather is very variable, but thunder storms are rare. Violent winds, rains, and fogs frequently occur, and drought is seldom felt. The mineral products are of little value, and are confined principally to fullers' earth, potters' and porcelain clays, freestone, and salt. Coal mines were formerly worked in the island of Bornholm, but are now abandoned; there is one establishment for making salt in Holstein; peat is abundant, and amber is collected on the shore of the German ocean. The fine forests which once adorned Denmark have decayed or been cut down, and of the scant woods which remain, chiefly on the E. coast of Jutland and in the island of Funen, ¼ is the property of the crown. Pine, beech, oak, and birch are the principal varieties of timber. The alimentary crops are wheat, rye, oats, barley, buckwheat, peas and beans, potatoes, other common vegetables, and fruits. The average annual yield of wheat is estimated at 3,200,000 bushels, rye 1,280,000, oats 3,600,000, barley 16,000,000, buckwheat 1,000,000, peas and beans 2,000,000, and potatoes 2,250,000 tons. About 450,000 lbs. of tobacco are produced, 2,500 cwt. of hops, and large quantities of rapeseed, hemp, and flax. A great proportion of the land is devoted to pasturage, and the rearing of horses and cattle forms an important branch of industry, and a considerable source of national wealth. Cattle are valued chiefly in connection with the dairy, from which is drawn the principal revenue of the farm. The breeds of horses are excellent for cavalry or for draught; sheep are kept more for their milk (of which butter is made) and their flesh than for their wool; there are 3 species of swine, and poultry of all kinds abound. The rivers and fiords furnish valuable fish, among which are the herring, cod, mackerel, and salmon.—The inhabitants of Denmark are of 5 distinct races, viz.: 1, the Danes, who occupy Jutland, Seeland, and part of Schleswig; 2, the pure Germans of Holstein, Lauenburg, and the greater part of Schleswig; 3, the Frieslanders, who dwell on the W. coast of Schleswig, and the small islands in the German ocean; 4, the Angles, inhabiting the regions between the Flensburg fiord and the Sley; and 5, the Norwegians of Iceland and the Färöe islands. Of these, the first comprise nearly ⅔ of the entire population. About ⅔ of the inhabitants use the Danish language, and the rest speak German. The Danes are strong, well made, patient, industrious, and contented. They have regular features, blue eyes, and light hair. They make bold seamen and brave soldiers, but have little enterprise. The proportion of paupers is 3 per cent., only ⅓ of that of Holland. About 60 per cent. of the population are engaged in agriculture, which is conducted with great industry; but from the subdivision of land into small farms, the possession of a few acres being the summit of a Danish husbandman's ambition, it is seldom carried on with appliances requiring much outlay. The art of husbandry, however, is steadily progressing, and Holstein and Lauenburg, notwithstanding heavy dues and taxes, are tilled with considerable skill. About ⅓ of the available land are devoted to useful purposes. Both agricultural and industrial resources are more fully developed in the duchies than in Denmark proper, and Holstein is probably the most flourishing part of the whole kingdom. Manufactures generally are in a backward state; they comprise silk, linen, woollen, and cotton goods, leather, lace, gloves, straw hats, sail cloth, thread, paper, soap, glass, earthenware, plated ware, iron ware, saltpetre, gunpowder, arms, refined sugar, tobacco, soda, potash, brandy, and malt liquors. The peasantry make most of their wearing apparel and domestic utensils with their own hands.—Lying between two seas, in easy communication with all the maritime nations of Europe, commanding the entrance to the Baltic, abounding in good harbors, and possessing a large body of hardy and excellent seamen, Denmark enjoys unrivalled facilities for commerce, and beside its own import and export traffic, conducts a large carrying trade for other countries. The principal articles of export are grain, butter, cheese, brandy, smoked and salted meats, horned cattle, horses, skins, hides, whale and train oils, fish, cider down, woollens, tallow, and bristles. Among the imports are wines, salt, drugs, silk, wools, cotton, cotton fabrics, timber, coal, iron, colonial produce, spirits, glass, flax, hemp, coffee, rice, tobacco, and whalebone. The value of imports from all countries in 1856 was

68,325,291 rix dollars ($37,373,934 U. S. currency), and that of exports 34,535,059 rix dollars ($18,880,677). The following table shows the share in the above amounts of the countries chiefly concerned in the Danish trade:

Countries.	Value in rix dollars.	
	Imports.	Exports.
Hamburg	23,051,062	9,181,784
Great Britain	12,089,628	8,442,604
Sweden and Norway	6,561,412	5,825,150
Russia	3,516,191	289,609
Lübeck	2,511,031	993,479
Prussia	1,771,445	1,727,230
South America	2,184,593	25,111
North America	107,857	29,232
West Indies (Danish and foreign)	3,457,072	293,595

The entrances at the various ports were 71,361 vessels of 1,719,643 tons, and the clearances 71,094 vessels of 1,649,339 tons. Until about the close of the 18th century the commerce of Denmark was oppressed by legislative enactments which tended more to the immediate emolument of the crown than to the general prosperity and wealth of the kingdom. Imported manufactures had to be sold at auction by the revenue officers, and the importer received the proceeds after the duties had been deducted. These duties were excessively high; monopolies were often granted to rich companies for trading even with the colonies; and heavy taxes were also laid on the domestic traffic between different provinces. But toward the year 1797 a more liberal policy began to prevail; the customs regulations assumed the form of a more permanent tariff; many of the most burdensome restrictions were taken off, and commercial treaties have since been made on a basis of reciprocity with the United States and other nations. Connected with the commercial regulations is the question of the Sound dues, which a few years ago acquired considerable prominence. The Sound is a strait leading from the Cattegat into the Baltic, between the island of Seeland and Sweden, its width at the narrowest part being about 3 m. Both coasts were once owned by Denmark, which has consequently from a forgotten period claimed the right of imposing tolls on all vessels navigating this passage. This exaction was from time to time resisted by various nations, and several obtained exemption either by payment of an annual commutation or by treaty, but at the congress of Vienna the Danish claims were generally admitted. Subsequently the question of their abolition was agitated. A meeting of representatives of several European powers was held in Copenhagen in the first months of 1856, and Denmark agreed to accept as compensation for the removal of the tolls the sum of 35,000,000 rix dollars ($19,145,000 U. S. currency), payment of which was to be apportioned among the various states interested in the trade of the Baltic. The proposal was accepted by the United States as well as other powers, and a convention between the former and Denmark was signed in Washington, April 11, 1857. Great Britain paid 28.90 per cent. of the indemnity, Russia 27.80 per cent., Prussia 12.60 per cent., and the United States 2.03 per cent. or $393,011.—The domestic shipping trade of Denmark is very large, and as no inland point is much more than 40 m. from the sea, most of the internal communication is carried on by water. There are 4 large canals, one of which, called the canal of Kiel, from the town of that name on the Kieler fiord, to a navigable part of the Eider, 23 m. distant, connects the Baltic with the German ocean, and is navigable by vessels of 150 tons. It has 7 sluices, and the same number of bridges. The Stecknitz canal, in Lauenburg, completes a chain of communication between the Baltic and the Elbe. The Daneskiold canal is in the island of Seeland, and that of Odense connects the capital of Funen with the sea. There are 3 railways, viz.: from Copenhagen via Roeskilde to Corsoer on the Great Belt; from Altona, opposite Hamburg, to Kiel, with branches to Glückstadt and Itzehoe, and to Rendsburg; from Toenningen to Flensburg, with a branch to Rendsburg. The high roads, which are wide, macadamized, and well kept, are under the care of a corps of royal engineers.—The religion of Denmark is Lutheran, but all creeds are tolerated. The national church is governed by 11 bishops nominated by the crown. It embraces almost the whole population, and has at Copenhagen a missionary college founded in 1777, and a seminary for approved candidates in divinity, beside 12 religious communities in various parts of Denmark proper and the duchies. The Jews number 4,143; Mormons, 2,044; Baptists, 1,548; Roman Catholics, 1,151; Anglicans, 140; others not of the established religion, 1,555. Great attention is paid by government to education, and there is in the ministry a department of public worship and instruction, under which are superintendents for the several divisions of the kingdom. The ministers appoint teachers and regulate the course of studies in the public schools, of which some are free. Every village has at least one school, and there are moreover 30 or 40 gymnasia, and several normal seminaries. Copenhagen and Kiel have their universities, the former attended by 1,200, the latter by 300 students. There are asylums for the deaf and dumb, and literary and scientific institutions of various kinds are established throughout the country. Every child between the ages of 7 and 14 is obliged by law to attend some school, and it is rare to meet a Danish peasant, however poor, who cannot read and write. The number of periodicals is large in proportion to the population.—The government of Denmark is a hereditary constitutional monarchy. By the constitution of Oct. 2, 1855, the king must confess the Evangelical Lutheran religion, be at least 18 years of age, and give his oath to the privy council of state that he will maintain the fundamental laws. His dignity is inviolate, and all his ordinances must be countersigned by the minister of state, who is appointed by him, and who is responsible to the king or diet before

the supreme court of the state. The king appoints officers, declares war, and concludes treaties of peace, alliance, and trade; but he cannot alienate the territory or essentially modify the political relations of the state without the consent of the diet. The legislative power is divided between the king and diet, which consists of 80 members, 20 of whom are appointed by the king, 30 by the representative assemblies of different portions of the state, and 30 by election of the citizens. It sits once in 2 years in Copenhagen; its president and vice-president are appointed by the king; and its proceedings are either in the Danish or German language. It proposes laws, which are not valid till sanctioned by the king; and taxes cannot be imposed without its consent. The supreme court of the kingdom consists of 15 members, 5 of whom are chosen from the diet, and 10 from the high courts of the country. Personal freedom, freedom of the press, religious freedom, the inviolability of private residences, and the right of public assembly, are secured. The highest court of the kingdom is the privy council of state, consisting of 5 ministers for the entire monarchy (3 for Denmark, 1 for Schleswig, and 1 for Holstein-Lauenburg), and presided over by the king. The administration of the government is carried on by 5 ministries: of foreign affairs, of interior affairs, of war, of naval affairs, and of the finances. The estimated revenue of the whole kingdom for the fiscal period of 2 years ending March 31, 1860, is $18,563,650; and the expenses, of which $875,200 were for the civil list, were estimated at the same sum. The national debt, April 1, 1858, was $62,942,196. The numerical strength of the army on a peace footing is nominally 40,000, but only 10,000 men are actually employed. The navy comprises 4 ships of the line, 9 frigates, 7 corvettes, 4 brigs, 3 schooners, 17 transports, and 78 other vessels of different kinds. The capital and principal town is Copenhagen.—There is no authentic account of the early settlement of Denmark, but the Cimbri seem to have occupied it toward the end of the 2d century B. C. In A. D. 250 the country was occupied by the Goths under the half fabulous Odin or Wodin, whose son Skiold is mentioned as first monarch of Denmark. During the 8th and 9th centuries the Danes began to acquire renown by their maritime expeditions, in which they invaded England and Scotland and conquered Normandy. In the 9th century the different states of Denmark became united under one monarch, and in 1000 and 1014 Norway and the greater part of England were added to the growing kingdom. In 1016 Canute, under whom Denmark became Christian, completed the conquest of England, where his race continued to rule until 1042. The feudal system was introduced into Denmark in the 12th century, and contests took place here between the sovereign and the barons similar to those which convulsed England during the same period. In 1387 Margaret, styled the northern Semiramis, widow and successor of Haco, king of Norway, and daughter of Waldemar III., a descendant of Canute, mounted the thrones of Denmark and Norway, and, claiming the Swedish crown also in right of her husband, vanquished a competitor in that country, and united the 3 powers by the compact of Calmar in 1397. But the Swedes always resisted this union, and after a series of contests, in which they were finally led by the famous Gustavus Vasa, seceded from it in 1523. During this troubled period the population dwindled, the seas swarmed with pirates, commerce fell away, and incessant quarrels between the king and his nobles or the latter and the clergy added to the disasters of the kingdom. After the extinction of Margaret's line in 1439, and the deposition of Eric VII., the states elected Christian, count of Oldenburg, king, from whose grandson, the ill-famed Christian II., the crown passed in 1523 to Frederic I., duke of Schleswig and Holstein. Frederic's son, Christian III., united these 2 duchies to the crown 11 years later, and divided the greater part of them between his brothers, a measure which caused a long series of disturbances. In his reign a code of laws called the "Recess of Kolding" was promulgated. In the 17th century Christian IV. sided with the Protestants in the great religious war, but was worsted by Wallenstein in 1626–'7, and compelled to sue for peace. Eleven years later commenced the first of several wars with Sweden, which lasted until 1645, and cost Denmark several extensive provinces. A few years later the Swedes under Charles Gustavus overran Holstein, crossed the frozen Belt into Funen, took Odense, and invested Copenhagen, but were successfully opposed by Frederic III. In 1658 they again besieged Copenhagen, and continued their operations until the death of Charles Gustavus in 1660, when Denmark secured a peace by the sacrifice of territory. The same year was marked by the restriction of the power of the nobility and the extension of the royal prerogative. The succession, too, which had formerly been to some extent elective, was by the commons, who sided with the king in his struggle with the nobles, acknowledged hereditary in the family of Frederic. A new war with Sweden terminated in 1669, and another was occasioned in 1699 by an attempt of Frederic IV. to invade the dominions of the duke of Holstein, an ally of Sweden. Copenhagen again became the seat of war, when the Danes, terrified by the energy of the young Charles XII., bought peace by the payment of a sum of money, and remained neutral until the disasters of the Swedes in the Ukraine tempted them to renew hostilities. The war lasted until the death of Charles XII. in 1718, after which Sweden began to decline and Denmark to pursue the wise policy of peace. By a defensive alliance, however, with Russia, Prussia, and Sweden in 1801, she involved herself in a quarrel with England, suffered severely in the naval battle off Copenhagen, and lost her colonies in the East and West Indies,

which were restored to her, however, by the treaty of peace which followed. In 1807, Napoleon having threatened to make Denmark take part in the war against England, the latter sent a large armament to the Baltic to compel the surrender of the entire Danish navy. The British forces landed near the capital, and soon forced the government to give up its fleet. A war of exasperation naturally followed. Hostilities were carried on by sea, partly at the entrance to the Baltic, partly off the Norwegian coast, the Danes fighting with spirit, and sometimes with success, and both parties suffering severely in their commerce. Denmark again lost her West India islands, and again recovered them on the peace concluded in 1814, but Heligoland and her fleet remained in the possession of her enemy. It was stipulated that Norway should be ceded to Sweden, as an equivalent for Pomerania, which province Denmark had received from Sweden, and which in 1815 she made over to Prussia, in exchange for the duchy of Lauenburg and a large sum of money. Serious complications now arose between the crown and the duchies. The population of Holstein especially sympathized more with the German empire than with Denmark, and an antipathy of races sprang up, which various political measures deepened into an alarming disaffection. A prominent subject of complaint was the royal succession. The expected extinction of the male line in the reigning family afforded a prospect of rendering the duchies independent of the Danish crown, and the project of annexing Schleswig to the German confederation was openly advocated in the provincial assembly. In this state of affairs the king issued letters patent, proclaiming that with the exception of certain parts of Holstein the laws of succession should be uniform in all parts of his dominions, the effect of which was to add greatly to the popular discontent; and when the present monarch, Frederic VII., mounted the throne in 1848, the duchies resorted to arms, and appealed to their German brethren for assistance. They were aided by Prussia, who, being pressed by the revolutionary movements of Germany, sent a large force into Schleswig, drove out the Danes, who had found little difficulty in putting down the insurgents there, and followed up her success by an invasion of Jutland. Meanwhile England and Russia interfered; an armistice was signed, Aug. 26, on terms highly displeasing to the duchies; and although Prussia undertook a second campaign in the spring and summer of 1849, Schleswig and Holstein thenceforth relied mainly on their own resources. They placed their army under Gen. Willisen, a brave and able soldier, and maintained a spirited resistance, until signally defeated at Idstedt, July 23, 1850. Prussia had now definitely withdrawn from the contest, and with Austria gave her influence on the side of Denmark. The mediating powers prepared to occupy the strongholds of the country; the duchies were forced to submit, and the question of succession was referred to a convention of the plenipotentiaries of the principal powers of N. and W. Europe. By a treaty signed by these representatives, May 8, 1852, the succession was settled upon Prince Christian of the Sonderburg-Glücksburg line and his male heirs; an arrangement which gave great dissatisfaction both to Denmark and to Schleswig and Holstein, as in the event of the extinction of this family Russia reserved the ancient right of succeeding to a portion of the duchies. The new order was announced to the diet in Oct. 1852, and was at once rejected. It met the same fate before a new assembly in Feb. 1853; but the king, feeling himself pledged to the foreign powers, resolved upon a second dissolution, and the measure was finally adopted by a third parliament, June 24.

DENMARK, Language and Literature of. The Danish language (*Danske Sprog*) is a sister of the Swedish and Norwegian, and a descendant of the *Danska* or *Norræna Tunga*, northern tongue, as the Sagas call what became the Icelandic, which is also called in Danish *gamle Nordiske*, the old northern language. After the separation of its offspring, the *Norræna* received the name of *Islenzka*, from Iceland, discovered in 860 and settled in 870, by Norwegians. The Dansk, Svensk, Norsk, with their still hale and vigorous mother in Iceland, constitute a group collateral to that of the Germanic or more southern tongues; both groups issuing from one powerful and deeply rooted trunk. Both Northmen and Germans are traceable to the regions about the Euxine, to Thrace, and eastward as far as the region of the Oxus river, where they had been connected with other branches of the Aryan family, whose most developed eastern language was the Sanscrit. Relations with the Lettic and Latin, with the Doric and Æolian dialects, and with adventitious Armenian, Finnic, and other elements, cannot be discussed here. The Mœso-Gothic, Norræna, and Anglo-Saxon are the 3 ancient branches of the Scandinavo-German stem. The branches of the Norræna are, in the order of their affinity to it, the following: that on the Färöe (sheep) isles, that of the Dalarne or dales of the Swedish highlands, the Svensk, the Dansk, and the Norsk, which last differs by a peculiar accent from the Danish. This stands in a similar relation to the Icelandic with that of the Italian to Latin; having become weaker, simpler, more vocal, and shorn of most of the original grammatical forms. It is also most affected by German influence.—Beside the literary language in Denmark proper, there are two groups of popular dialects, the first of which consists of the idioms of northern Seeland, of southern Seeland, of Fyen (Fünen), of Falster, and of Langeland, together with the very peculiar idiom of Bornholm; while the second group comprehends the North Jutic or Normano-Jutic in the N. and W. region of the peninsula, and the South Jutic or Dano-Jutic in Schleswig on the coast of the Little Belt. The dialect of Mors, near the N. coast of Jutland, is very peculiar, and that of Schonen has

become Svio-Gothic since the commencement of the 17th century. Owing to the extraordinary richness of the Icelandic in roots, the Danish abounds in compact and intuitive words for all natural objects, especially in nautical and economical, also in concise ascetic and law terms. This great store is increased by the modifying influence of prefixes and suffixes, and by the Germanic facility of combining simple words into clearly intelligible compounds. The Danish is, however, more mild than the German, having fewer aspirated and hissing sounds. Germanic elements were introduced into it in two ways, to wit: Anglo-Saxon, by the Danish invasions of and rule (Canute the Great, 1016–'35, Hardicanute, 1035–'42) in England, whence missionaries were also sent to convert the Danes; German, in consequence of the warlike expeditions of the Waldemars (1st, 1157–'82; 2d, 1202–'41; 3d, 1340–'75, &c.) and of other Danish kings, of the wars and commerce with the Hansa, of the rule of German dynasties (Eric VII. of Pomerania, Christopher of Bavaria, Christian I. of Oldenburg, 1448, and his successors), also in consequence of the journeys of Scandinavians during the 13th century and afterward, and their studies in German universities. Luther's reformation, however, exerted the greatest influence on the Danish language; although it was, independently of this event, rapidly rising in vitality and importance, probably from the same predisposing circumstances which gave birth to the general reawakening of the European mind. This is evident from Pedersèn Jertegn's *Postille* of 1518, and his version of the New Testament in 1529, both of which exhibit an energy, fulness, and flexibility of speech, that cannot be ascribed to the religious metamorphosis of the century. Obstacles to the free expansion of the national language were found in the use of the German as the court language on the one hand, and in that of the Latin as the literary language on the other. Toward the close of the 17th century the Danish, however, began to flourish again, thanks to the fashion of writing hymns in it. The inroads of French taste soon blasted this tender vegetation, and overwhelmed the language with Gallicisms in words and phrases. In the 2d half of the 18th century, German culture, becoming predominant, overcame that evil, aided by the reformatory efforts of native poets, such as John Ewald and others. The independent development of the Danish into a literary language, in the beginning of the 19th century, is due to the revival of ancient Norsk studies, as well as to its masterly management by Baggesen, Oehlenschläger, Grundtvig, &c.; so that it now stands in the front rank among the mildest and richest languages of Europe. It is spoken not only in Denmark, but also exclusively in the islands and in Jutland, and in a part of Schleswig. It is used in the churches among the Esquimaux in Greenland; as a business language on the isles of St. Croix, St. Thomas, and San Juan, and in the former Danish factories in Guinea. Well educated Icelanders and Norwegians also speak Danish.—In time the ancient 16 runes (*Runir*), brought from Thrace, were supplanted by the German angular alphabet, which in its turn was superseded by the Roman characters. At present, the Danish letters, according to Erasmus Rask and other authorities, are 27 in number, as follows: *a*, *i*, *o*, *u* (all pronounced as in German and Italian), *e* (both é and è French), *y* (u French, ü German); *b*, *c*, *f*, *k*, *l*, *m*, *n*, *p*, *t*, *v* (all as in English), *d* (of 4 kinds: final after a vowel, like the English *th* in birth; between vowels very soft; final after a consonant, as in English; after *l*, *n*, *r*, almost silent, rendering those liquids nearly double, as in *vold*, full, voll), *g* (always hard, as in go, give), *h* (always aspirated), *j* (like the English *y* in yes, aye), *r* (always rough), *s* (always hard as in son), *x* (always *ks*); the peculiar 4 vowels: å or *aa* (like English *a* in warm, or *oa* in broad), *æ* (like *ai* in sail, German *ä*), *ø* (French *eu* in *peu*), *ö* (French *eu* in *veuve*, *œu* in *cœur*). Diphthongs: *aj*, *ej*, *oj*, *uj*, *öj*; *av*, *ev*, *iv*, *ov*, *æv*, *øv* (the *j* like our *y*, and both *j* and *v* softer than before vowels, as *ja*, *va*, &c.); improperly so called, since they rather form impure syllables. The combinations *kj*, *gj*, somewhat resemble the French *mouillé* sounds, the *j* (our *y*) being very mild and liquid. The Danes have not the sounds of our *j* in jar, *ch* in chat, *sh* in shell, *th* in thick.—The accent of genuine Danish words is mostly on the radical vowel; but in many foreign words it affects the last syllable, as in French. The grammatic forms are less explicit than in the Icelandic. The definite article of adjectives is *dèt*, neuter or objective, *dèn*, common or personal, *dé*, plural; thus: *dèt skönne Land*, the fine country; *dèn gamle Stol*, the old chair; plural, *dé gamle Stole*. It is suffixed to substantives, after dropping the *d*; thus: *Land-et*, *Stol-en*, the country, the chair; but it is *ne* or *ene* in the plural, as *Lande-ne*. The indefinite article, derived from *eet*, *een*, a, one, is *et*, *n*, *en*; *e. g.*: *et Land*, a country, *en Stol*, a chair; *Lande*, countries, without the article. The declension of substantives is confined to the suffix *s* or *es* for the genitive of both numbers. The plural is indicated in 4 ways, viz.: by change of the radical vowel (as in English mouse, mice), as *Sprog*, language, *Sprøg*, languages; or by suffixing *e*, as *Land-e*; or by *er*, as *Sag*, thing, *Sag-er*, things; or by both metaphony and the suffix *er*, as *Bog*, book, *Bög-er*, books. Adjectives become neuter by the suffix *t*; thus: *stor*, Latin *magnus* and *magna*; *stort*, *magnum*; plural *store*. The comparative degree is formed by adding *re* or *ere*; the superlative by *ste* or *este*; *e. g.*: *et lærd-ere Fruentimmer*, a more learned woman; *den hvideste Farve*, the whitest color. Some of the irregulars are: *ung-t*, *yngre*, *yngst*, young, younger, youngest; *lidet*, *mindre*, *mindst*, little, lesser, least; *meget*, *mere*, *meest*, much, more, most; *mange*, *flere*, *fleest*, many, more, most; *god-t*, *bedre*, *bedst*, good, &c.; *ond-t*, or *slem-t*, *værre*, *værst*, evil or bad, worse, worst; *gammel-t*, *ældre*, *ældst*, old, &c.; *nær-t*, *nærmere*,

nærmest, near, nearer, next; *ud*, *ydre*, *yderst*, out, utter, utmost, &c. The numerals are: *eet*, *een*, 1; *to*, 2; *tre*, 3; *fire*, 4; *fèm*, 5; *sex*, 6; *syv*, 7; *aatte*, 8; *ni*, 9; *ti*, 10; *èllève*, *tolv*, *tretten*, *fjorten*, &c.; *tyve*, 20; *tredive*, 30; *fyrretyve*, 40; but the following 4 decades are peculiar: *halvtrés* or *halvtrésindstyve* (half 60 and 20) for 50; *tres* or *tresindstyve* (3 times 20), 60; *halvfjers* or *halvfjersindstyve* (half 80 and 20, only equal to 60), used for 70; *firs* or *firsinstyve* (4 times 20), 80; *halvfèms* or *halvfemsindstyve* (also unaccountable literally), 90; *hundrede*, 100; *tusende*, 1,000. *Tres*, *firs*, and *fèms* being taken for 60, 80, 100, supposing them to be doubled, the *halvtres*, *halvfjers*, and *halvfèms* are taken for 50, 70, and 90, as the decades halfway toward 60, 80, 100. The ordinals are: *det*, *den første*, the first; *det andet*, *den anden*, the other, or 2d; the rest are formed by suffixing *de* or *te*. Time (French *fois*) is *Gang*, as *anden Gang*, the 2d time, &c. The personal pronouns are: *jeg*, I; *mig*, me; *du*, thou; *dig*, thee; *han*, he; *hún*, she; *hans*, his; *hendes*, (of) her; *ham*, him; *hende*, her; *vi*, we; *vores*, ours; *os*, us; *I*, you; *eders* (*jer*), yours; *eder* (*jer*), you; *sig*, himself, herself, themselves. The demonstratives *de*, *deres*, *dem*, are used for they, their, them. *Selv*, self, selves; but *han self*, himself, means also master of the house, *hún selv*, herself, the house-lady, &c. The possessives are: *mit*, *min*, plural *mine*, my, mine; *dit*, *din*, *dine*, thy, thine; *sit*, *sin*, *sine*, its, his, her, their; *vort*, *vor*, *vore*, our, ours; *jer*, *jere*, your, yours. The demonstratives are: *det*, *den*, genit. *dets*, *dens*; plural *de*, *dem*, genit. *deres* (also used in conversation with one or more persons, like the German *Sie*, *Ihnen*, *Ihr*, you, your); *dette*, *denne*, *disse*, this, these; *hint*, *hin*, *hinne*, that, those; *saadant*, *saadan*, *saadanne*, and *sligt*, *slig*, *slige*, such. The relatives are: *der*, who; *som*, who, whom, that; and also interrogatives: *hvem*, who; *hvad*, what; *hvilket*, &c., which; *hvordant*, &c., how. Indefinite pronouns: *der*, it, there, also with passive verbs; *man* (also German, the French *on*), one, some one; *noget*, *nogen*, plural *nogle*, some, any; *somme*, some people; *intet*, *ingen*, nobody; *alt*, *al*, plural *alle*, all; *hvert*, *ethvert*, every; *hinanden*, each other; *hverandre*, one another. The theme of the verb is the imperative; the conjugation comprehends 2 orders subdivided into 3 classes each, according to the form of the past tense.

I.—Simple Order (present and past indicative, and participle past).

1st conj.
1. *Klager*, complain, *klagede*, *klaget*.
2. *Brænder*, burn, *brændte*, *brændt*.
3. *Følger*, follow, *fulgde*, *fulgt*.

II.—Complex Order.

2d conj.
1. *Beder*, beg, pray, *bad*, *bedet* or *bèdt*.
2. *Faar*, receive, *fik*, *faaet*.
3. *Lader*, load, *lod*, *ladet*.

3d conj.
1. *Slipper*, escape, slip, *slap* (plur. *sluppe*), *sluppet* or *sluppen*.
2. *River*, tear, rip, *rev* (plur. *reve*), *revet*, *reven*.
3. *Byder*, invite, *bød* (plur. *bude*), *budet*, *buden*.

The persons are distinguished by pronouns or other words; even the numbers are often alike or confounded in common speech, even when distinguished in writing. The passive voice admits of no distinction of numbers or persons, but merely of tenses and modes. It is, however, distinguished from the Germanic dialects by having a simple form in the present and past, by means of the suffix *s* or *es;* thus: *Jeg elskes*, I am loved; *jeg elskedes*, I was loved (from *jeg elsker*, I love; *jeg elskede*, I loved or have loved). The infinitive is sometimes denoted by *at*, to; thus: *at elske*, to love; the participle present by *nde* final. There are also deponent verbs, analogous to those of the Latin. The auxiliary or periphrastic verbs are: *skal*, plural *skulle*, shall; *skulde*, should, &c.; *vil*, plural *ville*, will; *vilde*, participle *villet*, would; *har* (from *haver*), have; passive *haves*, be possessed by; *er*, am; *var*, was; *vær*, be; *faar*, get; *maa*, may, must; *kan*, can, may; *tör*, dare, need; *lader*, let, cause to, &c. *Bliver*, remain, forms the passive sense; *e. g.: bliver fundet*, is found. *Har* and *faar* with an infinitive also express duty: *Jeg har at sige Dem*, I have to say (to) you. The Danish has more varieties of circumlocution than the English, and its auxiliaries are less defective. The syntax resembles that of the English. The definite article may be omitted; but it is sometimes used where the English omits it; thus: *Natur-en*, nature; *Liv-et*, life, &c. The noun which governs a genitive is usually without the article; *e. g.: Verdens Alder*, the age of the world; *et Legemes* (body) *Tyngde*, the gravity of a body; *Mange Vandes Lyll* (many waters loud), the sound of many waters. The preposition *af* is omitted with quantities, as *en Mængde Mennesker*, a crowd of people; unless the thing measured be definite, as *en Skæppe af den ny Hvede*, a bushel of the new wheat. Adjectives follow only surnames, as *Knud den Store*, Canute the Great. *De*, when used instead of thou, takes the singular of the verb, as *Gaar De paa Komedie?* Do you go to the theatre? The active participle in *ende* final is never used as a gerund, but mostly as an adjective, and the English participle in *ing* must often be rendered by the infinitive; thus: *det er næppe vord at se*, it is scarcely worth (to see) seeing. Prepositions sometimes must be translated by other words; thus: *i*, in; *i Gaar Aftes* (in yester eve's), last evening; *i Morges*, this morning; *i Aar*, this year; *i Morgen*, to-morrow, &c. *Paa*, on, upon: *paa Söndag*, next Sunday. *Ad*, to, up, of: *ad Aare*, next year. *Om*, for, about: 5 *Rigsbankdaler om Maaneden*, $5 a month, &c. We subjoin a specimen of Danish construction:

En Købmand módtog en Fem-shillings-Mynt
A merchant received (took) a five shilling coin
der ikke syntes ham at være ægte, og
(mint) that not seemed him to be good, and
spúrgde dèrfor en Sàgfører, som gik forbi
asked therefor a lawyer (sake-farer), who went by
hans Butik, hvad han meente om den.
his shop, what he thought (meant) about it.
Denne besaae den opmærksomt,
This (he) looked at (be-saw) it attentively (upmarksome),
forsikrende den var gód, pùttede den til
assuring (for-securing) it was good, put it to

sig, og forlangte
himself (Lat. *secum*, in his pocket), and demanded (for-
endnú 1 Shilling 8 Pence, da de engelske
longed) beside 1 shilling 8 pence, since the English
Love have fastsat en Taxt af 6 Shilling 8
law had fixed (fast-set) a tax of 6 shillings 8
Pence for et hos en Sagfører indhentet
pence for one of a lawyer received (into-handed)
Raad.
advice (Ger. *Rath*).

For a thorough study of this admirable language the following works may be consulted: Peder Syv, *Simbriske Sprog* (1663), the Cimbric being the basis of the Danish orthography; Erasmi Pontopidani *Grammatica Danica* (1668); Otho Sperling, *De Danicæ Linguæ Antiqua Gloria* (1694); J. Baden, *Roma Danica, sive Harmonia Linguæ Danicæ cum Latina* (1699); Iljösgaard made the system of 10 vowels, (1743); J. H. Schlegel on the advantages and defects of the Danish language (in Danish, 1763); Erasmus Rask's grammar for Englishmen (1830 and 1846). Dictionaries: H. van Alphelen, "Royal Dictionary" (in Danish, 1764–'72), and *Dictionnaire Français-Danois et Danois-Français* (1772–'6, 3 vols.); *Dansk Ordbog* (Danish Wordbook), under the direction of the society of sciences, by Möller, Viborg, Thorlachus, Müller, &c. (1793–1825, 5 vols.); Björn Halderson, lexicon, Icelandic, Latin, and Danish, edited by R. K. Rask (1814); Danish-English, by Ferral (1845–'54); Dansk ancient glossary, by Molbech (1853); history of the language, by Petersen (also Swedish), Molbech.—During the middle ages there appears to have been no Danish literature, and from the general Scandinavian literature, of which the ancient popular and heroic songs, or Vjämpeviser (collected for the first time by A. S. Vedel, 1591; latest edition by Rasmussen and Nyerup, 1821), are the most noteworthy remains. The codes of the ancient Danish kings, dating back to the 12th century, the "Book of Medicine," by Henrik Harpestreng, supposed to have been written in the 13th century (latest edition by Molbech, 1826); a "Chronicle in Rhyme," written in the latter part of the 15th century (ed. by Molbech, 1825); and Peder Lolle's collection of proverbs, probably dating from the earlier part of the 16th century (ed. by Nyerup, 1828), are the only extant relics of the Danish literature of the middle ages. The separation of Denmark from the united Scandinavian empire (1523), and the reformation (1527–1537), wrought as great a change in the literary as in the political development of the kingdom. The reformation introduced into Denmark not only German intellectual culture, but at the same time the classical study as opposed to the dry scholasticism of the middle ages. From that time the literature of Denmark began to emulate that of the other European nations. Christian Pedersen's first translations into Danish of the New Testament and the Psalms (1529), raised the Danish to a national language. Its musical softness as well as its clearness and perspicuity in the expression of abstract ideas favored its application to poetical effusions in preference to prose writing, and even now the prose writing of Denmark is hardly equal in value to its poetry. Thus, during the 16th and 17th centuries, the principal Danish works were poems, mostly of a religious character. Anders Arreboe (1587–1637) may be called the father of Danish poetry. Anders Bording (1619–1697), Thomas Kingo (1634–1723), the author of a number of excellent hymns, and Jörgen Sörterug (died 1722), who revived the old Scandinavian epic in a true national spirit, are the most prominent among the many writers of that time whose names are preserved in the history of Danish literature. A more popular kind of poetry was cultivated by Peder Dass (died 1708), Jens Sten Schested (died 1695), and Povel Inul (died 1723). Dramatic versions of biblical history were a favorite subject of the Danish poets. Of this class of productions, *Kong Salomons Hylding*, by Justesen Ranch (1585), *Samsons Fängsel* (1633), *Karrig Nidding* (1633), and *Susanna*, by Peder Hegelund (1578), were the most successful. As a humorous poet, Töger Reenberg (1656–1742) distinguished himself by his ready wit and sound moral sentiment. Researches into the earlier times of Scandinavian history were prosecuted with great eagerness by Danish scholars, and some of their historical writings are of great value even now, though they partake more of the character of chronicles than of modern philosophical historiography. Arild Hvitfeld's *Danmarks Riges Krönike* (1595–1604), Lyschander's *Danske Kongars Slägtebog* (1622), and Arent Berndtsen's *Danemarks og Norges frugtbare Herlighed* (1656), deserve to be mentioned. Northern archæology was cultivated by Gudmund Andreæ, Runolf and Arnin Johnson, Thomas Bartholin, Peder Rosen, Broder Bickerod, and Peder Syv. Still, the poetical and historical writings of that period of Danish literature were not sufficiently conspicuous to attract the attention of other nations. During the 17th century Denmark's fame in the republic of letters was principally established by such scholars as Tycho Brahe, the great astronomer (1546–1601), Kaspar Bartholin (1585–1630), Thomas Bartholin (1616–1680), the greatest anatomist of his time, Christian Longomontanus (died 1647), Ole Römer (1644–1710), Holger Rosenkranz (died 1642), &c. The classical period of Danish literature was inaugurated by Holberg (1684–1754), who, as a dramatic poet, a historian, a writer of fiction, and a popular philosopher, held a prominent place in the literary history of the last century. A strong, bracing realism pervades his productions. Most of his works have been translated into German, and the near affinity between the literature of the two countries having become evident, a close reciprocity ensued. Johannes Ewald (1743–1781), a lyrical poet and dramatist of great merit, holds a relation to Holberg similar to that of Schiller to Goethe; both their names stand as representatives of what has been termed the golden era of Danish literature. Next to them the following authors

of that period have justly obtained an extensive popularity: Joh. Herrmann Wessel (died 1785), Johann v. Wibe (died 1782), Frederik Wilh. Wiwet (died 1793), Joh. Clemend Tode (died 1806), Enevold Falsen (died 1808), and Christian Olufsen (died 1822), by their comedies, none of whom, however, rank with Peder Andreas Heiberg (1758–1841); Ole Johann Samsöe and Levin Christian Sander, by their excellent tragedies; Thomas Thaarup, by his vaudevilles; the brothers Friman and Joh. v. Brunn (died 1816), by their lyrical poems; Jens Zetlitz and the brothers Trojel, by humorous songs; Christian Pram by his romantic epic *Stärkodder* (1785); Wilh. Helf and Christian Falster (died 1752), by their satirical poems; Hans Adolf Brorson by his hymns; Johann Nordahl, by his patriotic songs; and Jens Baggesen, the favorite songster of the nation, by his lyrics and his comic epics. A new impulse was given to the national literature by Adam Oehlenschläger (1779–1850), who holds an equally conspicuous place in the literature of his own country and in that of Germany. Imbued with the spirit of the romantic school, he sought in the primitive history of his country for those popular traditions and reminiscences by which the individuality of national literature is defined and intensified. As an epic poet, Oehlenschläger holds a position among the greatest of modern times. Next to him stand Bernhard Severin Ingemann (born 1789), the author of the epics, *Waldemar de Store*, *Dronning Margrete*, and *Holger Danske*, and Fr. Paludan-Müller, whose *Adam Homo* (a composition which may with equal justice be classed among epic, didactic, or satiric poetry) is perhaps the most remarkable production of modern Danish literature. Among living lyrical poets, Chr. Winther, Hendrik Hertz, Chr. Hendersen, Chr. K. F. Molbech, and Rosenhoff, are the most eminent. As a composer of hymns, F. S. Grundtvig is unrivalled. The most fertile field of modern Danish literature is found in the drama and the novel. Johann Ludwig Heiberg (born 1791), a son of Peder Andreas Heiberg, a philosophical and archæological writer of great merit, is also the first among the living Danish dramatists; but he confines himself to comedy and vaudeville. The tragedies of Oehlenschläger have not yet been equalled by more modern poets. Most of the lyrical poets mentioned before are also authors of serious dramas or comedies, and some of them, as Hendrik Hertz and Ingemann, have obtained a well deserved reputation beyond the limits of their own country. P. Chievitz, Th. Overskou, C. Hostrup, F. H. Guldberg (died 1852), and Erik Bögh, deserve to be noted among modern Danish dramatists. The number of popular novelists is large. The first place among them seems to be conceded to Hans Christian Andersen, though the novels published anonymously by Heiberg are scarcely inferior to his. Sten Stensen Blicher, Ingemann, Kierkegaard, H. P. Holst, F. C. Sibbern, Torkel Trane, E. Lobedanz, and several others have published novels, some of which rise above the average of modern works of fiction. Great activity prevails in Denmark in the writing of history, national archæology, and philology. In metaphysics and æsthetics the modern Danish authors have, with few exceptions, followed the track of the Germans. F. C. Sibbern is perhaps the most independent thinker. In natural philosophy, Oersted has acquired a world-wide reputation. His most celebrated work, *Aanden i Naturen*, has been translated into all European languages. J. F. Schouw ranks highly among modern physicists and geographers. Eschricht, Paulsen, Sars, Steenstrup, are authors of valuable works on zoology; Schumacher, Hornemann, Dreier, M. Vahl, and Liebmann, have written meritorious works on botany; Forchhammer and Puggaard, on geognosy; Johann Madtvig and G. F. Boissen rank high among modern philologists; Peder Olaf Bröndsted (died 1842), Johann Ludwig, Ussing, and F. Chr. Petersen, among archæologists. To Rask, Westergaard, and Fausböll, linguists are indebted for valuable researches. Among those scholars who have devoted themselves particularly to the study of Danish literature and literary history, Nyerup, Petersen, Rask, P. E. Müller, and Molbech are the most prominent. Of the remains of the ancient Scandinavian and Danish literature, numerous critical editions have been published by Halfdan Einersen, Johann Erichsen, Olaf Olavius, Hans Finsen, Finn Johnsen, Björn Haldersen, Steph. Björnsen, John Olavsen, Skule Thorlacius, G. J. Thorkelin. The number of Danish historians within the 2 last centuries has been very great. Erik Pontoppidan (died 1764) stands at the head of those of the 18th century, while Grundtvig has attained to the highest reputation among those of the present day.—See Nyerup's *Almindelig Moerskabsläsning i Danmark og Norge* (1816); Molbech's *Forelæsninger over den nyere Danske Poesie* (1831–'32); Thortsen, *Hist. Udsigt over den Danske Litteratur* (1839); Th. H. Erslew, *Almindeligt Forfatter-Lexicon for Danmark* (1843–'53, 3 vols.; suppl. vol., 1856–'58).

DENNER, Balthasar, a German portrait painter, born in Altona or Hamburg in 1685, died in the latter place, April 14, 1747, or according to another account at Rostock, in 1749. He was employed by Frederic II. and many other German princes, and was also invited by George I. to England, where, however, he met with little encouragement. His chief, if not his whole merit, consists in the mechanical finish of his pictures, some of which, it is said, require to be examined by a magnifying glass in order to appreciate the labors of the artist. There is a head of an old woman by him in the gallery of Vienna, in which even the down on the cheeks and the pores of the skin are represented with scrupulous exactness. This picture was purchased by the emperor Charles VI. for 4,700 imperial florins, and the artist was commissioned to furnish a companion piece of an old man, which is not less carefully finished.

DENNIE, Joseph, an American author and journalist, born in Boston, Mass., Aug. 30, 1768, died in Philadelphia, Penn., Jan. 7, 1812. After a brief experience of mercantile life, he entered Harvard college, where, notwithstanding his vivacious temperament on several occasions brought him into collision with the authorities, he was graduated in 1790. In the same year he commenced the study of law in Charlestown, N. H., and was subsequently admitted to the bar, at which, however, his practice was very inconsiderable. During several months in 1793 he read the Protestant Episcopal church service on Sundays to some members of that denomination in Claremont, and showed such excellent powers of elocution that he was solicited to enter holy orders, with the promise of a settlement in Portsmouth. In 1795, having previously acquired some reputation by literary contributions to various newspapers, under the title of the "Farrago," which had been very generally copied, he became connected with a small weekly journal published in Boston, called the "Tablet." This publication survived its establishment but 3 months, and in the summer of 1795 Dennie removed to Walpole, N. H., and accepted a permanent engagement on the "Farmer's Weekly Museum," a newspaper which enjoyed an extensive popularity toward the close of the last century. His most notable contributions to this were a series of essays, entitled the "Lay Preacher," in which, to use his own language, he sought to "unite the familiarity of Franklin with the simplicity of Sterne." The articles were discursive and lively, were widely copied by the newspapers of the Union, and procured for their author an established position among the few literary men whom the country then possessed. Shortly afterward Dennie assumed the editorship of the "Museum," and by collecting around him a number of able contributors so increased its reputation and circulation, that in the latter part of 1797 the publisher announced with some exultation that the journal was read by upward of 2,000 persons, and had its patrons in Europe and on the banks of the Ohio. In 1798 the bankruptcy of the publisher irretrievably ruined the prospects of the "Farmer's Museum," and Dennie was soon after induced by his friends to become a candidate for congress from New Hampshire. Having been defeated, he left Walpole in 1799 for Philadelphia, to fill the position of confidential secretary to the department of state, over which Timothy Pickering then presided. He remained in office but a few months, and in the latter part of 1800, in connection with Asbury Dickins, commenced the publication in Philadelphia of the "Portfolio," in which he adopted the editorial cognomen of "Oliver Oldschool." At the outset a quarto weekly, it subsequently became a monthly publication. Apart from the contributions of the editor, it was the vehicle of frequent communications from John Quincy Adams, whose letters from Silesia were originally published in it, Horace Binney, Judge Hopkinson, Robert Walsh, Charles Brockden Brown, and other literary men of the time, and maintained for many years a considerable reputation. In 1803 Dennie was indicted for a libel against the federal government, published in his journal, but was acquitted. He continued to be connected with the "Portfolio" until his death, and was highly esteemed for his social qualities as well as for his literary abilities.

DENNIS, a post village and township of Barnstable co., Mass., on the peninsula of Cape Cod. The township extends entirely across the peninsula, here 8 m. wide, and is separated from Yarmouth by Bass river. It contains 6 churches, a bank, and some ship yards. Most of the inhabitants are engaged in commerce and the fisheries. About 250 vessels, with an aggregate burden of 35,000 tons, are employed in the coast trade; 10 or 12 ships are engaged in the freighting business, and in 1853 there were 48 vessels (aggregate tonnage 3,160) in the mackerel fisheries. The first settlement was made at Dennis village, in the northwestern part of the township. Pop. in 1855, 3,497. Value of property in 1854 estimated at over $1,000,000.

DENNIS, John, an English critic, born in London in 1657, died Jan. 6, 1733. He was the son of a tradesman, but received a liberal education, and took the degree of A.M. at Cambridge in 1683. Afterward he travelled on the continent, and returned with a strong dislike to the forms of government existing there. He became a whig in politics, and mingled much in the society of the politicians of that school, and of the literary men of London. Among his friends were Dryden, Halifax, Wycherley, and Congreve. By his expensive habits he soon dissipated a small fortune which had been left him by an uncle, and the duke of Marlborough, hearing of his difficulties, obtained for him an appointment in the customs worth £120 a year; but he was compelled, after a while, to sell this to satisfy pressing demands, only reserving from the sale, at the suggestion of Lord Halifax, a small pension for himself for a term of years. This term he however outlived, and was in consequence reduced to great poverty, and becoming blind, was compelled in the latter part of his life to depend upon the charities of literary friends, many of whom he had grossly calumniated. As a dramatist he hardly deserves mention, though some of his plays obtained a transient popularity, especially the one entitled "Liberty Asserted," in which the French, with whom the English were then at war, were roughly handled. Of his essays the best are the "Grounds of Criticism," and those on Addison's "Cato," and Pope's "Rape of the Lock," though the 2 latter are characterized by the bitterness with which he usually spoke of his contemporaries. Addison had been one of his friends, but he took offence at something which appeared in the 2d and 3d numbers of the "Spectator," and which he supposed to refer to himself, and, in revenge, wrote the essay on "Cato." He was a man of a very peevish and suspicious disposition, and was al-

most always engaged in controversy. He attacked Pope, Addison, and Steele; and Pope in return satirized him in several works, especially in the "Dunciad." He had also a most exaggerated idea of his own importance. While the negotiations were in progress previous to the peace of Utrecht, he was in great fear that the French king would refuse to make peace except on condition that the author of "Liberty Asserted" should be delivered over to him. One day, being at the house of a friend on the Sussex coast, and perceiving a vessel in the distance, he was seized with the idea that it was coming to carry him away to France, and that he had been inveigled thither for that purpose. Accordingly he immediately set out for London, congratulating himself on his escape. He had invented a new way of imitating thunder for his play of "Appius and Virginia," which was brought out and failed in 1708; shortly afterward, during the performance of "Macbeth," hearing the thunder produced by his apparatus, he rose in the pit, and exclaimed: "S'death! how these rascals use me; they will not let my play run, yet they steal my thunder."

DENOMINATOR, in algebra and arithmetic, the divisor used in producing a fraction. The denominator of a decimal fraction is not written; it is equal to 1, with as many ciphers annexed as there are places in the fraction. The name denominator is derived from its arithmetical use, since it gives the denomination or name to the fraction, 3ds, 5ths, 7ths, &c., while the numerator gives the number of parts taken.

DENON, Dominique Vivant, baron, a French archæologist, born at Châlons-sur-Saone, Jan. 4, 1747, died in Paris, April 27, 1825. He accompanied Bonaparte to Africa as a member of the Egyptian commission. His *Voyage dans la basse et la haute Égypte*, which excited much interest on its publication in 1802, was a forerunner of the magnificent work afterward published by the Egyptian commission.

DENSITY, a term somewhat indefinite in meaning, being sometimes used in its true sense, and referring to the number of particles of matter comprised in a given space; sometimes in a secondary sense, as synonymous with specific gravity. In the first sense it is opposed to rarity, and the density of one substance cannot properly be compared with that of another, there being no mode of measuring the absolute size of particles of matter, or their absolute weight. All bodies are believed to be to some extent compressible, and gases are compressible in exact proportion to the force used in compressing them; at least, this is the result obtained by experiment; but it may not be the exact law, and probably does not hold true when the gas is nearly compressed into a liquid, or when the pressure is almost nothing.

DENT, a S. central co. of Mo., recently formed out of the N. part of Shannon co., and named in honor of Frederic Dent, an early settler in Missouri. The soil is fertile, and the surface is much diversified. Pop. in 1856, 3,207, of whom 118 were slaves.

DENT, John H., a captain in the U. S. navy, a native of Maryland, died in July, 1823. He commenced his career as midshipman in March, 1798, under the command of Com. Thomas Truxton, in the frigate Constellation of 36 guns, and was attached to that ship when she captured the French frigate Insurgente, on Feb. 1, 1799. Soon after the engagement he was promoted, and served in the same ship as 4th lieutenant when she captured the French frigate La Vengeance, on Feb. 1, 1800. He served in command of the schooners Nautilus and Scourge, in the squadron of Com. Edward Preble, during the war with Tripoli, and participated in the several attacks upon that city and harbor in the months of July, August, and September, 1804. He was promoted to the rank of master commandant in Sept. 1804, and to that of captain in Dec. 1811.

DENTATUS, Marcus Curius, a Roman consul, who flourished in the 1st half of the 3d century B. C. He was of Sabine origin, and the first of his family that ever filled any high public office. In 290 B. C. he subjected the Samnites; in 275 he vanquished Pyrrhus in two great battles; in 274 he subdued the Samnites, Lucanians, and Bruttians. On the conclusion of his 3d consulship he retired to a small farm in the country of the Sabines, and cultivated it with his own hands. While thus engaged the Samnites sent an embassay to him with costly presents. They found him sitting at the hearth cooking vegetables for his dinner. He rejected their gifts, telling them that he would rather rule over those who possessed wealth than possess it himself. In 272 B. C. he was called to fill the office of censor, in which capacity he constructed an aqueduct which conveyed water from the Anio into the city, and by a canal he carried off the water of the lake Velinus to the Nar, and thus gave to the Reateans a large tract of excellent land. He is said to have been born with teeth; hence his surname of Dentatus.

DENTISTRY, Dental Surgery (Lat. *dens*, tooth), the surgical treatment of the teeth, including, beside their extraction, the remedying of their serious defects, and the mechanical operation of making and fitting artificial teeth to supply the places of those lost. Although it is only within less than a century that this art has taken the rank of a distinct profession, attention was directed from the earliest periods to the means of preserving and improving the beauty of the teeth. The ancient Hebrew writers evidently appreciated their importance in giving expression to the countenance, as when Jacob blessing Judah says: "His teeth shall be white with milk" (Gen. xlix. 12); and Solomon compares a fine set of teeth to a flock of sheep even shorn (Song of Solomon, iv. 2). In the time of Herodotus the art of dentistry appears to have been practised in Egypt as a distinct branch of surgery, as was also the treatment of the diseases of the eye and of the ear. Little, however, is known of the attainments of these early practitioners. In the ancient tombs

of this people artificial teeth of ivory or wood were found by Belzoni and others, some of which were fastened upon gold plates. It is also stated that teeth of the mummies have been found filled with gold. Thus it would seem that the ancient Egyptians understood processes of the art which are commonly regarded only as inventions of the refined nations of modern times. Artificial teeth are alluded to by several of the Greek and Latin poets, as Ovid, Martial, Horace, &c. The works of Galen, written in the 2d century, contain the earliest treatises upon this subject, and they continued to be the best until the works of Fallopius, Eustachius, and Ambrose Paré appeared in the 14th, 15th, and 16th centuries. During the 18th century the attention of medical men in France and England was directed to the subject, and a number of elaborate works were published devoted exclusively to the art. These, and prominently among them the treatise of John Hunter (1771–'78), laid the foundation of the English school of dentistry. The subject, however, was treated anatomically and philosophically rather than practically; and the same may be said of the writings of the eminent French surgeon of this period, Bichat. Neither of these was a practical dentist, and the subsequent publications of Dr. Blake in 1798, and of Fox in 1803 and 1806, as of others at later dates, served rather to elucidate the physiology of the teeth and the nature of the diseases to which they are subject than the method of treating them. From advertisements in the newspapers of 1703 the practice of the art, making teeth and cleaning them, appears to have been in the hands of silversmiths or jewellers. In 1826 the eminently practical work, "Principles of Dental Surgery," of Leonard Koecker, M.D., who had practised dentistry from 1807 to 1822 in Baltimore and Philadelphia, appeared in London, and fully established the claims of the art to take rank as a distinct branch of science. From that time new treatises by able writers and practitioners have continued frequently to appear. The progress of the French school was very rapid in the early part of the present century. Prof. Baume's treatise on first dentition and the diseases that accompany it appeared in the year 1800; and 2 years afterward, a work on the theory and practice of the art, by Laforgue. The former has been translated into English, and incorporated into the "American Journal of Dental Science." The works of Duval, interesting for their historical research as well as their practical instruction, have been much read. Leroy's work on diseases of the gums (1806) has been translated and published in the "American Journal." A number of works were published by Delabarre between the years 1815 and 1826 on different subjects relating to the teeth and their treatment. Among them is a treatise on "Mechanical Dentistry," published in 1820, and illustrated with 42 plates. It was during this period, when publications upon dentistry were frequently appearing in France, that the manufacture of artificial teeth of porcelain was introduced; and in 1821 a work upon this subject was published by Audibran of nearly 200 pages, entitled *Essai historique et pratique sur les dents artificielles incorruptibles.* By this it appears that Fauchard in 1728 proposed their manufacture; and that in 1776 Duchateau, a chemist of St. Germain-en-Laye, attempted to produce them, and finally succeeded with the aid of Dubois, a dentist of note in Paris. The latter imitated the colors of the natural teeth and gums by the use of mineral oxides, and obtained royal letters patent from Louis XVI. for the invention. The progress of this branch of the art will be particularly noticed in the latter part of this article.—The practice of dentistry was introduced into the United States by Le Mair, of the French forces which joined our army during the revolutionary war. An Englishman named Whitlock also commenced the practice soon after the arrival of Le Mair. About the year 1788 Mr. John Greenwood established himself in New York, the first American of this profession. In 1790, and again in 1795, he carved in ivory an entire set of teeth for Gen. Washington. They were secured by spiral springs, and the neatness and ingenuity of the work was considered equal to any executed at that period abroad. Other dentists soon appeared in New York, Philadelphia, and Baltimore. Their work included the extracting of teeth, filing and cleaning them, and replacing the natural teeth when lost with artificial ones, commonly made of ivory. Dr. Hudson, formerly of Dublin, who had settled in Philadelphia, first directed his attention particularly to the cure of the diseases of the teeth, and to arresting the progress of dental caries. In 1820 the number of practitioners in the United States was probably little more than 100. Ten years afterward, as estimated by Dr. C. A. Harris, in his work on the "Principles and Practice of Dental Surgery," there were about 300, of whom probably not more than $\frac{1}{6}$ were well instructed. But the increase in their numbers was afterward very raipd. In 1842 they were believed to number about 1,400, and in 1858 about 4,000. An important event in the history of dental surgery in this country was the establishment of the "American Journal and Library of Dental Science" in Baltimore, in 1839. The society of dental surgeons was soon after formed, and at its second annual meeting the "Journal" was made the property and organ of the association. Maryland, which appears to have taken the lead of the other states in this department of science, founded by its legislature, a few months previous to the organization of the society above named, a college of dental surgery, with 4 professorships, designed for instruction in the principles and mechanical practice of the art. Two years afterward another society of dentists, like that of Baltimore, was organized at Richmond, Va., and in Aug. 1844, a third was formed at Cincinnati, Ohio, styled the "Mississippi Valley Association of Dental Surgeons." A college of

dentistry has also been established in Philadelphia and another in Cincinnati, and state and local dental societies in various parts of the country. In Aug. 1855, the national convention of dentists was organized, through the active exertions of Dr. Elisha Townsend of Philadelphia, and its first annual meeting was held in that city. Dr. John B. Rich of New York was its first president. Beside the reports of these societies, which have disseminated a knowledge of the discoveries and improvements made in the science, many very valuable works of a practical nature have been published by American authors, among which may be noticed a treatise by J. Gardette of Philadelphia, originally of Paris. This was published in 1821. In 1822 appeared in New York and London an essay on the "Disorders and Treatment of the Teeth," by Dr. E. Parmly; also, the same year, 2 volumes by Dr. L. S. Parmly, and a work called the "Family Dentist," by J. F. Flagg, M.D., of Boston. In 1829 a comprehensive treatise, and probably the most valuable ever published to that time, appeared, in one volume of over 500 pages, written by S. S. Fitch, M.D.; in 1835 a second and improved edition was published. A poetical essay, entitled *Dentologia*, by Dr. Solyman Brown, with notes by Dr. E. Parmly, is a curious and ingenious production, which appeared in 1833. The same author also published other works and many valuable papers on dentistry. The "Guide to Sound Teeth," by S. Spooner, M.D., is a valuable work, printed in 1836. The "Principles and Practice of Dental Surgery," by Prof. C. A. Harris, of the Baltimore college, is a standard text book of 600 pages 8vo.; the second edition was published in 1845. Dr. Harris also published a large 8vo. dictionary of dental surgery. In 1854 a comprehensive 8vo. volume was published by A. Snowden Piggot, M.D., entitled "Chemistry and Metallurgy as applied to the Study and Practice of Dental Surgery." A number of periodicals are supported by the profession, as the "Dental Register of the West," a quarterly, published in Cincinnati; "Dental Review," St. Louis, quarterly; "Dental News Letter," Philadelphia; the "Obturator," New Orleans, &c.—From this sketch of the history and progress of the science, it is apparent how highly its cultivation is appreciated among civilized nations. Ruder people also show a regard for the teeth, which is oftener displayed, however, in attempts to ornament them by coloring and giving to them grotesque shapes, than by devising means to preserve them. This last, indeed, is little required with people living the inartificial life of savages, and subsisting upon the simple food they use. Their teeth partake of the perfect development of their physical constitution, and are generally sound, healthy, and beautifully white. The natives of Hindostan, and the high caste Brahmins especially, are said to devote particular care to the preservation of these organs. With them it is a religious duty, inculcated in their most ancient books, to pay scrupulous regard to their cleanliness. Every morning they spend an hour rubbing them with a twig, while performing at the same time their devotional exercises. The result is that they have the finest teeth of any people.—The progress of dentistry as a science has been necessarily consequent upon that of anatomy. As the physiology of the system was better understood, the relations of the various organs to each other, and their mutual dependence, were more clearly perceived. Dentistry ceased to be a merely mechanical art, when the treatment of the teeth demanded a comprehension of these relations, and when he who practised it paused before operating, to consider whether the pain he hoped to remove with instruments might not better be alleviated by proper medical treatment, by the application of leeches to the gums, or, when it was of the nature of neuralgia, by the surgical operation of dividing the affected nerve. So intimately connected is the welfare of the teeth with that of the general system, that some knowledge of medicine, and of the diseases whose effects may reach these organs, is indispensable to the scientific dentist. His knowledge of anatomy is not confined to the bony structure of the tooth, to the soft pulp which fills its internal cavity, to the position of the nerves which communicate its complaints to the brain, nor to the manner in which it is held so fast in its socket. His science involves an acquaintance with the anatomical relations of the organs of the mouth with all parts of the system. The mucous membrane that lines it extends to the stomach and other internal organs, as the liver, intestinal canal, and those of respiration, through the larynx, trachea, and bronchi. An unhealthy condition in one part of this membrane is manifested in another. Canker, the cause of which is in the stomach, appears as a disease of the gums or the tongue. When this member is furred or coated with an unhealthy secretion, it is an indication of disease in the intestines or other internal organs. The teeth may be injuriously affected by this unhealthy secretion, the remedy for which is to be applied to other organs. The nerves, spread like a network throughout the whole system, are affected frequently in the teeth by the diseases of distant members; and an operator unskilled in their affections often sacrifices sound teeth without benefiting the sufferer by their removal. Dr. Harris mentions an instance of a gentleman, who, afflicted by such an affection of the nerves, had all the teeth on the right side of both jaws thus uselessly removed. Mr. Fox, the anatomist and physiologist, as well as dentist, being applied to in a similar case, suspected the real nature of the disease, and taking the patient to Sir Astley Cooper, a radical cure was effected by the operation of dividing the affected nerve. The effects of this connection through the nerves are reciprocal, and other members suffer in consequence of diseased teeth. Baglivi noticed this in his *Canones Medicinæ*, published in 1710: "Persons whose teeth are in an unclean and

viscid state, though daily washed, have uniformly a weak stomach, bad digestion, an offensive breath, headache after meals, generally bad health, and low spirits." Physicians, when consulted in chronic and nervous affections, often now examine the teeth, and refer the patient to the dentist. Many cases of that terrible disease, *neuralgia faciei*, which have resisted all other treatment, have been cured by the removal of diseased teeth. The nerves belonging to the eye, ear, nose, mouth, and which pass over the cheek and are distributed in many branches through the teeth, are ramifications of the great nerve of sensation, the 5th of the anatomist. Whatever part of this chain be irritated, the pain may be experienced in any other part. Thus, stumps of teeth, lying apparently harmless, may be the cause of terrible neuralgic pains in the head, as well as, for the other reason above given, of a number of other diseases apparently originating from the stomach, or often attributed in common language to impure condition of the blood.—The means of preventing the diseases to which the teeth are subject, is a branch of dental science quite as important as that relating to the arrest and cure of these diseases. These means consist, first, in giving what assistance nature requires to bring the teeth of second dentition into a regular arrangement; and secondly, in the care of the individual himself in preserving the teeth uniformly clean. As the temporary or first set of teeth drop out, which as a general rule they should be allowed to do, by their roots being absorbed, the second set already formed succeed and take their places. Of the temporary teeth there are but 20, and these are of small size. The teeth of the second dentition are 32 in number, with one or two exceptions are of larger size than their predecessors, and consequently occupy a greater space. Yet these, appearing one by one, take their places, and should occupy in the harmonious process of the growth of all the parts the same room apparently that was filled by the 20 deciduous teeth. This is accomplished by the elongation forward of the jaw, and the arch gradually assuming the form of a semi-ellipse in place of that of a semi-circle. But if any of the first teeth have been indiscreetly removed before their time, or as indiscreetly allowed to remain so as to interfere with the growth of the permanent teeth, an inequality of resistance is offered to the progress of some of the second set, which is apt to cause an irregularity in their arrangement. The same effect is often produced without any apparent cause other than that the increase of the teeth and that of the jaw do not proceed *pari passu*. A tendency to this is often noticed to be hereditary. Teeth irregularly arranged, interfering with each other, or as they sometimes do with the lips, or pointing inward so as to be removed from the healthy action of mastication, or twisted in their sockets, are not only disfiguring, but are particularly liable to disease and decay. From their first appearance to the age of 16 of the individual, they may be treated by various mechanical applications attached to the other teeth and bearing suitably upon those to be brought into place, so that without violence the work of nature is gently assisted, and a perfect set is gradually formed. So essential is this to the future welfare of the teeth, that by due attention of this kind, in the opinion of an eminent dentist, "there would not be one decayed tooth where now there are a dozen." (Harris, p. 134, 2d ed.) Cleanliness is the second requisite for sound teeth. The principal cause of their decay is generally admitted to be the presence of decomposing particles of food lodged between them. All dentists strongly urge the importance of children early acquiring the habit of brushing the teeth twice daily. Dr. L. S. Parmly goes so far as to say: "Where the teeth are kept literally clean, no disease will ever be perceptible. Their structure will equally stand the summer's heat and winter's cold, the changes of climate, the variation of diet, and even the diseases to which the other parts of the body may be subject from constitutional causes." By neglect of this duty the teeth are likely to be soon affected with caries. This disease may go on insidiously and unsuspected, involving not merely the risk of loss of these organs, but, unless exposed by the intense pain, which by a wise and beneficial provision it commonly involves, affecting the general health of the individual, and inducing maladies of the most alarming character. Many cases of disease thus engendered it is too often the province of the dentist to treat, and the life of the patient is not always saved even by the sacrifice of all the teeth. Caries of the teeth is also induced by vitiated secretions of the mouth arising from severe constitutional disorders, or the continued administration of different kinds of medicine; or it is sometimes due to a predisposition inherited from one or both parents. Its treatment is to remove the affected part, when this is superficial, by the use of the file. The surface of the bone from which the enamel is removed must be left smooth and polished, and if proper care be afterward taken in keeping it clean, the disease may not return. If the decay has extended into the bony substance of the tooth, the filing is then only preparatory to the complete removal of the diseased portion by excavating with suitable instruments, and filling the cavity with some proper material. Much attention was formerly given to shaping the cavity, in order that by its contracted aperture the filling should be held in as by dovetailing; but by the use of gold foil and sponge gold specially prepared for this purpose, it is now found practicable to apply the metal in successive portions, and build up a solid block of any shape by incorporating each portion with that which preceded it. This is done by a sort of stippling with suitable instruments, and the gold may be thus rendered so compact, it is affirmed, that its specific gravity shall

equal that of the cast metal. In wide-mouthed cavities the filling is secured by being built upon plugging carefully introduced into the cavities of the roots, and also by lateral pins of the gold filling made to enter from this into little holes or grooves drilled for the purpose into the walls of the tooth. In order to destroy the sensitiveness of the exposed nerve, Dr. Spooner of Montreal first recommended the use of arsenic, and this was made public in a treatise of his brother, Dr. S. Spooner of New York. For killing the nerve and for deadening the sensitiveness of the bone of the tooth, when but a thin shell of this covers the nerve, it is now used in combination with sulphate of morphine and tannin, in the proportion of 3 parts of each of the last two named to 1 part of arsenic. A portion of a grain weight of the mixture is introduced into the cavity, and allowed to remain long enough to accomplish the object. It has been generally considered impracticable to preserve a tooth when the decay has reached into the internal or pulp cavity. In this condition inflammation often takes place at the root, and matter collects, forming an ulcer between the periosteum of the tooth and the bone. If the discharge of this be stopped by filling the cavity, the matter will find its way through the gum, causing a gum boil near the root; or it produces inflammation of the face, often attended with great suffering, which is relieved only by the removal of the tooth. The modern treatment is to perforate the sac at the root by a fine drill passed through the cavity; and if the nerve be sensitive, this is cut out and removed by a delicate steel wire furnished with a hook at the end, so small that it can pass freely into the nerve cavity. A weak solution of nitrate of silver is then forcibly injected into the cavity, the curved beak of the syringe being surrounded with wax, which is crowded into the tooth to prevent the escape of the caustic solution. This is immediately washed out, and a piece of the solid caustic is introduced into the lanced gum boil, which connects with the diseased fang. The unhealthy portions are thus cauterized, and after creosote introduced into the cavity has remained a few days, and healthy action has taken place, the tooth may be safely filled, with the liability of further trouble from the same cause greatly reduced. —The only unobjectionable material for filling teeth is gold foil or the sponge gold specially prepared for this purpose. The latter excellent material is produced by dissolving gold free from copper in nitro-hydrochloric acid, placing the solution in a flat-bottomed vessel, and heating and precipitating by strong solution of oxalic acid. In a few hours the gold is wholly deposited, and the supernatant liquid may be decanted off, taking care not to disturb the gold at the bottom. The vessel is then several times filled with boiling water and decanted, until the last washings contain no more oxalic acid. The gold is now carefully slipped on to a piece of filtering paper, and by means of a spatula gently pressed into the form of the desired cake, but a little thicker. It is then removed to a porcelain crucible, and heated for a short time, somewhat below a red heat, when it shrinks and becomes coherent. This process was described to the London chemical society by Mr. D. Forbes in 1857. Tin foil may be used, and its malleability and cheapness well adapt it for large and badly shaped cavities, and for temporary fillings in sensitive teeth, but it is liable to oxidize and produce discoloration. The mineral cement, or amalgam of mercury, silver, and tin, has been found by some dentists a very convenient material for inserting in its soft, fresh state into cavities, particularly when these are large, badly shaped, and the tooth very sensitive. It very soon sets, forming an imperishable and exceedingly hard filling. Many dentists approve of its occasional use, provided it is composed of chemically pure materials. Others loudly condemn it, asserting that it is liable to occasion salivation, inflammation of the periosteum, and of the gums and mucous membrane.—The extraction of the teeth is an important branch of dental practice—safe and easy with good instruments in skilful hands, but, as practised by the unprofessional operator, not a little hazardous. This is apparent from the cases recorded of the extraction in one instance of 6, and in another 5 teeth at once, together with the tearing away of the anterior and posterior plates of the cavity called the antrum in the roof of the mouth, which occurred in one case in Virginia, and in the other in North Carolina, a blacksmith being the operator in each case. Ambroise Paré particularly notices the danger of inexpert operators attempting to extract teeth. Speaking of his "tooth mullets," he observes: "Unless the person knows readily and cunningly how to use them, he can scarcely so carry himself but that he will force out 3 teeth at once." The improved instruments of modern times, however, have greatly lessened this risk, and pain is avoided by the use of anæsthetic agents, if necessary, or by the application of the galvanic current. In this process, which is a late American discovery, the current from the common electro-magnetic machine used for medical purposes is caused to pass through a wire, one end of which is held in the hand of the patient, and the other is attached to the instrument. This end, however, is broken, and is closed only when the operator has fixed the instrument and is ready to draw the tooth. He then presses with his foot upon a board which closes the circuit, causing a slight shock to pass through the jaw. Unless the gum is inflamed and sore, the effect is almost always to benumb the nerves, so that the tooth is removed with little or no pain.—The last department of dentistry to be noticed, is the construction and application of artificial teeth. These were formerly carved from ivory of the tusk of the elephant or the tooth of the hippopotamus. They were obtained also by altering the shape of the teeth of neat cattle, of sheep, &c.; and the crowns of human teeth were often conveniently ingrafted upon the roots

of the original front teeth. All these materials are objectionable from their susceptibility to the action of the fluids of the mouth; ivory soon becomes offensive from being saturated with these fluids, and all of them are liable to decay, inducing at the same time disease in the sound teeth remaining. Porcelain teeth, well named incorruptible, perfectly resist the corrosive action of the fluids of the mouth; and as they are now manufactured, they imitate so perfectly in color and animated appearance the natural teeth, that they are often not easily distinguished from them, unless their superior beauty excite suspicion of their true character. Though of French invention, they owe their present perfection in great part to the skill of American dentists. But their manufacture being a distinct art from that which properly pertains to dentistry, and requiring peculiar skill and experience, it is now mostly carried on by persons not belonging to the profession. Single teeth are thus prepared of all the varieties that may be required, and sold to the dentists at very low prices. The first experiments in this branch in the United States appear to have been made by Mr. Charles W. Peale of Philadelphia, who, compelled at an early age to use artificial teeth of ivory, and seeing in the newspapers about 1807 an account of mineral teeth, procured pure qualities of clay and silex, and, constructing his own furnace and muffles, moulded the artificial teeth and gums in wax, made casts in plaster and brass, and swaging the gold plates, fitted them with platinum wire and gold springs of his own manufacture, and produced sets for himself and some of his friends. He made a set for his son, Rembrandt Peale, in 1808, and gave instructions in his methods to Mr. Barabino, a dentist then practising in Philadelphia. The first regular manufacturers were Greenwood, Woffendale, and Parkhurst, who were engaged in the business about 1825. French artificial teeth were made in Philadelphia from 1827 to 1830, by Plantau and McHenry. In 1829 Mr. Villers came to New York from England, bringing with him mineral teeth, which he claimed to have made by a process he discovered in 1819. The proportions of the ingredients he used in 1830 are similar to those employed at present, viz.: 4 ounces of feldspar, 1 of crystallized quartz, and 12 grains of kaolin. The manufacture of mineral teeth for the supply of dentists was first undertaken by Mr. Daniel W. Stockton, in Philadelphia, about the year 1835; and to him, together with Neal and Alcock, is due the credit of establishing this branch of business in the United States. Other persons followed their example, until in the different cities of the United States there are no less than 9 manufactories devoted to this business, the aggregate annual production of which is over 2,000,000 teeth. The consumption of platinum for the little pins which fasten these upon the plates is estimated at about $40,000 worth annually. They produce both single teeth and teeth in blocks of several.—Various methods of securing artificial teeth in their places have been in use. So long ago as 400 years before the Christian era, they were fastened by ligatures of flax and of silk, and with wire of gold and of silver, to the natural teeth that remained. The insertion of pivots of gold into the roots of the natural teeth for attaching to these artificial crowns was long since practised, and platinum and hickory wood have been substituted for gold. In modern times metallic clasps, spiral springs, and fastenings of gutta percha and of caoutchouc, have been used for this purpose; and a dentist of London has lately contrived a covering of vulcanized caoutchouc to slip over the wires, to protect the natural teeth from their wearing action. But the most perfect method is to secure the teeth, either in whole or partial sets, to a plate of gold or other metal, which is so accurately fitted to the gums that it is firmly retained by atmospheric pressure. Plate-work involves several distinct operations. The first object is to obtain, in some hard metal, an exact model of the mouth in which the plate is to be fitted. For this purpose, yellow or white wax, free from mixture of grease, and softened by warm water, is placed in a shallow vessel, called an impression cup, which may be introduced into the mouth. Plaster of Paris made into paste may be substituted for the wax. The contents of the cup are firmly pressed around the gums, and, if for the upper jaw, are made to cover the roof of the mouth as well. With care, an experienced operator thus obtains in a few minutes an exact mould of the parts to which the material is applied. The teeth, if any are present, leave their forms faithfully impressed in their true positions, and the cavities between are represented by corresponding projections in the wax or hardened plaster. The impression removed from the mouth serves to furnish a model of the jaw, which may be taken in plaster of Paris also. This is used as a pattern in moulding sand, and a cast is then obtained in any metal, as, for instance, zinc; and by pouring melted lead upon the zinc, which is turned over upon its face and surrounded with a brass or iron collar for retaining the lead, a mould in this metal is obtained precisely like the original one in wax; or the same may perhaps be more surely secured by pressing the cast into the surface of melted lead, and holding it till the lead cools. By means of the zinc cast and lead mould, the exact shape of the parts is transferred to the sheet of gold or other metal, this being placed between the two, and made, by hammering and swaging, to assume all their irregularities of surface. The fit is the more readily made, if, from the plaster model, the teeth have been cut off before making the metallic casts. A duplicate plaster cast serves to give the position of those teeth to which the plate is to be finally fitted. The edges of the plate are cut to fit between the teeth, and where there are none, they bend over the rounded gum with its exact curve. The metal commonly used for the plate is gold, more or less alloyed; for cheap sets silver is sometimes

substituted. When it has received its proper shape, a ridge of wax is laid around the lingual side, and it is placed in the mouth, in order that the patient, by opening and shutting the jaws, may indent the impressions of the teeth in the opposite jaw, which will indicate the arrangement and length of the artificial ones to be attached to the plate. The plate with the wax is then taken out of the mouth, and brushed over with sweet oil. It is then laid upon its face, and plaster is poured over it, imbedding in it a wire frame, which is bent around somewhat in the form of the jaw, and projects behind the plaster. When the plaster is hardened, another portion is poured over the other side, and in this a similar wire is introduced. The oil prevents adherence of the plaster to the plate and wax. The two frames being hinged together, and set at the right distance apart, represent the two jaws; they are called the articulator, and are used for temporarily holding the artificial teeth, while they are selected and placed in their correct positions, with reference particularly to their articulating properly with those in the opposite jaw. A little wax laid upon the alveolar ridge of the plaster model causes the teeth to adhere as they are pressed back upon it. In the same way they are held when transferred to the plate, upon which the ridge of wax lies behind them. To secure them and admit of the removal of the wax, the front portion of the plate is imbedded in a mixture of plaster of Paris and either sand or asbestus, which mixture entirely covers the fronts of the teeth. The wax can then be taken away, and the backs of the teeth be exposed without displacing them. The next step is to fasten these by a lining of the same metal as the plate attached to each tooth by the little pin in its back, and to the plate by soldering. This being securely done, the plate and teeth thoroughly cleansed, and the metal polished, it is ready for the mouth. —The numerous joints and open spaces, which were liable to catch and retain particles of food, formerly rendered this work very imperfect. The improvements which have brought it to its present state of perfection are due to the skill of American dentists. A variety of materials have been experimented upon, in which to securely imbed the bases of the teeth. Gutta percha has been used to contain them; but its texture and strength were in a short time destroyed by the action of the fluids of the mouth. It was then applied vulcanized or mixed with sulphur; and caoutchouc is employed in the same way. These prove to be important auxiliaries in mechanical dentistry, especially for temporary sets of teeth. They do not, however, readily take the colors which may be applied to more suitable substances. A method has recently been invented by Dr. A. A. Blandy of Baltimore, and called by him the cheoplastic, by which the teeth are secured in an alloy of great fusibility, and not liable to change its form in cooling. By the specification this alloy may consist of 10 to 20 parts of tin, 1 to 5 of bismuth, 1 to 4 of antimony, and 1 to 2 of silver; to these 5 to 15 parts of cadmium may be added to increase the strength of the alloy. In case an unpleasant taste should be experienced from the mixture, it may be electro-gilded. This recommendation implies a possibility of the alloy being affected by the action of the fluids of the mouth, and time is required for its capability of resisting this action to be fully tested. The alloy is to be run into a mould of the gums, and the plate is thus cast instead of being shaped by swaging. The teeth, previously arranged in the mould, are secured in their places by this melting of the alloy around them.— Another process lately introduced is to dispense with metallic plates, and mould the mineral paste into complete sets, as in making small blocks of teeth. This method is objectionable from the difficulty of procuring a perfect fit, and the liability to entire loss of the set by accidental fracture.—In 1851 the process called continuous gum was invented by Dr. John Allen, late professor in the Ohio college of dental surgery. In this a silicious compound, similar in composition to that of which the teeth are made, but more fusible, is applied in the form of a paste over the fastenings at the back of the teeth, and also in the front, so as entirely to bury the ends of the teeth, as the natural ones are buried in the gums. To withstand the high degree of heat requisite for baking this upon the plate, platinum is substituted for gold. Platinum has beside the advantage of forming at a high heat a close union with the silicious compound, which is spread over the lingual side of the plate as well as over the bases of the teeth. When thoroughly dry, the work is baked at a white heat in the muffle of an assaying furnace. A new application of the paste is then made to fill all the crevices caused by shrinking, and upon this coating are made numerous ridges and depressions with the spatula, which, when afterward covered with the coloring enamel, cause this to assume different shades of the color, and present the appearance of the veins, rugæ, &c., seen upon the natural gums and roof of the mouth. The baking is repeated, and after this the coating of coloring matter, called the gum enamel, is applied, when a third baking completes the process. The process claimed by Dr. Hunter is similar to that above described. The compositions made use of are empirical mixtures of pure silica and feldspar, with suitable flux to produce a fusible compound, possessing sufficient strength, hardness, and permanency of character. The work can easily be repaired when broken, or alterations made when required by changes in the mouth, by building upon it more of the paste and again baking; in this way even the length of the artificial teeth can be increased and new ones introduced. In the same way the artificial processes called cheek restorers were applied by Dr. Allen, which are projecting portions built upon the artificial gums far back in the mouth, and serve to distend the cheeks when these are fallen in. The composition of

the paste for the gums has been perfected by Dr. E. A. L. Roberts of New York, who has largely manufactured it for Dr. Allen, and given it increased density and strength, overcoming in a great measure its brittleness, and causing it most effectually to resist the action of the fluids of the mouth. In the application of these artificial substitutes various kinds of professional talent and mechanical skill are called into play; and the operator, in order to give the natural expression to the mouth, imitating the true colors and proportions of the teeth and of the gums, must even possess a certain degree of that genius and taste which guide the pencil of the artist or the chisel of the sculptor. The mechanical operations connected with the work have led to increased knowledge in the use of plastic compounds, and introduced improved methods of treating the metals employed. (See Blowpipe, Furnace.)

DENTITION. In all the higher animals the teeth are developed directly from the mucous membrane, and are therefore, like hair, nails, feathers, &c., appendages of the skin, and form no part of the true osseous system. As early as the 5th week of fœtal life, according to the observations of Prof. Goodsir, a deep, narrow groove, between the lip and the rudimentary palate in the upper jaw, indicates the future situation of the teeth. Within the next 3 weeks papillæ developed at the bottom of the groove become the germs of the future milk or temporary teeth. In the progress of development the papillæ are enveloped in open follicles, and these again are converted into shut sacs; contemporaneously with these changes, the edges of the dental groove are themselves growing, so that by the 14th week they meet, enclosing the tooth sacs. Within the sacs the papillary pulp is gradually converted into dentine, of which the body of the tooth is composed, while the enamel is formed from a separate pulp connected with the opercula of the sacs. (See Dentistry.) As teeth are required before the jaws have attained their growth, and yet from their structure are incapable of enlarging *pari passu* with the bones in which they are placed, provision is made for a temporary set, which, when they have served their purpose, are replaced by the permanent teeth. As early as the 14th week minute crescentic depressions of mucous membrane may be discovered above and at the inner part of the opercula of the milk teeth; these depressions soon become converted into minute compressed sacs, which gradually sink behind and below the sac of the milk teeth, and in these sacs are developed the first 10 permanent teeth of each jaw; the other 6 are developed in sacs placed posterior to those of the last milk teeth, which are formed in a manner precisely similar to those of the milk teeth themselves. The ossification of the permanent teeth commences a little before birth with that of the first molar, and proceeds during the first 3 years of infancy successively in the incisors, the canines, and the bicuspids. The approach of the time for the eruption of the temporary teeth is announced by an increased secretion of saliva. In the earlier months of infancy the mouth is comparatively dry, but as the teeth shoot into the gums the mouth becomes moist and the child begins to drivel. The progress of dentition is not apparently continuous, but after the eruption of each successive pair a pause of one or two months generally follows. The central incisors commonly pierce the gum in the course of the 7th month after birth, those of the lower jaw preceding the upper ones by a short interval; between the 7th and 10th months the lateral incisors make their appearance; from the 12th to the 14th month the anterior molars, and between the 14th and 20th the canines are cut; and the first dentition is completed between the 18th and 36th months by the protrusion of the posterior molars. Both the time and the order of appearance of the first set of teeth admit of a good deal of variation, their progress being hastened or delayed sometimes for a period of 6 or 7 months, by a lateral incisor, or even a molar or canine tooth, cutting the gum before the appearance of the central incisors. The period of primary dentition is one looked forward to with much anxiety, and is justly regarded as attended with increased risk to the life of the infant. Statistical inquiries show that during its continuance the proportionate mortality becomes much increased, and in the bills of mortality numerous deaths are ascribed to teething alone. It must be remembered, however, that at this time all the functions of the young being are in a state of great activity, and that teething is but one in a series of changes by which the infant is prepared to substitute for the milk provided by its mother, food suitable to the conditions of its future existence. In a healthy infant dentition in itself is attended with little inconvenience and no danger; when the teeth come to distend and stretch the mucous membrane lining the gums, there is probably a little tenderness and pain, some fretfulness, and perhaps slight febrile excitement; but in the absence of other causes of disease, this soon passes over; if, however, the nervous system is unduly excitable, dentition may seriously complicate other maladies. When the process of dentition is advancing normally, it should never be interfered with; when the gum is red, swollen, and painful, scarification may be resorted to with advantage, and may be repeated if necessary, the trifling loss of blood affording relief to the inflamed gum. When the tooth is evidently about to pierce the gum, if the child appears to suffer, it may be freed by cutting down to it with the gum lancet. In cases where convulsions supervene suddenly without an evident cause, if dentition is proceeding actively and the gums are tense and swollen, the gum lancet may be resorted to. In the convulsive affections which take place in children whose nervous systems have been rendered irritable by improper diet, or an impure or vitiated atmosphere, the late Dr. Mar-

shall Hall was a strenuous advocate of the free incision of the gums even when dentition was not making active progress; but in such cases the immediate exciting cause of the convulsions must be sought elsewhere than in the gums, and the attacks are to be relieved by removing the cause when it can be discovered, while their recurrence is guarded against by change of air and a more appropriate diet. Occasionally dentition is attended with a good deal of fever and much derangement of the digestive organs, while a sloughy unhealthy ulceration makes its appearance on the gum over the teeth just about to protrude, or at the edge of the gum of those which have recently been cut. In these cases the gum lancet does positive harm, while they readily yield to a properly regulated diet, and to the use of the chlorate of potash in solution, in doses of one or two grains repeated every 4 hours. During the earlier period of childhood a bony plate or partition separates the permanent from the fangs of the temporary teeth; as the period approaches in which the latter are to replace the former, this partition disappears, and the crown of the enlarged permanent tooth makes its way into the cavity of the temporary fang. As the permanent tooth advances, the fang of the milk tooth is absorbed, not however from any pressure exercised by the one upon the other, the two never coming in contact; and as the crown of the milk tooth falls off, the permanent tooth is ready to replace it. The first anterior or true molar usually appears at about 6½ years; about the same time or a few months later the central permanent incisors appear; the lateral ones are developed at 8, the anterior and posterior bicuspids at 9 and 10, the canines from 11 to 12, the 2d true molars from 12 to 13, and the wisdom teeth from 17 to 19. From the investigations of Mr. Edwin Saunders ("The Teeth a Test of Age, considered with reference to the Factory Children"), it would appear that the 2d dentition furnishes the best physical evidence of the age of children within our reach; in the large majority of instances he found its indications coincided very closely with the real age of the children, and when they failed the extreme deviation was but a year.

DENTON, a N. E. county of Texas, drained by two forks of Trinity river, and occupied partly by prairies and partly by vast forests called the Cross Timbers; area, 900 sq. m.; pop. in 1858, 3,907, of whom 195 were slaves. In 1850 it produced 14,171 bushels of corn, 980 of oats, and 18,728 lbs. of butter. Capital, Denton.

DENUELLE, Dominique Alexandre, a French decorative artist, born in Paris in 1818. He studied under Paul Delaroche and Duban, the architect of the Louvre restoration, and passed several years in Italy. Since 1844, when he first became known, he has been extensively employed in restoring mural paintings in public buildings, many of which have also been decorated from his own designs. He has been employed upon the churches of St. Germain des Prés, Ste. Clotilde, Notre Dame, and many others in Paris, Lyons, Orleans, Beauvais, &c.

DEODAND (Lat. *Deo dandum*, a thing to be given to God). A superstitious practice prevailed in England from the earliest time until a very recent period, whereby a chattel which had been the immediate instrument or cause of death to a human being was forfeited to the king, to be applied by him to pious uses. *Omnia quæ movent ad mortem sunt Deo danda* (all things which while in motion cause death are to be offered to God), is the rule stated by Bracton. It is supposed by Blackstone that the origin of this practice was the religious doctrine of making expiation for the souls of such as were carried off by sudden death. A singular distinction was made between an infant and an adult, viz.: that an infant falling from a cart or horse not being in motion, there was no forfeiture; whereas in the case of an adult the horse or cart was a deodand. Yet if a horse or other animal should of his own motion kill either an infant or adult, or if a cart should run over him, in either case the animal or cart was forfeited as a deodand. Another rule equally inexplicable was, that when a thing not in motion was the occasion of a man's death, only that part which was the immediate cause was forfeited; but if the thing was in motion, then the whole was forfeited; as, if a man was run over by a cart wheel, the whole cart was a deodand. It made no difference although the owner of the chattel was not in fault; it was equally a forfeiture as if he had contributed to the death. This absurd custom gave rise to a clause in indictments, which was held to be essential, viz: a finding by the grand jury what was the instrument of death, and its value; and so also in a verdict of a coroner's jury in cases of homicide. By the act 9 and 10 Victoria, c. 62 (1846), the forfeiture was abolished; and by the act 14 and 15 Victoria, c. 100 (1851), it was declared unnecessary to set forth in indictments the instrument of death.

D'EON, Chevalier. See Eon.

DEPARTURE, in navigation and surveying, the distance apart of two meridians, one drawn through each extremity of a line, such as a ship's course.

DE PEYSTER. I. Johannes, one of the early settlers of New Amsterdam, now New York, born in Haarlem, Holland, in the beginning of the 17th century, died in New York about 1685. He was of a French Huguenot family who took refuge in the United Provinces about the time of the massacre of St. Bartholomew, and in the course of a long life held many offices of trust and honor under Dutch and English colonial rule. During the short period in 1673–'4 in which the Dutch recovered possession of the province, he took a prominent part in the conduct of public affairs, and was one of the last to take the oath of allegiance to the British crown upon the final cession of the New Netherlands to that power; notwithstanding which he was subsequently at different times alderman, deputy mayor, and mayor. At his death, he

was one of the richest citizens in the colony. II. Abraham, eldest son of the preceding, born in New York, July 8, 1658, died there, Aug. 10, 1728. He was by profession a merchant, and amassed considerable wealth in lands and goods; and also filled many important public offices after the final cession of the New Netherlands to Great Britain. Between 1691 and 1695 he was mayor of New York, and subsequently became chief justice of the province, and president of the king's council, in which latter capacity in 1701 he acted as colonial governor. He was also colonel of the forces of the city and county of New York, and treasurer of the provinces of New York and New Jersey. He possessed great influence in the councils of his native city from his administrative talent, integrity, and liberal sentiments, and was the intimate friend and correspondent of William Penn, and of the colonial governor, the earl of Bellamont. The mansion erected by him in Pearl street in 1695, which was at one time the head-quarters of General Washington, remained standing until 1856. The bell presented by him to the middle Dutch church in Nassau street a short time before his death, now hangs in the Reformed Dutch church in Lafayette place.—Of the other children of Johannes De Peyster, Johannes filled the mayoralty chair of New York, Isaac was member of the provincial legislature, and Cornelius was the first chamberlain of the city of New York, beside filling various other public offices. One of his granddaughters was the mother of Major-General William Alexander, the claimant of the Scottish earldom of Stirling.—Of the descendants of Col. Abraham De Peyster, his eldest son, Abraham, was for many years treasurer of the province of New York; and his great-grandson, Abraham, commanded a detachment of royal troops under Col. Ferguson at the battle of King's Mountain. After the war he was treasurer of the province of New Brunswick, and commander of the militia. James, a brother of the preceding, was also an officer in the British army, and fell at the battle of Lincelles, in the Netherlands, in 1793. III. Arent Schuyler, grandson of Col. Abraham De Peyster, and a colonel in the British army, born in New York, June 27, 1736, died at Dumfries, Scotland, in Nov. 1832. He entered the 8th or king's regiment of foot in 1755, served in various parts of North America under his uncle, Col. Peter Schuyler, and commanded at Detroit, Michilimackinac, and various places in Upper Canada, during the American revolutionary war. The Indian tribes of the north-west were then decidedly hostile to the British government, but the prudent measures adopted by Col. De Peyster tended to conciliate and finally to detach them entirely from the American cause. To his influence over the Indians several American missionaries and their families were on one occasion indebted for the preservation of their lives. Having risen to the rank of colonel, and commanded his regiment for many years, he retired to Dumfries, the native town of his wife, where he resided until his death. During the French revolution he was instrumental in embodying and training the 1st regiment of Dumfries volunteers, of which Robert Burns was an original member. He was on terms of friendship with Burns, who addressed to him one of his fugitive pieces, and with whom he once carried on a poetical controversy in the columns of the "Dumfries Journal." He died as full of honors as of years, having held the king's commission upward of 77 years, and being probably at the time the oldest officer in the service. His nephew, Captain Arent Schuyler De Peyster, was an American navigator, who sailed several times around the globe, and in a passage from the western coast of America to Calcutta, discovered a group of islands, called after him the De Peyster or Peyster islands.

DEPOSITION, in law, the testimony of a witness reduced to writing in due form of law, taken by virtue of a commission or other authority of a competent tribunal. When taken by commission, depositions are usually in answer to questions upon the examination in chief, and upon cross-examination, prepared and submitted to the court from which the commission issues. In other cases they are taken by consent of counsel or in due course of law, the privilege of cross-examination being always preserved, except in some cases where depositions of matters within the knowledge of persons of great age are allowed to be taken for the purpose of perpetuating their testimony, and in cases where immediate death by violence is expected. This must, when possible, be sworn to and signed by the witness. In the United States, compulsory process is usually allowed to procure this evidence.—In ecclesiastical law, deposition is the act of depriving a clergyman by a competent tribunal of his clerical orders, in punishment of some offence, and to prevent his acting in his clerical character.

DEPPING, Georges Bernard, a French naturalist and historian, born at Münster, Westphalia, May 11, 1784, died in Paris, Sept. 5, 1853. He went to Paris in 1803, and first devoted himself to teaching, and afterward to miscellaneous literary labor. His juvenile works, *Les soirées d'hiver* (3d ed. 1832; translated into many European languages) and *Merveilles et beautés de la nature en France* (9th ed. 1843), became as popular abroad as at home. He joined Malte Brun in his efforts to promote the knowledge of geography in France, and wrote a great number of geographical works. His intimacy with the Danish poets Baggesen and Oehlenschläger led him to apply himself to the study of Scandinavian literature, history, and archæology, and so successfully that he won the prize offered by the institute in 1820 for the best work on the maritime expeditions of the Normans into France in the 10th century. This work was followed by his "History of Normandy from 1066 to 1204" (1835). Among the most important of his other writings are a "History of the

Commerce between the Levant and Europe from the time of the Crusades to the Colonization of America" (1830); and a "History of the Jews in the Middle Ages" (1834).

DEPTFORD, a town and naval arsenal in Kent and Surrey, England, on the right bank of the Thames, at the mouth of the Ravensbourne, on the Croydon and Greenwich railways, and at the junction of the Croydon and Surrey canals, 3 m. S. E. from London bridge, and contiguous to Greenwich; pop. in 1851, 27,896. It contains a royal naval school incorporated in 1840, and 2 ancient hospitals for decayed pilots and shipmasters or their widows. Its principal feature, however, is the dock yard, established by Henry VIII., and now enclosing an area of 31 acres. There are 3 slips for ships of the line on the river front, 2 for smaller vessels opening into a basin 260 by 220 feet, and 2 dry docks, one communicating with the basin, and the other, a double dock, with the Thames. Adjoining the dock yard is the victualling yard, containing sheep and cattle pens, slaughter houses, salting establishments, a mill of great capacity, bakeries, a brewery, and a cooperage in which casks are made by machinery. The number of persons employed in time of war in the docks has been about 1,500, and in the victualling yard about 1,200.

DE QUINCEY, Thomas, an English author, often styled "the English opium-eater," from the remarkable personal experiences detailed in his celebrated work bearing that title, born in Greenhay, a suburb of Manchester, in 1786. Many of his writings are autobiographical, but in the minute account he has given of his adventures and sufferings, fiction is supposed to be mixed with fact to such a degree as to render it impossible in many cases to discriminate between them. He was the 5th child of a merchant who spent most of his time at foreign ports, and who at his death in 1793 left to his family a fortune of £1,600 a year. His childhood was chiefly passed in rural seclusion, with 3 sisters for playmates. The death of one of these when he was 2½ years old caused him not so much sorrow as a sad perplexity; it appalled him by its mystery, but he was solaced by a trust that she would return again like the crocuses and roses. A few years later, the death of a second sister overwhelmed him with grief, and the sentiments of love and religion which it awoke were nursed by him in silent reverie, and deepened the naturally solemn tone of his mind. "If," he says, "I should return thanks to Providence for all the separate blessings of my early situation, these four I should single out as worthy of special commemoration: that I lived in rustic solitude; that this solitude was in England; that my infant feelings were moulded by the gentlest of sisters, and not by horrid pugilistic brothers; finally, that I and they were dutiful and loving members of a pure, holy, and magnificent church." He was sent to various schools, and early distinguished himself by his proficiency in Greek; at the grammar school of Bath, where he studied from his 12th till his 14th year, the master said of him that he "could harangue an Athenian mob." He was transferred to a school at Winkfield, where he remained a year in discontent, entreating his guardian to send him to the university, but in vain, though the income of his patrimony was sufficient for his support. Resolved, however, to be no longer numbered among school boys, he borrowed from a lady of rank 10 guineas, ran away from school with a volume of Euripides in his pocket, and by accident directed his wanderings toward North Wales. The inns rapidly exhausted his money, and after a few weeks he was obliged first to limit himself to one meal a day, and then to subsist only on blackberries, hips, haws, and casual hospitalities. He contrived in May, 1800, to obtain a passage to London, and there a fiercer stage of his sufferings began. For 16 weeks he constantly endured the physical anguish of hunger, and that he did not sink under his torments he ascribes to his constant exposure to the open air, since he was houseless, seldom sleeping under a roof. He was at length permitted by an eccentric character to sleep in a large unoccupied house, where he found a forsaken, friendless, hunger-bitten girl, apparently 10 years of age, for his companion, who rejoiced in obtaining a protector during the darkness amid the rats and ghosts. He has written pathetic sketches of his associations at this time with some of the refuse members of London society. He had in vain resorted to a Jew for an advance of money on the strength of his future expectations, when at length an opening was made for reconciliation with his friends; and he attended school and visited in different parts of England and Ireland till he went to Oxford in Dec. 1803. After having been an unknown and unacknowledged vagrant, a houseless wanderer in Wales, and a solitary roamer in the streets of London, he speaks of himself as now for the first time becoming an object of notice to a large society, and burdened with the anxieties of a man and of a member of the world. He was a student at Oxford till 1808. He first resorted to opium on a visit to London in the autumn of 1804, with a view of lulling the pains of rheumatism. He took it; and in an hour, "O heavens! what a revulsion! what an upheaving from its lowest depths of the inner spirit! what an apocalypse of the world within me! That my pains had vanished was now a trifle in my eyes; this negative effect was swallowed up in the immensity of those positive effects which had opened before me, in the abyss of divine enjoyment thus suddenly revealed." He says that for 10 years he "lived on the earth the life of a demiurgus, and kept the keys of paradise." It was his custom to drink laudanum either on a Tuesday or Saturday night once in 3 weeks. On Tuesday night he went to the opera, where in the elaborate harmony and scenic display he saw unfolded before him, as in a piece of arras-work, the whole of his past life, with its passions exalted, spiritual-

ized, and sublimed; not as if recalled by an act of memory, but as if present and incarnated in the music. On Saturday night he used to wander forth through the markets of London, where the poor were expending their money, and listen to the consultations of family parties on their ways and means, making himself familiar with their wishes, difficulties, and opinions, and philosophically observing as he listened that expressions of patience, hope, and tranquillity were far more common than murmurs of discontent. Such were his delights, and such were the pictures which at a later time tyrannized over his dreams. In 1809, soon after leaving the university, he took the cottage at Grasmere, among the lakes and mountains of Westmoreland, which Wordsworth had occupied before him; and he retained it 27 years. Among his associates, with whom he had formed acquaintance in prior visits, were Wordsworth and Coleridge at Grasmere, Southey at Keswick, Charles Lloyd at Brathay, and Wilson at Elleray. He often visited London, Bath, and Edinburgh; his most intimate friend in London being for many years the celebrated peripatetic known as "Walking Stewart." He was occupied especially with the study of German literature and philosophy, made translations from Lessing and Richter, and was among the first in England to interpret Kant, Fichte, and Schelling. Though he took opium on Saturday nights, it had not disordered his health, and he was ignorant and unsuspicious of its avenging horrors. But in 1813 an irritation of the stomach, the consequence of his early sufferings, returned with a violence which yielded to no remedies but opium. From this time he became a regular and confirmed opium-eater, taking it daily, and the first effect of this change was that black vapors seemed to roll away from his brain, his mind resumed its functions, and a latter spring came to close up the season of his youth. But within a year began his "Iliad of woes." It had been the aim of his whole life, with reference to which he had directed all his intellectual labors, to construct one single work, to which he purposed giving the title of an unfinished work of Spinoza, *De Emendatione Humani Intellectus*. The studies of many years had laid the foundation, but he could not command the efforts to rear the superstructure. In what he terms his state of imbecility he turned his attention for amusement to political economy. He welcomed the treatise of Ricardo in 1819 as the first profound work on the subject, and it roused him to an activity which enabled him to draw up his "Prolegomena to all Future Systems of Political Economy." Yet opium paralyzed his efforts to complete even that short work. He failed to accomplish the preface, the arrangements for its publication were countermanded, and it first appeared in 1824 under the title of "Templars' Dialogues." It is one of the most thorough, as well as briefest exhibitions of the Ricardian theory of value. Seldom could he prevail on himself to write even a letter. A change took place in his contemplations, and in his dreams. He was inclined to solitude and reverie, and mentions that on summer nights at his open window, overlooking the town and sea at a little distance before him, he often sat from sunset to sunrise, motionless, and without wishing to move. While lying awake, he could see vast processions pass along in mournful pomp, friezes of never-ending processions, that seemed to him as sad and solemn as if they were histories of "times before Œdipus or Priam, before Tyre, before Memphis;" and in his dreams a theatre seemed suddenly opened and lighted up within his brain, which presented nightly spectacles of more than earthly splendor. Space seemed immeasurably expanded, buildings and landscapes assumed proportions too vast for the scope of the eye, time became infinitely elastic, stretching out to boundless and vanishing termini, and a single night would leave the impressions of millennia passed in that time. With deep-seated anxiety and gloomy melancholy he seemed every night to descend literally into chasms and sunless abysses, depths below depths from which it appeared hopeless that he could ever reascend. From the gorgeous scenery and terrific events of his dreams he often awoke in struggles, crying aloud: "I will sleep no more." Twice he triumphed over the physical necessity for opium, and twice he relapsed. In a third attempt he found it impossible to retrace his steps, and in the imagery of his dreams he "saw through vast avenues of gloom those towering gates of ingress, which hitherto had always seemed to stand open, now at last barred against his retreat, and hung with funeral crape." In 1821 he went to London with literary purposes, and, as collaborator in the "London Magazine," became at once associated with Charles Lamb, Hazlitt, Allan Cunningham, Hood, Cary (the translator of Dante), and with other authors. His "Confessions of an English Opium-Eater" appeared in that periodical in 1821, and in a volume in 1822. They immediately obtained for him a high reputation, and have remained his most powerful and artistic production during a long career of authorship. He has been a frequent contributor to British periodicals, chiefly to "Blackwood's Magazine," "Tait's Edinburgh Magazine," and the "North British Review," of autobiographical sketches, literary reminiscences, miscellaneous essays, and historical, philosophical, and critical discussions. He also furnished several articles to the "Encyclopædia Britannica." The notices of his distinguished contemporaries and associates which give interest to several of his writings, it has been said, would have been more appropriate if marked by greater reserve. All his works show a wide range of learning and speculation, a delicate and subtle critical faculty, and a felicitous selection of words. As improvisations they would be admirable displays of mental power, but most of them are so unartistically constructed, the main idea and purpose being lost by unceasing discursions, that they are ex-

cellent only in fragments and passages. His highest and most peculiar merit is as a writer of imaginative and highly impassioned prose, the best examples of which are contained in his "Confessions," and "Suspiria de Profundis." Such are his splendid personifications of those various forms or powers of sorrow which hold dominion over man and human life: "the three ladies of sorrow, our lady of tears, our lady of sighs, and our lady of darkness." After alternating for a time between the lakes and London, Mr. De Quincey has since 1843 resided at Lasswade, a village about 12 miles from Edinburgh. In person he is described as far from prepossessing, being diminutive in his stature and awkward in his movements, with a shrivelled and yellow parchment-like skin. He daily performs set tasks of walking in his garden, and often disappears untraced for several days together from his home. He has offered his body after death for dissection, as a contribution to physiological science, believing, or affecting to believe, that the dreadful gnawing of the stomach which he experiences is caused by the ravages of a living animal. His works have been collected in Boston (21 vols., 1851–'59), and a select edition is now (April, 1859) publishing in London and Edinburgh.

DERA GHAZEE KHAN, a large town of the Punjaub, 4 m. from the right or W. bank of the Indus, in the district of Damaun; pop. about 25,000, of whom one-half are Hindoos, and one-half Mohammedans. It contains a dirty, ill-built bazaar with 1,600 shops. It has manufactories of silk, cotton, and mixed fabrics, and cutlery to the estimated amount of $100,000 yearly. The surrounding country is fertile, producing sugar, cotton, indigo, and excellent fruits.

DERAYEH, El, a town of Arabia, in the province of Nedjed, lat. 25° 15′ N., long. 56° 80′ E. It lies in a fertile and well watered valley at the foot of Mount Khoor, was strongly fortified in the oriental style, and contained about 15,000 inhabitants, 30 mosques, and 30 schools, in the earlier part of this century, when it was famous throughout the Mohammedan world as the capital and stronghold of the Wahabees. In 1819 it was taken and destroyed by Ibrahim Pasha, after a siege of 7 months.

DERBEND, or Derbent, a fortified town of Russian Daghestan, on the W. shore of the Caspian sea, lat. 42° 12′ N., long. 48° 25′ E.; pop. about 12,000, consisting of Georgians, Armenians, and Jews. It is built in the pass of Derbend, the ancient Albaniæ Portæ, lying between the sea and the extremity of a spur of the Caucasus. It is defended on the N. and S. by walls of great strength with 2 iron gates, through which the road passes, and from which it has its name, signifying "closed gates." The pass was fortified by the first Darius against the Scythians, and the present walls are said to have been built by Chosroes. It was afterward taken by the Saracens, recovered by the Persians, captured by Russia in 1722, restored to Persia in 1735, and taken again in 1795 by the Russians, who have kept it since.

DERBY, a parliamentary and municipal borough and the county town of Derbyshire, England, on the Derwent, which is navigable hence to its junction with the Trent, distant N. N. W. from London 132 m. by the London and Northwestern and Midland Counties railways; pop. in 1851, 40,609. There are 8 churches, a Catholic cathedral, and 13 dissenting chapels. The free grammar school, said to be one of the oldest institutions of the kind in England, has 10 exhibitions to Emmanuel college, Oxford. There are 6 national, several British, a female normal, a diocesan, a Wesleyan Methodist, and 2 infant schools, a library, a mechanics' institute, and a philosophical society founded by Dr. Darwin. One of the most interesting features of the town is a botanical and pleasure garden called the arboretum, founded by the liberality of Mr. Joseph Strutt, a citizen of Derby, and laid out with great taste, at the donor's expense, by the late J. C. Loudon. The manufactures are extensive, and embrace silk, lace, cotton, porcelain, jewelry, carriages, iron boilers, iron plates, red and white lead, sheet lead, &c. Various beautiful ornaments are made of the marbles, spars, and petrifactions found in the vicinity.

DERBY, Edward Geoffrey Smith Stanley, 14th earl of, and Baron Stanley, a British statesman, born at Knowsley Park, Lancashire, March 29, 1799. At an early age he was sent to Eton college, whence, after the usual residence at that institution, he was removed to the university of Oxford, and entered as a student of Christchurch. Although his academic career was more than ordinarily distinguished, he was never graduated. He entered parliament in 1821 as member for Stockbridge, and made his maiden speech on the Manchester gas-light bill, March 30, 1824, of which Hansard remarks (vol. xi. p. 11), that Mr. Stanley addressed the house "in a maiden speech of much clearness and ability." He soon took rank in the house of commons among the ablest debaters and most prominent leaders of the whig opposition to the ministry of the earl of Liverpool. He was elected member for the town of Preston, Lancashire, in 1826, and on March 11, 1827, took office as under secretary for the colonies in George Canning's administration, which office he continued to hold after the death of that great statesman, in the Goderich (earl of Ripon) cabinet, until its dissolution in Jan. 1828. During the 3 years of the Wellington government which followed, Mr. Stanley was among the first and most eloquent of the prominent orators and statesmen who then occupied seats in the popular branch of the British legislature. On the formation of the reform cabinet of Lord Grey in 1830, he was appointed to the arduous and responsible office of chief secretary for Ireland, with a seat in the cabinet, an honor rarely united with that appointment. The acceptance of office having vacated his seat in parliament, on presenting himself to the electors of Preston for reëlection, he was de-

feated by the radical agitator Henry Hunt, but was soon afterward returned, by the retirement of Sir Hussey Vivian, for the borough of Windsor, which he continued to represent until 1832, when he was elected for one of the divisions of Lancashire. In the great parliamentary struggle of 1832–'3, which resulted in the passage of the reform bill, the church temporalities bill, and the bill to establish national education in Ireland, Mr. Stanley took a brilliant and effective part. His speeches during that stormy session, in reply to the fierce assaults of Daniel O'Connell, Richard Lalor Sheil, and others, are splendid efforts of parliamentary eloquence. In 1833 Mr. Stanley exchanged the troublesome office of chief secretary for Ireland for that of secretary of state for the colonies. He was nominated to this post with the special object of carrying the abolition of slavery in the West Indies, which was effected under his auspices. In the following year, on the death of his grandfather and the succession of his father to the earldom, he became known by the courtesy title of Lord Stanley, and in the same year retired from the cabinet in company with Sir James Graham, the earl of Ripon, and the duke of Richmond, in consequence of his and his three colleagues' nonconcurrence with the ministerial proposition to appropriate the surplus funds of the Irish church establishment for secular education. In the brief administration of Sir Robert Peel (Dec. 1834, to April, 1835), Lord Stanley refused to take office. But long before the 6 years of the whig dominion under Lord Melbourne had elapsed, he and his followers, facetiously known as "the Canning leaven of the whig administration," were found voting steadily with the conservative opposition, as avowed members of the conservative party. In 1841 the whigs went out of office, and Sir Robert Peel formed a cabinet in which Lord Stanley occupied a seat as colonial secretary. In 1844, while his father was still living, he was summoned by writ to the house of peers as Baron Stanley of Bickerstaffe, and assumed the leadership of the conservative party in that body. When Sir Robert Peel resolved in 1845 to adopt a free trade policy, and remove prohibitive duties on foreign grain and breadstuffs, Lord Stanley left the cabinet and became the leader of the protectionist opposition. When, in Dec. 1845, Sir Robert tendered his resignation to the queen, Lord Stanley was invited by her majesty, at the instance of Lord John Russell, to form a protectionist cabinet, but he resolutely declined the offer. During the 6 years of Lord John Russell's tenure of the premiership, Lord Stanley added to his already high fame as an orator and a statesman, by his frank, manly, and magnanimous course as leader of the opposition in the hereditary branch of the legislature. His speech on the Irish poor laws in 1849, his speech on the affairs of Greece in 1850, and his famous explanation of the reasons why he declined the premiership when offered to him in Feb. 1851, when Lord John Russell's ministry were defeated in the house of commons on Mr. Locke King's motion for an extension of the franchise, are among the most remarkable of his forensic efforts. On June 30, 1851, on the death of his father at the advanced age of 76, he succeeded to the earldom and the vast ancestral estates in England and Ireland which are attached to it. On Feb. 20, 1852, Lord John Russell having sustained another defeat on the militia bill, Lord Derby was again called by the queen to construct a cabinet, and succeeded in performing the task within a week after the overthrow of the whig chieftain. In July of the same year parliament was dissolved, and the new parliament assembled in December. On one of the first test divisions the ministry were defeated by a majority of 19 in an unusually full house, and after 10 months' tenure of office, they were succeeded by the so-called coalition cabinet, of which the earl of Aberdeen was the head. When in his turn this last mentioned nobleman was driven from power, the seals of office were again offered to and declined by Lord Derby, and finally intrusted to the care of Lord Palmerston, who continued to hold them until 1858, when, by the same majority of 19 by which Lord Derby was overthrown 6 years before, Palmerston was defeated by the adoption of Mr. Milner Gibson's amendment on the second reading of the conspiracy to murder bill. On the resignation of Lord Palmerston, Lord Derby was again "sent for" by the queen to form the cabinet over which, with one or two unimportant changes, he still (April, 1859) continues to preside. Lord Derby was elected chancellor of the university of Oxford on the death of the duke of Wellington, is an elder brother of the Trinity house, governor of the Charter house, a trustee of the British museum and of the Hunterian museum, and fills other honorary posts. On May 31, 1825, he married the Hon. Emma Caroline Wilbraham, 2d daughter of Edward, Lord Skelmersdale, by whom, beside two sons and one daughter who died in infancy, he has issue, the Right Hon. Edward, Lord Stanley, now secretary of state for India, the lady Emma Charlotte, and the Hon. Frederic Arthur Stanley, an officer in the British army.—The earldom of Derby was conferred by Henry VII. in 1485 on the then representative of the old and heroic family of Stanley of Lancashire, for acts of prowess and devotion at the battle of Bosworth. For more than 2 centuries the earls of Derby were sovereigns of the isle of Man, under the suzerainty of the British king, and it was not until the reign of George III. that the sovereignty of that island was transferred to the British crown.

DERBYSHIRE, a central co. of England, consisting of a level or moderately hilly district, abounding in fine scenery, fertile, well cultivated, and rich in minerals; area, 1,028 sq. m.; pop. in 1851, 296,084. It is watered by the Derwent, Trent, Dove, Wye, Erewash, and Rother. The S. and E. parts produce wheat, barley, and other kinds of grain; the N. part, where the surface is more hilly, and the climate colder, is occupied chiefly by oat fields and pas-

tures. The elevated region called the High peak, consisting of a succession of bleak hills, some of which rise 2,000 feet above sea level, interspersed with narrow valleys, is famous for its romantic scenery. Dairy husbandry is carried on in nearly all quarters of the county, and yields upward of 2,000 tons of cheese every year. Among the hills are reared small sheep, and a breed of light, slender horses. Among the minerals are coal, iron, lead, zinc, copper, gypsum, black and variegated marble, fluor spar, small crystals called Derbyshire diamonds, chalcedony, jasper, and a few onyxes. The coal field covers an area of about 190,000 acres, and belongs to the same great field which extends over part of the West Riding of Yorkshire and part of Nottinghamshire. The lead mines have from time immemorial been let on lease, and are the subjects of several very ancient and peculiar laws. Courts for the adjustment of disputes occurring and debts contracted in working these mines are established in each mining district, and are presided over by the lessee's steward, assisted by 24 jurymen. There is another officer, called the barmaster, whose duty it is to put miners into possession of veins which they may have discovered, and to collect the rent due the lessee of the crown or the lord of the manor. Derbyshire is traversed by the Grand Trunk, or Trent and Mersey, the Erewash, the Derby, the Cromford, the Nutbrook, the Chesterfield, the Peak forest, and the Ashby de la Zouch canals, and by the Cromford and High Peak, the North Midland, the Midland Counties, the Birmingham and Derby grand junction, and several branch railways, beside a number of private railways for the transportation of produce of the mines. The manufactures are important, and comprise cotton, silk, calico, cambric, fustian, muslin, tape, candle wicks, machinery, agricultural implements, leather, hats, paper, and porcelain. In the mountain district there are numerous tepid mineral springs.

DERBYSHIRE SPAR, a variety of fluor spar found in Derbyshire, England, which is distinguished by its fine shades of purple, blue, red, and yellow. These, together with the soundness of the stone, render it well adapted for ornamental purposes. The manufacture of cups, tables, vases, inkstands, and other objects, is extensively carried on in several towns in the county, as at Derby, Buxton, Castleton, Bakewell, &c. The stone takes a high polish for one so soft; but the property which renders it easy to be worked, makes it liable to be soon defaced by scratches. It is found near Castleton in fissures in the limestone rocks.

DERFFLINGER, Georg von (originally Dörfling), a general of the great elector of Brandenburg, born in Bohemia in March, 1606, died Feb. 4, 1695. A tailor's apprentice, he took service as a soldier, and fought at the battle of Prague, after which he entered the Swedish army as an officer under Gustavus Adolphus. He served under Bauer and Torstensen, contributed to the Swedish victory at Leipsic in 1642, and was raised to the rank of major-general. Afterward he entered the service of Brandenburg, and distinguished himself against the Poles, Swedes, and French. In 1670 he became field marshal, and in 1674 baron of the German empire; routed the Swedes near Rathenau, June 15, 1675, and at Fehrbellin 3 days afterward, and secured the greater portion of Pomerania for the elector. In the winter campaign of 1678–'9 he caused 9,000 soldiers and 30 guns to cross the ice on sleds as far as Tilsit, and routed the Swedes under Horn near the latter city.

DERG, Lough, a lake in the co. of Donegal, Ireland, about 7 m. S. E. of Donegal, 3 m. long, and 2½ m. wide at the broadest part. It is enclosed on all sides except the S. by steep, barren mountains, which give a wild and desolate character to the surrounding scenery. Its shores are rough and precipitous. It lies 467 feet above the level of the sea, and is 75 feet deep. A multitude of little islands dot its surface, one of which, called Station island, about an acre in extent, contains a cave known as St. Patrick's Purgatory, to which between 10,000 and 15,000 Roman Catholic pilgrims from all parts of Ireland resort annually between Aug. 1 and 15. They remain on the island, which contains 2 chapels, a house for the priests, and a few cabins, from 3 to 9 days, their only food during that time being bread and water.

DERHAM, William, an English divine and natural philosopher, born at Stoughton, near Worcester, in Nov. 1657, died at Upminster, near London, April 5, 1735. The most important of his published works are: "The Artificial Clockmaker" (4th edition, 1734); "Physico-Theology" (16 discourses preached at Boyle's lecture, 1711), and "Astro-Theology" (1714), designed to prove the existence and attributes of God from an examination respectively of the works of creation and of the heavenly bodies; and "Christo-Theology" (1730), a sermon to prove the divine origin of Christianity.

DERIVATION, in modern algebra, is the mode of developing one function from another, according to some fixed law. By a function is here meant any algebraical expression of a quantity dependent for its value upon other quantities. The most usual, and perhaps the most important derivative functions, are Differentials and Integrals, which see.

DERMODY, Thomas, an Irish poet, born at Ennis in 1775, died at Sydenham, near London, in 1802. His father was a schoolmaster, and is said to have employed him while only in his 9th year as his assistant in teaching Latin and Greek. Thomas, however, soon after ran away from home, enlisted in the army, and served in the expedition to Holland under the earl of Moira, who promoted him to a second lieutenantcy; but by his intemperate habits he lost the favor of his patron, and afterward lived some time in London, and died in extreme poverty. A small volume of poems written by him in his 13th year appeared in 1792. In 1793 he pub-

lished a pamphlet on the French revolution, to which was appended a poem entitled "The Reform."

DERVISE, a Persian word meaning poor or indigent, used in Mohammedan countries substantially like the Arabic *fakir*, to designate a class of religious people who in some respects resemble the monks of Christianity. Their rule commands an austere piety, religious contemplation, poverty, chastity, modesty, patience, humility, and charity. They live in convents under the direction of a *sheikh*, but are allowed to marry, on the condition, however, of passing two nights of the week among their associates. They live by the labor of their hands, mendicity being forbidden, except in the order of the Bektashis, but their convents have generally been supplied by the donations of the sultans. Beside the fast of the Ramadan, they observe one weekly fast from morning to sunset. They hold religious meetings on Tuesdays and Fridays, in which they perform, to the sound of a flute, sacred dances, whirling around with extreme velocity, and stopping at once when the music ceases. Some lead a vagrant life, and traverse all the countries of the East from the Mediterranean to the Ganges, being lodged and fed in the convents of their order. They wear coarse robes, and walk bare-legged with the breast uncovered. The use of intoxicating liquors, as well as of opium, is stated to be common among them. In general they are said to enjoy little esteem among the people, who despise them as idlers. Some of them also act as jugglers, sorcerers, and charmers. The order of the Rufaïs, founded in the 12th century by Sheikh Ahmed Rufaï, is distinguished by fanatical excesses of self-mortification. At their assemblies some are seen holding a piece of red-hot iron between their teeth, others making incisions in their flesh. The Calenders are remarkable for their strange dress, sometimes consisting of a sheep's or tiger's skin; they wear feathers in their ears, and frequently go about half naked. The principal order is that of the Maulavis, whose chief convent is at Konieh, in Asia Minor. The origin of the dervises can be traced back to the first centuries of the Hegira. The foundation of some of the orders is attributed to Abubekr, Ali, and others; and passages of the Koran, which extol the merits of poverty and an independent, contemplative life, are quoted in support of the institution, which tradition also represents as having existed in the times of Elijah, of Jacob, and even of Seth.

DERWENT, the name of several rivers of England. I. A river of Cumberland, 32 m. long, rising in the district of Borrowdale, and flowing N. and then S. W. into the Irish sea, which it enters near Workington. It forms the lake of Derwentwater near Keswick, where it is joined by the Greta; expands into Bassenthwaite-water at the town of that name, and receives the river Cocker at Cockermouth. Its banks abound in rich and varied scenery. II. A river of Derbyshire, rising in a place called "the trough," in the mountains which extend along the N. boundary of the county, and uniting with the Trent near the borders of Leicestershire, after a course of about 50 m. Its general course is S. E. It passes Chatsworth house and the towns of Matlock, Belper, and Derby. Its scenery, particularly in the upper part, is beautifully diversified. The Wye is its largest tributary. III. A river of Yorkshire, East Riding, rising near Harwood dale, flowing nearly S. with many windings, and falling into the Ouse at Barmby, after a course of about 60 m. It is navigable to Malton, 27 m. above its mouth.

DERWENT, a river rising near the centre of Van Diemen's Land, flowing S. E. into the district of Norfolk, and entering the S. Pacific ocean through an estuary which separates the districts of Hobart Town and Richmond. The estuary is about 4 m. broad at its entrance, and retains this width for a distance of 6 or 8 m. inland. On an island at its mouth is a lighthouse 70 feet above the sea.

DERWENTWATER, James Radcliffe, earl of, a leader in the English rebellion of 1715, born in 1689, beheaded Feb. 24, 1716. He belonged to an ancient Catholic family in Northumberland. Sir Francis Radcliffe was created earl of Derwentwater by James II. in 1688, and his son Francis married a natural daughter of Charles II. His grandson James was brought up at St. Germain, and succeeded to the earldom in 1705. Personal attachment to the members of the Stuart family, as well as political principle, disposed the earl of Derwentwater to attempt the restoration of that house to the throne of England, and he entered into arrangements for that purpose with many other gentlemen and noblemen of the north and west of England. The plot was betrayed to the government of George I., who immediately suspended the *habeas corpus* act and issued warrants against the suspected. The standard of rebellion having been raised in Scotland, Lord Derwentwater, at the instigation of his countess, as it is said, commenced the movement in England, Oct. 6, 1715. The death of Louis XIV. disappointed the hopes of foreign aid, and at the first rendezvous there were but 60 persons present. Mr. Forster, member of parliament for Cumberland, was chosen leader, a selection in which his Protestantism was alone considered. They soon marched south, and approached Newcastle, which they failed in surprising. Volunteers came in slowly, and they were even compelled to decline the services of some for want of arms. Being joined by a party from Scotland, who were somewhat better, though imperfectly, equipped, they retreated toward the border, where they were joined by another body, under Mackintosh. The combined army now amounted to about 2,000 men. Two plans were proposed: one to take the southern Scottish towns and to operate against the duke of Argyle; the other to march south and encounter Gen. Carpenter, who was at the head of an inferior body of hastily levied troops. But the Englishmen would not go into Scotland, nor

the highlanders into England. Marching along the border, the dissension soon came to an open rupture. Lord Derwentwater endeavored to compromise matters, and advised the advance into Scotland; and finally they marched against Dumfries, whose inhabitants threw up intrenchments to oppose them. Without fighting, it was decided to march into England. At this a large number of the men retired at once, while the earl of Wintoun, Lord Derwentwater, and others accompanied the advance rather than give up the cause. At Penrith they were encountered by the *posse comitatus* of Cumberland, headed by the resident nobles and gentry. But this body fled on getting sight of the rebels, who continued their march, seizing the public funds where they could. They were joined by a small party of Lancashire gentlemen, and being informed that Manchester had proclaimed King James, they advanced toward that town. They occupied Lancaster, and afterward Preston, which Stanhope's regiment of dragoons evacuated on their approach. Here they received an accession of about 1,200 gentlemen and peasants, mostly unarmed and undisciplined. But Wills was now advancing against them, and Carpenter was closing in on their rear. The insurgents were totally ignorant of their critical position, which was only revealed by a letter from a private friend to Lord Derwentwater. Its contents were at once communicated to Forster, who was completely paralyzed by it. Lord Derwentwater and others threw up some barricades, but neglected to defend the approaches to the town, where a good resistance might have been made. The first attack of Wills was beaten back with considerable loss. Lord Derwentwater and his brother Charles Radcliffe showing great courage. The arrival of Carpenter made affairs desperate. The Scots were determined to sell their lives dearly, and in this they were joined by Lord Derwentwater; but the English commander Forster and others of his countrymen, dismayed at their hopeless situation, sent a secret message to treat for a surrender. After some difficulty Wills was brought to promise to spare their lives if they would surrender at discretion, and the following day these hard terms were accepted, and the royal troops entered the place. Little mercy was shown by the government; many of the common men were sent to the plantations in America, and the more important prisoners were carried to London. Lord Derwentwater was impeached and brought to trial, Jan. 19, 1716. He pleaded guilty, and threw himself on the mercy of the crown, alleging his youth and inexperience as an excuse; he was condemned to death as a traitor. The greatest efforts were made to obtain his pardon. His wife had a personal interview with the king, but to no purpose. Endeavors were made in both houses of parliament to obtain a reprieve, which was granted for two of the prisoners, Lords Carnwath and Widdrington, but the 3 others were ordered for immediate execution. Lord Nithisdale, by the stratagem of his devoted wife, succeeded in making his escape from the tower, but Lord Derwentwater was beheaded on Tower hill. He died with firmness, protesting his loyalty to James III., and asserting that "dishonorable terms had been proposed to him as the price of his life, which he had refused to accept." The estates of Derwentwater were confiscated, and afterward settled on the hospital for seamen at Greenwich. The body of the earl was conveyed by night through the country to his ancestral dwelling, and there buried. In 1805 the coffin was opened and the body found entire, and the head lying by it still showed the marks of the axe.—The countess of Derwentwater died at the age of 30, of small pox, in Deershaven, Flanders.

DERZHAVIN, Gabriel Romanovitch, a Russian lyrical poet, born in Kasan, July 3, 1743, died July 6, 1816, gained distinction in the military and civil service, was made secretary of state in 1791 by Catharine II., with whom he ingratiated himself by his panegyrical odes, minister of justice in 1802, and retired in the following year on a full-pay pension. Many of his poems abound with beautiful moral sentiments and expressions, especially his ode to God, which was not only translated into several European languages, but also into Chinese and Japanese. It is said to have been hung up in the palace of the emperor of China, printed in gold letters on white satin; and, according to Golownin's account, it was placed in the same manner in the temple of Jeddo. His complete works appeared in St. Petersburg (5 vols., 1810–'15).

DESAIX DE VEYGOUX, Louis Charles Antoine, a French general, of a noble but poor family, born at the castle of Ayat in Auvergne, Aug. 17, 1768, killed at Marengo, June 14, 1800. He was gratuitously educated at the military school of Effiat, which he left at 15 to enter the regiment of Brittany under the name of the chevalier de Veygoux. His regular conduct and strict attention to duty commended him to his superiors, while his liberal opinions estranged him from the class to which he belonged, and from his family. In the beginning of the revolution he was attached to the staff of Marshal Luckner. After Aug. 10, 1792, having signed a protest against the decree by which the legislative assembly suspended the authority of the king, he was cashiered, and afterward imprisoned, but Carnot reinstated him. He served on the Rhine under Pichegru and Moreau, with such ability that he was promoted to the rank of general of division. In 1796 he seconded Moreau in his campaign through Bavaria, and in the famous retreat which won for that general the reputation of a great strategist. On the return of the army to the Rhine, Desaix defended the fort of Kehl; and notwithstanding the dilapidated condition of the place, he held it for 2 months against the repeated efforts of the archduke Charles, and finally concluded a highly honorable capitulation. The next year he again led the army across the Rhine, an op-

eration in which he showed consummate skill. In the expedition to Egypt he received the command of a division, and after the storming of Alexandria, marched to Cairo with the vanguard. He took part in the battle of the pyramids, and being ordered to pursue Murad Bey, defeated him in several encounters, and driving him into Nubia, conquered the whole of upper Egypt. Here he established a regular government, and inspired the Egyptians with such esteem that they called him the "just sultan." When Bonaparte embarked from Egypt, he placed Kleber in command of the French troops, and ordered Desaix to follow him. The latter sailed on board a Ragusan bark, but on nearing his destination was intercepted by an English frigate, and was detained a prisoner for 30 days. Being at last released, he arrived, May 3, 1800, at Toulon, and hastened to join Bonaparte in Italy, where he arrived June 11, and was put in command of a division, with orders to prevent the army which had just taken Genoa from joining that under Melas at Alessandria. He was consequently at some distance from the main army on the morning of June 14, but on hearing the artillery, he hastily returned, and arrived in time to change the nearly lost battle of Marengo to a complete victory. But he did not witness the result of his movement; he was shot through the heart as he was entering the action. Bonaparte wept for him, had a medal struck in his honor, and decreed that a statue should be erected to his memory in the *place des victoires* at Paris, and that his grave should be placed on the summit of the Alps, under the care of the monks of St. Bernard.

DÉSAUGIERS, Marc Antoine Madeleine, a French song-writer and dramatist, born at Fréjus, Nov. 17, 1772, died in Paris, Aug. 9, 1827. At the age of 17 he produced a successful one-act comedy. He was in St. Domingo, whither he had accompanied his sister, who was married to a planter, when the insurrection of the blacks broke out, from which he barely escaped with his life to the United States, where he earned a living by teaching pianoforte playing. He returned to France in 1797, and wrote songs and light comedies. Some of his plays, such as *Les petites Danaïdes*, *La chatte merveilleuse*, and *M. Vautour*, had an unprecedented run; while his songs were more popular than those of any other writer except Béranger.

DESAULT, Pierre Joseph, a French surgeon, born of humble parentage at Magny-Vernais, a village of Franche Comté, in 1744, died in Paris, June 1, 1795. He commenced his education for the church in a Jesuit school, but exhibiting a strong inclination toward the study of surgery, was permitted to acquire the rudiments of the art from the barber-surgeon of his native village, after which he was sent to the military hospital at Befort, where he remained 3 years, giving special attention to gunshot and sword wounds. While here he translated Borelli's treatise *De Motu Animalium*. In 1764 he went to Paris, and there availed himself of the facilities for dissection with such success that he was soon competent to open a course of demonstrations in anatomy. In 1776 he became a member of the college of surgery. Thereafter his progress was rapid, having successively become chief surgeon to the hospital of the college, consulting surgeon to St. Sulpice, in 1782 surgeon-major to La Charité, and finally chief surgeon to the Hôtel Dieu, with the reputation of being the most skilful operator in France. In connection with the Hôtel Dieu he instituted a clinical class which attracted many students. The chief cases that came before the class were reported in a serial, entitled *Journal de chirurgie*, edited by the pupils. In the revolution he was arrested while lecturing, May 28, 1793, and carried to the Luxembourg, from which, however, he was liberated at the end of 3 days, more from need of his professional skill than from any leniency in his accusers. Having been employed to attend the dauphin, during the imprisonment of that unfortunate youth in the temple, he bestowed on him unremitting care. Suddenly he himself was seized with illness, which almost immediately terminated in delirium and death. The rumor of the time asserted that he was poisoned, because he refused to lend himself to the murder of his patient. This supposition was favored by the coincidence that Dr. Chopart, who succeeded Desault in his attendance, died with equal suddenness, and that soon afterward the young prince was reported dead. An autopsy in the case of Desault showing no trace of poison, his death was set down to ataxic fever. The republic pensioned his widow. Desault in manner was abrupt, even to rudeness, but under this rough husk lay many kindly qualities. His pupils gave him the name of *le bourrou bienfaisant*. He introduced numerous improvements into his art, both in instruments and their use, especially in the treatment of fractures and ligature of arteries. In conjunction with his friend Chopart, he wrote the *Traité des maladies chirurgicales* (2 vols. 8vo., 1780), which has been translated into English by Trumbull.

DES BARRES, Joseph Frederic Wallet, an English soldier and hydrographer, born in 1722, died in Halifax, N. S., Oct. 24, 1824, while on his way to England. He was descended from the Protestant branch of a noble French family, which emigrated after the revocation of the edict of Nantes. He received his education under the Bernouillis, entered the royal military college at Woolwich, and was offered the choice of a commission either in the royal artillery or corps of engineers. Preferring immediate active service, he embarked in March, 1756, as lieutenant in the 60th regiment of foot, for America; where, having raised above 300 recruits in Pennsylvania and Maryland, he was ordered to form and discipline them as a corps of field artillery, which he commanded until the arrival of one of the battalions of the royal train from England. In 1757 he commanded a detachment of volunteers

against the Indians, who had committed depredations in the neighborhood of Schenectady and other frontier towns; surprised the chiefs, whom he made prisoners, and soon after gained their confidence so completely, that they not only were restrained from further acts of hostility, but became useful to the army, in which a corps of them continued to be employed to the end of the war. In 1758 he was engaged in the expedition against Louisburg, where he had the good fortune to effect a landing in a violent surf, and to take from the enemy an intrenchment by which the debarkation of the army was greatly facilitated. At this siege he was on a critical occasion ordered to the duty of an engineer, and after the capitulation he employed himself in drawing a chart on a large scale, from papers and plans obtained there, which was found very useful in the next spring, as the navigation of the river St. Lawrence was then known only to a few Canadian pilots. At the siege of Quebec he served under Wolfe as an aide-de-camp, and was making his report when that hero received his mortal wound, and fell dying in his arms. By the expenditure of lives in the campaign of 1759 and the ensuing winter, and in the unsuccessful battle fought by Gen. Murray, April 28, 1760, the army in Canada was reduced to less than 2,000 men fit for duty. The fortifications of Quebec being in a dismantled state, the preservation of what had been acquired, as well as the expectation of future conquests, seemed to rest on the operations for its actual defence. The conducting of these operations fell to Des Barres as directing engineer, and here, and subsequently in the reduction of Fort Jacques Cartier and other strong places, which completed the conquest of Canada, his endeavors proved successful. He was afterward ordered to Nova Scotia to assist Gen. Bastide in tracing designs and making estimates of the expense for fortifying the harbor of Halifax, and securing its dock yard. In 1762 he served as directing engineer and quartermaster-general in the expedition for retaking Newfoundland, and was honored with public thanks, as having essentially contributed to the recovery of that island. After making surveys of some of its principal harbors, he was ordered to repair to New York, to proceed on reconnoitring excursions and report observations on the expediency of establishing a chain of military posts throughout the British colonies. In 1763 Lord Colville received instructions to employ him on the survey of the coast of Nova Scotia, which was projected by Admiral Spry, who proposed the undertaking to senior officers prior to recommending Des Barres to the admiralty for that duty. In this work he was engaged until 1773, and on his return to England, 1774, the king expressed his commendation of the manner in which this duty had been performed. Previous to this, many of the fine harbors of Nova Scotia were known only to fishermen, and the isle of Sable was a terror to all navigators. The want of correct charts of the coast of North America for the use of the fleet engaged in carrying on the American revolutionary war, began at this time to be felt; and on Earl Howe representing the immediate necessity of their being prepared, Des Barres was selected to adapt the surveys of Holland, De Brahm, and others to nautical purposes. These he published in 1777 under the title of the "Atlantic Neptune," in 2 large folio volumes. In 1784 the government of the island of Cape Breton was conferred on him, with the military command of that and of Prince Edward's island; and soon after he commenced building the town of Sydney, and opened and worked the valuable coal fields at the entrance of the river. From his official position he was engaged in aiding and removing the royalists from the United States after the war of the revolution. In 1804 he was appointed lieutenant-governor and commander-in-chief of Prince Edward's island, in the gulf of St. Lawrence, being then in his 82d year. In person he was short, and at the age of 95 lithe and active; about which time he talked of making the tour of the United Kingdom, to which he allotted 2 years; this performed, he was to commence that of Europe, which he calculated would take 3 years more; after which it was his intention to return to his native place, and there spend the remainder of his days. He was Capt. Cook's teacher in navigation.

DESCANT, in music, an old term, now understood to be synonymous with counterpoint. It signifies strictly an unpremeditated enlargement upon a given subject, which, sung by another voice or by voices, formed the accompaniment of the descant. Musicians distinguished between plain, figurative, and double descant.

DESCARTES, René (Lat. Renatus Cartesius), a French philosopher, born in La Haye, between Tours and Poitiers, in Touraine, March 31, 1596, died in Stockholm, Feb. 11, 1650. He was the youngest son of a councillor of the parliament of Rennes, of an ancient and noble family, and early in life, when as yet a mere boy, evinced such a disposition to inquire into the nature and causes of things, that he passed under the sobriquet of the young philosopher. His education was conducted in the Jesuit college of La Flèche, where, in spite of the extreme delicacy of his physical constitution, he made rapid progress in the Greek and Latin classics, and the other ordinary studies of such an institution. He contracted also while there a friendship with Mersenne, which lasted until the end of his life; and though Mersenne became a monk, it was chiefly through him that Descartes communicated from the profound scholastic retirement which he sedulously sought with the outside learned world. After leaving college, in his 16th year, he occupied himself in acquiring the manly accomplishments of riding and fencing, with a view to the military life, to which he was destined by the wishes of his family and the spirit of the times. But his health did not allow him to enter the service immediately, and he was sent to Paris with a tutor, in order to pass two years in the further prose-

cution of his studies. In 1616 he joined the army of the prince of Orange, and while in garrison at Breda composed his *Compendium Musicæ*, which seemed a prelude to the research for harmony which he was soon about to carry into all the realms of knowledge. He was driven to it, doubtless, by the painful uncertainty and chaotic confusion which reigned in nearly all the departments of human inquiry. As a reaction against the prevailing tone, which was the despotism of authorities, many of the finest intellects had taken refuge in scepticism, so that Mersenne could write in 1623: "There are 50,000 atheists in Paris;" and the most popular verses of the *Agrippine* of Cyrano were those which sang:

Une heure après la mort, notre âme évanouie
Sera ce qu'elle était une heure avant la vie;

which may be translated:

An hour after death, our soul, released from earth,
Will be just what it was an hour before its birth.

At the same time there was a bitter reaction against the past in the scientific aspirations of those students of Italy, France, Germany, and England, who began to cast off the fetters of the scholastic logic, and to open new methods of investigation into nature, by means of observation and experiment. Descartes was torn by the doubts of his epoch, but he shared also in its grand hopes; and if he doubted, it was only to cleanse his mind of the errors of the past, and to enable it to move more freely toward the grand constructions of the future. In 1619 he left the Dutch army, and entered as a volunteer into the service of the duke of Bavaria; he was present at the battle of Prague in 1620, and made the campaign of Hungary in 1621. The atrocities which he witnessed in this war are said to have been the occasion of his resigning his commission; but the probability is that his active mind had exhausted the uses of that mode of life, and he was eager to enlarge his knowledge of men and society by more extensive travel. Quitting the profession of arms altogether, therefore, he visited the greater part of the north of Europe, then returned to France, where he sold his estates, and speedily resumed his journeys. He spent considerable time in Switzerland and Italy, being present at Rome during the jubilee of 1625, and wherever he went observing the grand phenomena of nature, and perfecting himself in the acquisition of all existing knowledge. It was at the town of Neuburg, on the Danube, where he passed the winter, that the plan of devoting the remainder of his days to the reconstruction of the principles of human knowledge, which had long been maturing in his mind, took a definite shape. While he wandered from the Baltic to the Mediterranean, he was digesting the outlines of the great discoveries in geometry and method, destined soon to change the intellectual currents of the world. He was but just 33, and in the height and vigor of his powers. Repairing first to Paris, where he moved about from one obscure house to another to escape the intrusions of friends, he next settled in the neighboring country, and being disturbed there, finally fixed his retreat in Holland, "the busy hive of labor and liberty," where he found it more easy to create the solitude necessary to his profound meditations. His life became that of an ascetic, emancipated from all social ties and relations, in order that he might devote himself the more exclusively to what was now his only wedded wife, the truth. He did not refuse, however, all participation in the affairs of the world; in 1633 he made a brief visit to England, the following year to Amsterdam; and, indeed, he constantly, through the mediation of Mersenne, maintained an active correspondence with the learned men who sought his instruction or his friendship. In 1637 he began a more open career by the publication of a volume from the press of Leyden, entitled *Discours de la méthode*, which contained treatises on method, on dioptrics, on meteors, and on geometry. The first of these, beside an admirable picture of his life and of the progress of his studies, furnished a clear outline of a new science of metaphysics only expanded in his later and larger works. In 1641 he published in Latin, from the press of Paris, his *Meditationes de Prima Philosophia*, which carried his speculations into abstruse questions as to the existence of God and the immortality of the soul. He invited criticisms of these, which, in later editions, are arranged and replied to under 7 heads, wherein he considers all the objections raised to his original system. These works filled Europe with his name, and at the close of the year 1641 he was invited to France by King Louis XIII., but he refused to quit his retirement. In 1644 his *Principia Philosophiæ* appeared, which 3 years later was translated into French by one of his friends, Claude Picot. He then went to France, where a pension of 3,000 livres a year was conferred upon him; but as Queen Christina of Sweden invited him to Stockholm, at the same time appointing him director of an academy which she proposed to establish, at a salary of 3,000 crowns a year, he was induced once more to abandon his native country. It was a fatal choice for him, for the rigors of the climate, combined with the unusually early hours exacted from him by the queen, in an eccentric wish to take lessons from him, led to his death in less than two years. He was buried at Stockholm, but 16 years afterward Louis XIV. caused his remains to be disinterred and carried to France, where he was entombed in the church of Ste. Geneviève du Mont, in the midst of magnificent ceremonies, and of the almost universal homage of his enlightened countrymen.—Descartes was an encyclopædic genius, and it would be impossible, in an article like this, to describe the entire scope and influence of his activity. He created an epoch in the history of the human mind, and can only be classed with men of the first order, like Plato, Aristotle, Bacon, Newton, and Kant. With Bacon, he was one of the founders of modern philosophy, but

he pushed his inquiries further than Bacon in many respects, and in a somewhat different sphere. What the latter accomplished for natural science, Descartes accomplished for moral and metaphysical; and it is no exaggeration which considers him as the father of that stupendous movement of intellectual investigation which has given to the world Malebranche and Spinoza, and after them the entire school of the great German idealists, beginning with Leibnitz and Wolf, and culminating in Kant and Hegel. As a metaphysician, he was the fountain head of the speculation of a whole subsequent century, while he added to his glory in that sphere the scarcely inferior distinction of a great discoverer in the mathematics, and of an earnest and sedulous laborer in nearly all the broad domains of physical science then known. Not wholly exempt from the errors of his day, he was yet immeasurably in advance of his day; while he enjoys this singular eminence among the greater number of philosophers, too much given to the jargon of learned words and abstruse phrases, that his style, his manner of expression, is as clear and beautiful as his thought is great. French style appears nowhere more simple, limpid, and direct than in the varied dissertations of Descartes, even when he treats of subjects the most recondite and difficult. Sir James Stephen compares the language of Descartes to the "atmosphere, by the intervention of which we see, though it is itself invisible. It is the nearest possible approach to that inarticulate speech in which disembodied spirits may be supposed to interchange their thoughts. It has no technical terms, no appeals to the memory, no coloring of imagination or of art, no trope or epigram or antithesis, no rhetoric and no passion; and yet it wants neither elegance nor warmth. The warmth is the warmth of a devout solicitude to attain truth and to impart it. The elegance consists in the felicity with which every word, sentence, paragraph, and discussion falls into its proper place, and exactly fulfils its appropriate office." It was owing to this admirable clearness, perhaps, as much as to the more essential merits of his system, that it was said, at the time of Descartes' death, that everybody, great or small, in England and France, who thought at all, thought Cartesianism. The fundamental principles of the philosophy of Descartes relate to his method, which takes its point of departure in universal doubt, and places the criterion of all certitude in evidence, or in other words, in reason, as the sovereign judge of the true and the false; to the erection of the individual consciousness into the fundamental ground and source of all correct philosophy—*cogito, ergo sum;* to the radical distinction which is drawn between the soul and the body, the essential attribute of the former being thought, and that of the latter, extension; to the demonstration of the existence of God from the very idea of the infinite; to the division of ideas into those which are innate, or born within us as necessary or inspired, those which are factitious, or created by us, and those which are adventitious, or come from without by means of the senses; to the definition of substance, as that which so exists as to need nothing else for its existence, and which is applicable in the highest sense only to God, who has his ground in himself, but only relatively to the thinking and corporeal substances, which need the coöperation of God to their existence; and to the affirmation that the universe depends upon the productive power, not only for its first existence, but for its continued being and operation, or in other words, that conservation is perpetual creation. Other points in this philosophy are important, and other aspects of it are to be regarded by the student; but for the popular reader these chiefly deserve attention, because these were characteristic and creative, and furnished the themes for the greater part of the agitated discussions of later years. From his theory of doubt, except upon evidence, for instance, the philosophy of the 17th century, and the whole of modern philosophy, in fact, derived that disdain for the authority which formerly fettered the free movements of the mind, and that reliance upon reason, which Arnauld, Malebranche, Pascal, Bossuet, Fénelon, and others appealed to so effectively. This vivid determination of the consciousness, or the Me, as the proper object of metaphysical investigation, was the starting point of those great systems of thought, both Scotch and German, which are such remarkable phenomena in the history of intellectual development. It is easy to trace, also, to his doctrine of substance, the vast pantheistic speculations of Spinoza, and more lately of Fichte and Hegel. In short, the schemes of Geulinex, Leibnitz, Wolf, Kant, and perhaps of Swedenborg, are all more or less directly affiliated to the great leading ideas of the French thinker. As a whole, therefore, we are not surprised to learn that when his system appeared, it produced an instant and vivid sensation. The scholastics were astonished by an assault at once so radical and so vital; the sceptics saw with stupefaction a scepticism more searching than theirs rising into the most solid religious faith; while the independent men of science, who had long been struggling against the methods of the old dialectics, received with joy and gratitude a doctrine which seemed to place their researches on an immovable foundation of truth, and to promise to crown them with the richest fruits of progress. For a while Descartes threatened to succeed to the place of absolute dictation and mastery which had been so long assigned to Aristotle. His influence passed from the oratory and the study to the popular literature; all the great writers of the age of Louis XIV. were tinctured by it; but just as it appeared to have attained a universal acceptation, it began as rapidly to fade and shrink. The reasons of this decline are to be found partly in the growth of Locke's sensational philosophy; partly in the demonstrated impotence of Descartes' principles to resolve many of the higher problems to which he aspired; but

chiefly in the discoveries of Newton and the progress of physics, which discredited his physical theories, and therefore brought his metaphysical conclusions into distrust. The theory of vortices, by which he endeavored to explain the movements of the heavenly bodies, gave place to the simpler theory of Newton as to a law of universal gravitation; but science has not ceased in consequence to confess its obligations to Descartes for his important discoveries as to the application of algebra to geometry, his contributions to dioptrics, to mechanics, and to hydrostatics, and for that fearless spirit of investigation, which, if it led him into mistakes, enabled him also to anticipate many truths ascribed to a later period.—After the death of Descartes, in addition to the works we have already mentioned, there were published: *Le monde de Descartes, ou le traité de la lumière* (12mo., Paris, 1664); *Le traité de l'homme et de la formation du fœtus* (4to., Paris, 1664); *Les lettres de René Descartes* (3 vols. 4to., 1657–'67). The principal complete editions of his writings are *Opera Omnia* (8 vols., Amsterdam, 1670–'83); *Œuvres complètes de Descartes* (9 vols., Paris, 1724); *Œuvres complètes de Descartes*, by Victor Cousin (11 vols., 1824–'26), which is perhaps the most perfect edition; *Œuvres philosophiques de Descartes* (1835), by Garnier, who added a life, and a thorough analysis of all his writings. On the philosophy of this master, the dissertations are almost without number, but the few most useful or curious are comprised in the following list: *Recueil de pièces curieuses concernant la philosophie de Descartes* (Amsterdam, 1684, published by Bayle); *Mémoires pour servir à l'histoire du Cartésianisme*, by Huet (Paris, 1693); *Mémoires sur la persécution du Cartésianisme*, by Cousin (Paris, 1838); *Histoire et critique de la révolution Cartésienne*, by M. Francisque Boullier (2 vols., Paris, 1842); *Le Cartésianisme, ou la véritable rénovation des sciences*, by M. Bordan Demoulin (2 vols., Paris, 1843). Of late years the study of Descartes has revived among the French philosophers. See Damiron's *Essai sur l'histoire de la philosophie en France au XIX^e^ siècle*, which contains a report in 6 memoirs read to the academy, on the philosophy of Descartes and its effects.

DESCENT, in law, is the transmission of an estate in lands by operation of law, upon the decease of a proprietor, without any disposition thereof having been made by him. The term is derived from a principle existing until very recently in the English law, that an inheritance could never lineally ascend, yet upon failure of lineal descendants, it could ascend collaterally. Thus the father could not be the heir of his son, but the uncle could inherit from the nephew. There was therefore an inaptness in the expression even as used in the common law doctrine of inheritance, and still greater incongruity in American law, which allows a lineal ascent from the son to the father. Succession is the more appropriate phrase in the Roman law, and from that adopted in the French and other modern systems of law. Gibbon has well remarked that the Roman law of hereditary succession "deviated less from the equality of nature than the Jewish, Athenian, or English institutions." The oldest son of a Hebrew inherited a double portion. By the Athenian law the sons inherited jointly, but the daughters were wholly dependent upon what provision their brothers might choose to give them by way of marriage portion. The English law of primogeniture gives, not a larger proportion, but the whole, to the eldest son; and in various other respects which will be presently referred to, the natural order of equity is singularly disregarded in the law of descent. On the other hand, by the Roman law, when a man died intestate, all his children, both sons and daughters, inherited alike; and in case of the decease of either, the descendants of the decedent would take such share as would have belonged to him or her. The distinction of agnates and cognates was indeed introduced at an early period, whereby the descendants of females, who were called cognates, were excluded; but by imperial constitutions they were restored to the right of succession, with a diminution of a third in favor of the agnates, that is, descendants of males, and even this discrimination was abrogated by Justinian. On failure of lineal descendants, the father and mother or other lineal ascendants were admitted. Such was the rule as to lineal succession. In respect to collateral inheritance, by the law of the 12 tables, agnates, whether male or female, were admitted alike, but by the later law all females of collateral kindred were excluded; the hardship of the rule was in some measure relieved by the prætor, who gave to females thus excluded a share of the personal estate. Justinian restored the right of succession as it had originally existed. Descendants of females of the collateral kindred were still, however, left unprovided for. Thus, though a sister could inherit from her brother, yet her children could not; but the reverse of the rule did not hold, for there was no corresponding disability in the brother to inherit from the children of his sister. The rule of collateral succession was that the nearest agnate (or all the agnates of the same degree) took the whole estate. The mode of estimating the degree of consanguinity was by the Roman law to take the entire number of intermediate persons in the ascending and descending scale between the parties whose relationship was in question. Thus, first cousins would be related in the fourth degree, being each two removes from the common ancestor; whereas by the canon law, which has been taken as the basis of the English rule of descent, the consanguinity is measured by the number of degrees between the most remote of the two persons and the common ancestor, which in the case of cousins would be two degrees; and it would be the same between uncle and nephew. The rules of descent by the common

law of England are exceedingly artificial, being derived chiefly from the old feudal system, and by usage become fixed, though the reasons that first gave rise to them have long ceased to exist. The principal of these rules are as follows: 1. The estate descends lineally to the oldest son, to the exclusion of all others; or if he is deceased, then to his descendants, male or female, following the same rule of preference in all respects as prescribed in this and the following rules. 2. In case of the decease of the oldest son without issue, then to the next oldest and his descendants, and so to the last of the males. 3. In case of failure of male issue, then to the daughters, who, contrary to the order prescribed in the preceding rules, do not take successively, but become seized jointly of a peculiar estate called coparcenery, the incidents of which we need not now stop to discuss, further than to say that each coparcener has an absolute undivided interest, which she may convey, or which on her decease will descend to her heirs. 4. Failing all lineal descendants, the estate does not ascend lineally—that is to say, to the father or grandfather, who by the common law are incapacitated to take directly from the son or grandson, though they may indirectly through collateral heirs—but to the nearest collateral kindred, still following the preference of males to females, and, of the males of the same degree, the oldest having the exclusive right. Thus the oldest brother and his descendants will take; failing whom, the next brother and his descendants; or in default of brothers, then all the sisters in copercenery; but if there be no brothers or sisters, then the kindred of next degree will succeed, subject to the same rules of preference. 5. In respect to collateral succession, several other rules apply. (*a.*) The heir must be not only the nearest of kin of the person last seized, but must be of the whole blood, that is to say, must be descended from the same two ancestors, male and female; as, if A and B are brothers having the same father but not the same mother, if an estate descends to A from the father and he dies, B shall not inherit from him, although if A had died before the father, B would have been the heir of the father. So far was this exclusion carried by the common law, that a sister of the whole blood would take in preference to a brother of the half blood, and the estate would even escheat rather than it should descend to the latter; and the same rule prevailed in respect to more remote collateral relatives. (*b.*) It is also necessary, in order to inherit collaterally, to be of the blood of the first purchaser, that is to say, of the person who first acquired the estate; as, if A purchase land and it descends through several generations to B, who dies without issue, no collateral relative of B can take the estate unless he is also of the blood of A, from whom it originally came. (*c.*) Kindred on the side of male ancestors, however remote, are preferred to kindred descended from females, however near, unless the estate descended from a female, in which case the kindred of such female can alone inherit. Thus the relatives on the father's side are preferred to the mother's, and on the grandfather's to the grandmother's, and so in all the degrees of ancestry. (*d.*) In computing degrees of consanguinity, the rule of the canon law is adopted as before mentioned, whereby the relationship to the common ancestor is alone considered. According to this rule, brothers are related in the first degree, cousins in the second; but as this would often make a different degree of relationship between the same parties, according as it was computed from one or the other to the common ancestor, it was found necessary to adopt a further rule, that the consanguinity of each to the other was to be determined by that of the most remote from the common ancestor. Again, there might sometimes be different sets of kindred in the same degree of relationship by referring to different ancestors, as a nephew is in the same degree as an uncle, the common ancestor of the one being the father, of the other the grandfather; in such a case, another rule intervenes, viz.: that the relative representing the nearest ancestor shall take priority, according to which the nephew would inherit before the uncle. Several important changes have been made in the law of descent by statute 3 and 4 William IV., c. 106 (1833), the principal of which are: 1, that a lineal ancestor is permitted to inherit, and takes precedence of a collateral heir; thus the father is preferred to the brother or sister; 2, relatives of the half blood are relieved from disability to inherit, and succeed next after relatives of the same degree of the whole blood; 3, several provisions are made for the determination of the question who was the purchaser from whom by the rules of common law the descent was to be traced. The person last entitled is to be deemed a purchaser, unless it be shown that he took by inheritance, and so of any preceding ancestor. In the case of a devise by a man to his heir, such heir shall be deemed to have taken by the devise and not by descent, and is to be regarded as a purchaser. When land is purchased under a limitation to the heirs of a particular ancestor, such ancestor is deemed the purchaser. From this summary of the English law of descent, which gives only the general rules without noticing certain exceptions which are said to exist by ancient usage in some places, it is apparent that the basis of the system was a condition of society no longer existing. The theory of seeking for a single male heir to the exclusion of all others belongs to the turbulent period when a military head of a family was needed, and all the other members of the family found shelter in a common mansion, under the protection of an organized domestic force. The perpetuation of the rule, in a period of private immunity from violence, can serve no other purpose than to keep together the estates of great land proprietors. This may be essential for maintaining the respectability of the titles of nobility, but is inapplica-

ble to all other proprietors; and moreover, personal property, which was comparatively unnoticed by the feudal law, but which has become a large proportion of the wealth of the kingdom, is distributed by another rule, conforming to the equitable principle of the civil law. The retention of this part of the old feudal law is therefore mainly attributable to the stern prejudice in favor of ancient usage which has always been peculiar to the English people.—The law of descent in the United States is based upon the English statute (22 and 23 Charles II.) for the distribution of the personal estate of intestates, which statute is substantially in conformity with the civil law. In most of the states real and personal estate descend by the same rule, with the exception only of the interest of the husband and wife respectively, the former of whom has an estate for life in all the lands belonging to a deceased wife, and the wife has an estate for life in one third of the lands belonging to a deceased husband, which is called dower. The rule of descent in the state of New York, which may be taken as the law of most of the other states, is: 1, of the lineal descendants of the intestate, an equal proportion to all who are of equal degree of consanguinity, whether male or female; but in the case of the decease of any one of them, then his or her descendants take the proportion that would have belonged to such deceased party if living; thus, should the intestate leave 2 children and 3 grandchildren, descendants of a deceased child, the estate will be divided into 3 parts, the 3 grandchildren taking the $\frac{1}{3}$ which would have belonged to the parent whom they represent; 2, upon failure of lineal descendants, the father of the intestate will inherit, unless the estate came on the part of the mother; 3, if the father is not living, or cannot for the reason above mentioned take the estate, the mother will be entitled to hold it for life, the reversion to belong to the brothers and sisters; 4, if no lineal descendants or father or mother, then the estate will descend to the nearest collateral relatives of equal degree, and the same rule applies as in the case of lineal descendants, that the descendants of a deceased party take the same share that such ancestor would have been entitled to if living. The rules as to collateral succession are as follows: (*a*) brothers and sisters, or the children of deceased brothers and sisters, are first entitled; but in case no brother or sister is living, but there are descendants of several, then such descendants take equally *per capita*, and not *per stirpes* or representation, as would be the case if one of the brothers or sisters were living; (*b*) if no brothers or sisters of the intestate nor descendants of deceased brothers or sisters, the next heirs are uncles and aunts on the father's side, or failing these, the same relatives on the mother's side; if, however, the estate came on the part of the mother, then her relatives have the preference; but if the estate had not descended from either father or mother, then the relatives on the part of both take equally. In the descent, both lineal and collateral, relatives of the half blood are equally entitled with those of the whole blood. The rules of succession by the French civil code are nearly the same as those prevailing in this country. The variations are principally these: 1, if there are father and mother (or either of them) and brothers and sisters, the estate is divided into 2 parts, one of which belongs to the father and mother in equal proportion, the other to the brothers and sisters or descendants of a deceased brother and sister, such descendants taking by representation the share that the child whom they represent would have taken; if either father or mother is deceased, his or her share vests in the brothers and sisters; 2, if there is a father or mother, but no brothers or sisters, the collateral relatives take a half; 3, if there are children of different father or mother, the estate is divided into 2 parts, the paternal line taking one part and the maternal or uterine the other; children of the whole blood take a share in each moiety.

DESERET, a co. of Utah, bounded E. by Great Salt Lake, and W. by California. It is drained by the Mary or Humboldt river, and traversed by several mountain ranges.—The name of Deseret was also given by the Mormons to the territory around the Great Salt lake, but was not accepted by congress, who substituted therefor the name of Utah. According to the Mormons, "Deseret" signifies "the land of the honey bee."

DESERTER, in military affairs, an officer, soldier, or sailor who abandons the public service in the army or navy, without leave. In England the punishment for desertion is, with certain limitations, left to the discretion of court martials, death being the extreme penalty. By the articles for the government of the navy of the United States (art. 12), it is enacted that "if any person in the navy shall desert to an enemy or rebel, he shall suffer death," and (art. 13) "if any person in the navy shall desert in time of war, he shall suffer death, or such other punishment as a court martial shall adjudge." The rules and articles for the government of the land forces of the United States authorize the infliction of corporal punishment not exceeding 50 lashes for desertion in time of peace, by sentence of a general court martial; and the laws do not permit punishment by stripes and lashes for any other crime in the land service. In time of war a court martial may sentence a deserter to suffer death, or otherwise punish at its discretion.

DESÈZE, Raymond, a French magistrate, born in Bordeaux in 1750, died in Paris in 1828. A lawyer in his native city, he was called to Paris by the count De Vergennes, gained reputation in several important lawsuits, was chosen one of the counsel of King Louis XVI. when arraigned before the convention, and delivered an eloquent defence in his behalf. He was arrested, but liberated after the 9th Thermidor, lived in retirement during the consulate and the

empire, and on the restoration of the Bourbons was appointed president of the court of cassation.

DESFONTAINES, Pierre François Guyot, a French critic, born at Rouen in 1685, died Dec. 16, 1745. He studied under the Jesuits, received orders, and was a successful teacher of rhetoric in the college of Bourges. He was invited to Paris in 1724, to restore the *Journal des savants*, which had fallen into discredit. In this he succeeded, and published afterward, sometimes alone, and sometimes in conjunction with others, several periodicals, among which were the *Observations sur les écrits nouveaux*. His criticisms were marked by severity and rudeness, and among the many enemies whom he made by his trenchant pen was Voltaire, who had once saved him from prison, or perhaps the galleys. The paper warfare between the critic and the philosopher attracted general attention, and ended in the discomfiture of the former. The principal works of Desfontaines are a *Dictionnaire néologique*, and a translation of the Æneid.

DESFONTAINES, René Louiche, a French botanist, born in Tremblay, in Brittany, in 1752, died in Paris, Nov. 16, 1833. After studying at the college of Rennes, he went to Paris to prepare for the medical profession, but devoted himself chiefly to botany. He was received into the academy of sciences in 1782, the custom of the time being to admit young men of approved capacity, with a view of encouraging them to greater accomplishments. He immediately embarked for the Barbary states, and during two years explored the natural history, especially the flora, of the north of Africa. He published the result of his investigations in the *Flora Atlantica* (2 vols., Paris, 1798), which gave descriptions of 1,600 species of plants, 300 of which were new. On his return to Paris in 1785 he was appointed by Buffon to succeed Lemonnier as professor in the *jardin des plantes*, and from this time he was occupied with his lectures. He was the first to indicate the difference in growth and structure between the monocotyledonous and the dicotyledonous plants. He made a catalogue of the *jardin des plantes* (1804; 3d ed. in Latin, 1829); continued the *Collection des velins du muséum d'histoire naturelle*, which had been begun for Gaston of Orleans; and published numerous memoirs in the transactions of learned societies.

DESHA, a S. E. co. of Ark., bordering on the Mississippi, intersected by Arkansas and White rivers; area, 869 sq. m.; pop. in 1854, 3,971, of whom 1,840 were slaves. The surface is low, level, and subject to inundation. The soil is alluvial, and in 1854 produced 6,940 bales of cotton, and 130,055 bushels of corn. Number of pupils in the public schools, 40. Capital, Napoleon.

DESIRADE, or Deseada, a rocky island of the Little Antilles, in the Caribbean sea, E. of Guadeloupe, of which it is a dependency. It is scantily furnished with wood and fresh water. Area, 10,695 acres; pop. in 1856, 1,235, of whom 284 were whites. It was the first island discovered by Columbus in his second voyage, on which he set out, Sept. 25, 1493.

DESHOULIÈRES, Antoinette (du Ligier de la Garde), a French authoress, born in Paris about 1634, died in the same city, Feb. 17, 1694. The daughter of a *maître d'hôtel* of Marie de' Medici and Anne of Austria, she was early noted for beauty and wit, and received a brilliant education under the best masters. She studied the Latin, Italian, and Spanish languages; read the long romances of D'Urfé, La Calprenède, and Mlle. de Scudéry, which were then the delight of the court; and early began to write verses, her first attempts being corrected by the poet Hesnaut. In her 18th year she was married to Guillaume de la Fon de Boisguérin (seigneur des Houlières), who in the troubles of the Fronde embraced the party of the prince of Condé, and was exiled. Mme. Deshoulières subsequently rejoined her husband at the court of Brussels, where she became an object of suspicion, and was imprisoned in 1657 in the castle of Vilworde, where she read the Scriptures and fathers of the church, was rescued by her husband by a *coup de main* after 8 months, and on her return to France after the amnesty became a favorite at the court of Anne of Austria. She wrote poems in almost all styles from the madrigal to tragedy, and was intimate with the two Corneilles, with Fléchier, Mascaron, Quinault, Benserade, and Ménage, and with the dukes of Montausier, La Rochefoucauld, Nevers, and Saint Aignan. She attained the best success in pastorals and in moral and philosophical pieces. Her idyls, especially those entitled *Les moutons* and *Les fleurs*, were most admired, and gained her the appellation of the 10th muse and the French Calliope; and the subsequent ill success of her tragedies caused the advice, of proverbial fame, to be given her, *de retourner à ses moutons*. She became a member of the academy of the *Ricovrati* of Padua in 1684, and of the academy of Arles in 1689. Like Mme. de Sévigné, she belonged to the literary clique hostile to Racine. Voltaire said that of all French ladies who had cultivated poetry, Mme. Deshoulières had succeeded best, since more of her verses than those of any other were known by heart. The principal editions of her works are those of 1747 and 1799, each in 2 vols.

DESMIDIEÆ, minute and interesting algæ, which grow in fresh water, and whose contour and forms present singularly beautiful appearances under the microscope. For a long time claimed both as animals and plants, they seem to stand on the limits of either kingdom. The controversy as to their true place has enlisted a great number of observers, who have submitted every fact connected with their study to the most rigorous examination. Ehrenberg has claimed them as animalcules; and in the "Annals of Natural History" (London, 1840), Mr. Dalrymple has given extended observations of a similar character upon a single genus (*closterium*), which appeared to him to indicate

animality. In the "American Journal of Science and Arts" (vol. xli., 1841), Professor Bailey admits the general correctness of Mr. Dalrymple's observations, yet differs from him in some respects. He considers the desmidieæ as animalcules, and includes them in his sketch of the infusoria. In a memoir "On the Organization of the Polygastric Infusoria," in Weigmann's *Archiv* for 1846, C. Eckhard advocates their animality. He notices only the *closteria*, and derives his argument for their being animals partly from their motion, partly from their organization. According to Pritchard, in his "History of Infusoria, living and fossil" (London, 1842), Dr. Meyen shows that Ehrenberg has described and represented in his great work a very considerable number of organized bodies looked upon by botanists as belonging to the vegetable kingdom. In these representations naturalists have been able to attain what has been long desirable; for although in respect to the more highly developed and complete vegetable beings the truest delineations are indispensably necessary at the present day, it is much more requisite that every one of these lower and microscopic organisms should be laid before us in the same tangible manner. Ehrenberg has not only given systematic descriptions of these questionable animals or plants, but his own observations, coupled with those of his predecessors, upon the nature of these bodies, will be found copiously detailed by him. It is, however, apparent that all the facts known upon the subject are interpreted as if these creations were undoubtedly animals, while the same facts would bear a very different signification if we proceeded upon the supposition that they were merely plants. Meyen contended for the vegetable character of the desmidieæ, and was the first to detect the presence of starch in the cells; and the accuracy of his remarks, which had been doubted, was fully confirmed by Ralfs, Jenner, and other recent algologists. The presence of starch in the desmidieæ can be readily detected by treating them with a solution of iodine; all vegetable tissues in which starch grains are found assume a purplish or violet color on its application. Prof. Bailey did not consider this a conclusive proof of their vegetable nature, since, if animal, the starch might have been swallowed. But it is affirmed that no starch is to be detected in the young cell, while upon the growth of the sporangium or seed-vessel it appears and increases rapidly, as in the seeds of the higher plants, in which it generally abounds. Of all the circumstances which indicate the vegetable nature of the desmidieæ, this is the most important, since it can be so easily submitted to experiment. In certain cavities in *closterium*, Mr. Dalrymple noticed a peculiar motion of molecules on which he laid some stress. This motion has been frequently noticed, and is to be seen in many plants. At first sight it would seem to denote an animal function, yet really in the desmidieæ it becomes a proof of their vegetability. It has been termed swarming, on account of the commotion which arises within the cell, as if all its contents were endowed with life; as the disturbance increases, the cell opens, when the molecules, or rather zoospores, hasten from their prison, darting about in every direction, until at length they settle down into a state of repose. The presence and functions of zoospores in plants of entirely differing families and groups, render their occurrence in those under consideration no evidence of their being animals. That the desmidieæ resist decomposition, exhale oxygen on exposure to the sun, preserve the purity of the water containing them, and when burned do not emit the peculiar odor usually so characteristic of animal combustion, are also important facts respecting this family. Berkeley, in his "Introduction to Cryptogamic Botany," remarks that much controversy has existed with respect to their true nature, but that at the present day few persons will adopt the views of Ehrenberg; for if in some points there be anomalies, as in *closterium*, their whole history is so evidently vegetable, their mode of increase, growth, &c., that if we refuse them the title of vegetables, we may as well dispute that of the whole tribe of zoosporous algæ. As to their occasionally producing bodies endowed with active motion, it is now a matter of certainty that such bodies exist in a variety of algæ of very different construction; and in order that the cellulose (or peculiar material of the cell walls of vegetables) should exhibit the proper reaction when acids are applied for tests, the membranes of cells or of the fronds must be thoroughly cleansed from all extraneous matters. But perhaps the most important of all is the fact that, under the influence of light, they give out oxygen, which, added to the other characteristics, is quite convincing.—Considering the desmidieæ as vegetable productions, we find them peculiar for their beauty, variety of forms, and the external markings and appendages to be noticed upon them. They are mostly of an herbaceous green color, and contain a green internal matter. The frond divides into two valves or segments, by a sort of voluntary action; a mode of growth in the bisection of cells that Meyen and others have proved to be frequent if not universal in the more simple algæ. In the desmidieæ the multiplication of the cells by repeated division is full of interest, both on account of the remarkable manner in which it takes place, and because it unfolds the process of cell-growth in the tissue of other plants, thus furnishing valuable facts in general vegetable physiology. The compressed and deeply constricted cells of *eriastrum* offer most favorable opportunities for ascertaining the manner of this division; for although the frond is really a single cell, yet this cell in all its stages appears like two, the segments being always distinct, even from the commencement. As the connecting portion is so small, and necessarily produces the new segments, which cannot arise from a broader base than its opening, these are at first very minute, though they rapidly increase in size. The

segments are separated by the elongation of the connecting tube, which is converted into two roundish hyaline lobules. These lobules increase in size, acquire color, and gradually put on the appearance of the older portions. Of course, as they increase, the original segments are pushed further asunder, and at length are disconnected, each taking with it a new segment to supply the place of that from which it has separated. All the desmidieæ are gelatinous. In some the mucus is condensed into a distinct and well defined hyaline sheath or covering; in others it is more attenuated, and the fact that it forms a covering is discerned only from its preventing the contact of the colored cells. In general, its quantity is merely sufficient to hold the fronds together in a kind of filmy cloud, which is dispersed by the slightest touch. When they are left exposed by the evaporation of the water, this mucus becomes denser, and is apparently secreted in larger quantities to protect them from the effects of drought. Their normal mode of propagation seems to be by the production of single large spores or sporangiums, which derive their existence from the union of the green coloring matter (endochromes) of two contiguous plants. These spores are mostly globular, although they exhibit a great variety of forms with reference to their external surfaces. Sometimes they bear no resemblance to the parent plant. But once formed, they are propagated by division, in the same manner as the ordinary cells, and in the 3d generation acquire their regular form, which they may continue to propagate for years, without ever producing a true spore.—Very little is known respecting the uses of the desmidieæ. Probably they assist in preserving the purity of the water in which they grow; a function which they may fulfil in the economy of nature in common with most aquatic vegetables. The food of bivalve mollusks belonging to fresh waters seems to be made up of them. They are found principally where there is some admixture of peat, and in clear pools rather than in running streams. They abound in open places, and are rarely seen in shady woods or in deep ditches. According to Brébisson, the calcareous districts of France are very unproductive of them. So numerous are the species and so diversified their shapes and characters, that they have been divided into distinct genera as natural series present themselves in turn. In the first of these series we discover the plant an elongated, jointed filament, which may be cylindrical, sub-cylindrical, triangular or quadrangular, plane with the margins even and smooth, or with the margins incised and sinuated. In *hyalotheca* we have the mucous envelope alluded to above, within which are numerous joints, which are usually broader than long; and as each has a shallow groove passing round it, it resembles a small pulley wheel. The minuteness of the plant may be estimated from the length of these joints, which vary from $\frac{1}{2103}$ to $\frac{1}{1351}$ of an inch. *H. dissiliens* (Bréb.) is found in North America as well as in Europe. In *desmidium*, the joints are bidentate at the angles; the filament is fragile and of a pale green color; the length of the joint is from $\frac{1}{2000}$ to $\frac{1}{7000}$ of an inch. *D. Swartzii* (Ag.) is common throughout the United States. In *micrasterias* we have a simple, lenticular frond, deeply divided into two-lobed segments, each lobe inciso-dentate and generally radiate. Many species of this beautiful plant are common in this country. We have also found *euastrum*, which belongs to the same series, of frequent occurrence. Certain curious spiny objects detected in a fossil state in flint in Europe remind us of *xanthidium*, but which probably are spores; the compressed bipartite and bivalved frond of the *xanthidium* being represented in the fossils by one that is globose and entire. The constriction about the middle of the frond is lost in *closterium*, which also differs in shape, it being crescent-like or arcuate. The species of this are common and numerous. The fronds of *ankistrodesmus* are aggregated into fagot-like bundles. *Pediastrum tetras*, occurring from Maine to Virginia, according to Bailey, has an extremely minute frond composed of 4 cells, which make a star-like figure; while *P. biradiatum*, found in New Jersey (Bailey) as well as in Germany (Meyen), has many more cells, yet still arranged in a stello-radiate manner.—In collecting the desmidieæ, the student must seek in proper situations the sediment observable in the form of a dirty cloud or greenish scum upon the stems and leaves of filiform aquatic plants. This is to be carefully transferred to a bottle of pure water, and thus he will secure many beautiful species for his microscopes. If the bottle be exposed to the light, the little plants will continue in good condition, and thrive for several months, thus furnishing subjects for examination ready at hand.

DES MOINES, a S. E. co. of Iowa, bordering on Ill., washed by the Mississippi on the E. and S. E., bounded S. W. by Skunk river, and drained by Flint creek; area, 408 sq. m.; pop. in 1856, 20,198. Limestone and anthracite are the principal mineral productions. The surface is much diversified and occupied by prairies and tracts of timber. The soil is fertile, well cultivated, and in 1856 yielded 11,274 tons of hay, 221,109 bushels of wheat, 359,938 of oats, 1,456,491 of corn, 206,026 lbs. of butter, and 20,056 of wool. Capital, Burlington.

DES MOINES, the largest river of Iowa. It rises in the S. W. part of Minnesota, and takes a S. E. course to Emmet co., Iowa. Thence it runs nearly S. S. E. to the Mississippi, which it joins about 4 m. below Keokuk. The country through which it flows is an undulating, fertile region, interspersed with tracts of prairie. The state government has recently undertaken to render the river navigable as far as Fort Des Moines, a distance of over 200 m.

DESMOND, Earls of, an ancient family of great influence in the S. W. of Ireland, from the year 1329 to 1583. The line numbered 15 earls. The title and family are now extinct.

Before the English gained a footing in Ireland, the kingdom of Cork was a separate sovereignty, embracing much of the present province of Munster. It was divided into Desmond, or South Munster, Muskerry, or West Munster, and Carbery, on the S. W. In 1172 Dermod Mac Carthy, king of Cork, with the view of aggrandizing himself by the aid of so powerful an ally, swore fealty to Henry II., but soon afterward broke his plight and attacked his liege's forces. He was overpowered, and Henry, in 1177, bestowed the kingdom on Robert Fitz Stephen and Milo de Cogan. Cogan's share, falling ultimately to co-heiresses, was divided between Robert Carew, Patrick Courcey, and Maurice Fitz Thomas. The last was created by the English monarch 1st earl of Desmond in 1329. By aggressions on the lands of Courcey and Carew, and by other acquisitions, the estates of the Desmonds so increased that the 8th earl was possessor of almost the whole of the former kingdom of Cork. This earl exercised rights of sovereignty with such a high hand that he was attainted of treason, and beheaded at Drogheda, Feb. 15, 1467. His estates, being suffered to remain in his family, continued to augment until Gerald, the last earl, owned a territory extending 150 miles through the counties of Waterford, Cork, Kerry, and Limerick, and comprising 500,000 acres of tenants' land. These earls never yielded more than a nominal allegiance to the English crown. One of them in the reign of Henry VIII. agreed with Francis I. of France that he would take up arms when required, and not lay them down till he had conquered one half of Ireland for himself and the remainder for Richard de la Pole, the representative of the house of York. Francis withdrew from the agreement, leaving the earl to explain it to his sovereign as he best might. The country of the Desmonds was Irish in language, habits, and religion. Hence it was deemed a favorable locality by Philip II. of Spain, in the days of Queen Elizabeth, to attempt the conquest of Ireland. Accordingly, on July 1, 1578, a body of Italian troops, under the command of James Fitz Maurice, brother of the earl of Desmond, and accompanied by Saunders, the pope's legate, landed in the Desmond country, where they were immediately joined by Sir John of Desmond and James Fitzgerald, other brothers of the earl. At first Earl Desmond made some show of resistance, but subsided at length into neutrality. On this, Lord Justice Pelham summoned him to surrender his castles to the queen. Desmond refused, whereon he and all of his name were proclaimed traitors, Nov. 1, 1579. Desmond now raised the standard of revolt, summoned his people to meet him at Ballyhowra, Cork, to support the Catholic cause, and his dependants responded to the call. He seized on the town of Youghal, and until Nov. 1583, maintained a determined warfare. Being by that time driven from his strongholds, one after another, he was compelled to seek safety in concealment. He wandered over the country for months, and was at last killed by a peasant named Kelly, in a cabin where he had taken shelter. His estates were divided among the captains of Elizabeth's army. Sir Walter Raleigh received 20,000 acres, which he sold cheaply to Richard Boyle, afterward earl of Cork.—Jeanne Fitzgerald, wife of James, 14th earl, lived to an age exceeding 140 years. Her husband presented her at the court of Edward IV., where she danced with the duke of Gloucestor, afterward Richard III.; she was widowed during the reign of Edward IV., and died in the reign of James I., some time after 1603. At the age of 140 she travelled from her home at Inchiquin, Ireland, by the way of Bristol, to London, to urge some claim against the government. At that time she was quite vivacious and in possession of all her faculties. Sir Walter Raleigh says: "I myself knew her." ("History of the World," book i., cap. 5.) Bacon mentions that the old countess of Desmond had thrice renewed her teeth.

DESMOULINS, Benoît Camille, a French revolutionist, born at Guise in Picardy in 1762, guillotined in Paris, April 5, 1794. He was a lawyer in Paris when the revolution broke out; he ardently adopted its principles, and became one of the favorite orators of the crowd which gathered at the palais royal to hear the news of the day. On the dismissal of Necker, July 12, 1789, he mounted a table and in an impassioned speech called the people to the defence of their threatened liberty; he boldly declared that he would not be deterred from speaking by fear of the police, and with a loaded pistol in each hand, swore that he would not be taken alive. He advised the patriots to wear a green badge as a rallying sign, and as there was not a sufficient quantity of ribbon, he gave them the green leaves of the trees in the garden. The cry "To arms!" was raised; the crowd seized upon all the arms they could find at the gunsmiths', and forming in procession, carried through the streets the bust of the dismissed minister in conjunction with that of the then popular duke of Orleans. The next day the muskets and cannon at the Invalides fell into the hands of the people, and on July 14 the Bastile was taken. Camille, who had given the first, if not the controlling impulse to this insurrection, figured conspicuously among the combatants, and at once gained popularity as one of the most influential democratic leaders. His popularity was enhanced by a pamphlet, *La lanterne aux Parisiens*, in which he styled himself the "attorney-general of the lamp-post." The success of this publication encouraged him to commence, under the title of *Les révolutions de France et de Brabant*, a newspaper which commanded a large sale and exercised great influence by its vigor of thought, sparkling wit, and lively style. Such was the importance of this periodical, that Mirabeau sought to conciliate its editor, whom he soon treated as a friend, and whose support was not useless to the great tribune. Camille had been a schoolmate of Robes-

pierre, and lived on intimate terms with the future dictator of the revolution, who was then but an obscure member of the constituent assembly. He was also acquainted with Marat, the epileptic editor of *L'Ami du peuple;* but his bosom friend was Danton, whose energetic character entirely controlled the somewhat wavering mind of the young and brilliant writer. The destinies of both were closely connected from the establishment of the club of the Cordeliers. Camille was instrumental in the insurrection of Aug. 10, 1792, and was appointed secretary to the ministry of justice when Danton received that office from the legislative assembly. He must have had a share in the massacre of September, but he used his influence to preserve the lives of several intended victims. With Danton, he was elected to the national convention, and acted and voted in accordance with his friend's directions. In the contest between the Girondists and the Montagnards, he contributed to bring the former into distrust and contempt by his *Histoire des Brissotins*, a pamphlet in which ridicule was skillfully blended with serious charges. Satisfied with their fall as a party, he would have saved them individually, but this was beyond his power. Both he and Danton now tried to bring the convention to a milder policy, and Camille established a journal toward the end of Jan. 1794, *Le vieux Cordelier*, in which he advocated conciliatory measures with as much earnestness as he had urged a contrary course in his former publication. His eloquent pen shone to advantage in the cause of justice and mercy. Denouncing the system of proscription, he demanded the establishment of a committee of clemency as a preliminary step to clearing the prisons of the suspected. This generous effort, which he supported by biting satires against the Montagnards, was answered by accusations brought against him in the club of the Jacobins. Robespierre, with hypocritical generosity toward an old friend, defended him on two occasions; he represented Camille as a wayward child, whose person it was not necessary to injure, but demanded that his writings should be burned. "To burn is not to answer," exclaimed the headlong journalist; and from that day his fate was sealed. He was arrested on the same night with Danton, arraigned with him before the revolutionary tribunal, sentenced to death, and with him sent to the scaffold. On his way there, while Danton stood composed and immovable, Camille became almost frantic, struggling with his bonds, and appealing to the people. His friend vainly motioned him to keep quiet; he continued to address the crowd, and recalled to their memory all that he had done in their service. "Behold," he cried in despair, "behold the recompense reserved to the first apostle of the revolution!" His young and beautiful wife, who had vainly implored his pardon from the old friendship of Robespierre, tried to raise a riot to save him, but she was arrested, and suffered death a few days later. Camille Desmoulins holds a distinguished rank among French pamphleteers. His *Vieux Cordelier* was reprinted in 1833.

DESNA, a large river of Russia, which rises in the government of Smolensk, flows through those of Orel and Tchernigov, and falls into the Dnieper a few miles above Kiev. It is a fine stream, abounding in fish, and navigable for the greater part of its course of 600 m. It has been proposed to open a water communication between the Caspian and the Black and Baltic seas by means of a canal connecting this river with the river Oka.

DESNOYERS, Auguste Gaspard Louis Boucher, baron, a French engraver, born in Paris, Dec. 20, 1779, died there, Feb. 15, 1857. At the age of 20 he received a prize of $400 for an engraving of Venus disarming Cupid, and in 1801 established his reputation by the reproduction of Raphael's *Belle jardinière*, in the gallery of the Luxembourg. His most admired productions are copies of that great master's works, and prominent among them is an engraving of the "Transfiguration." He was elected a member of the institute in 1816, appointed chief engraver to the king in 1825, created baron in 1828, and officer of the legion of honor in 1835.

DE SOTO. I. A N. W. co. of Miss., bordering on Tenn., and bounded N. W. by the Mississippi river; area, 960 sq. m.; pop. in 1850, 19,042, of whom 9,553 were slaves. The surface is generally level, and occupied chiefly by cotton plantations. There are extensive swamps in the western part. The soil is fertile, and in 1850 produced 20,278 bales of cotton, 741,519 bushels of corn, 10,272 lbs. of rice, and 32,907 of beeswax and honey. There were 22 churches, and 416 pupils attending public schools. The county was organized in 1836. Capital, Hernando. II. A N. W. parish of Louisiana, bordering on Texas, drained by Red and Sabine rivers; area, 910 sq. m.; pop. in 1855, 9,703, of whom 5,939 were slaves. By means of Red river it has steamboat communication with New Orleans. In 1855 the productions were 9,361 bales of cotton, and 340,034 bushels of Indian corn. Capital, Mansfield.

DE SOTO, Fernando, a Spanish officer, the discoverer of the Mississippi, born at Xeres de los Caballeros, in Estremadura, in 1500, died on the banks of the Mississippi, June 5, 1542. Of a noble but reduced family, he was enabled by the favor of Pedrarias Davila to spend several years at one of the universities, probably that of Saragossa, and distinguished himself in literary studies, and especially in the athletic accomplishments of knighthood. In 1519 he accompanied his patron on his second expedition to America as governor of Darien, and was the most intrepid opponent of the oppressive administration of that officer. He supported Hernandez in Nicaragua in 1527, who perished by the hand of Davila, in consequence of not heeding his advice. Withdrawing from the service of Davila, he explored in 1528 the coast of Guatemala and Yucatan for 700 m., in search of the strait which was

supposed to connect the two oceans. It was by special request of Pizarro in 1532 that De Soto joined him in his enterprise for conquering Peru, with the promise of being appointed second in command. Being sent in 1533, with 50 horsemen and a few targeteers, to explore the highlands of Peru, he encountered and defeated 2,000 Indians, penetrated through a pass in the mountains, and discovered the great national road which led to the Peruvian capital, and was soon after selected by Pizarro to visit the inca Atahuallpa as ambassador. After the plot for the capture of the inca had proved successful, and the latter had paid an immense sum for ransom, De Soto in vain expostulated with Pizarro for treacherously refusing to release the Peruvian monarch. He was prominent in the engagements which completed the conquest of Peru, and was the hero of the battle which resulted in the capture of the metropolis, Cuzco. He soon after returned to Spain with a fortune of $500,000; met a flattering reception from the emperor Charles V., made a splendid display at court, and married the daughter of Davila, the object of an early attachment. In 1536 the belief was entertained that in the vast region then called Florida was a new El Dorado, richer than any that had been discovered. Of this faith De Soto became the martyr. He proposed to the emperor to undertake the conquest of Florida at his own expense; and the privilege being conceded to him, many Spanish and Portuguese cavaliers were ambitious to enroll themselves among his followers. With 600 men, the flower of the peninsula, exclusive of 24 ecclesiastics and 20 officers, he set sail from San Lucar early in April, 1538. After stopping at Santiago de Cuba, and then at Havana, where it was decided that the ladies attached to the expedition should remain till after the conquest of Florida, he crossed the gulf of Mexico, and anchored in the bay of Spiritu Santo (Tampa bay), May 25, 1539. His route was through a country already made hostile by the violence of the Spanish invader Narvaez, and he was constantly deluded by the Indians, whose policy it was to send their unwelcome visitors as far away as possible by telling them of gold regions at remote points. In July, 1539, he sent back all his ships to Havana. He discovered a Spaniard, Juan Ortiz, who had been in slavery from the time of Narvaez, and who now served as his interpreter. He passed the first winter in the country of the Appalachians, E. of the Flint river. Directed then to the N. E., he reached in April, 1540, the Ogeechee; thence proceeding to the S., he reached the Coosa, and on Oct. 18 the village of Mavilla or Mobile, on the Alabama. The engagement which ensued here was one of the most sanguinary battles ever fought between Europeans and the North American Indians; the loss of the Spaniards was 80 men and 42 horses; that of the Indians was reported at 2,500 men. Ships had meantime arrived at Ochus (Pensacola), but De Soto proudly refused to send back any message of his fortunes. He passed the second winter in the country of the Chickasaws, who in the spring burned his camp and their own village, when he attempted to force them to carry his baggage. Forty Spaniards perished in the flames, and in the night attack. Soon after beginning his march to the N. W., a pestilential fever carried off nearly a score of his men. He reached the Mississippi after journeying for 7 days through a wilderness of forests and marshes, was nearly a month in constructing 8 large barges to transport his army, and having crossed the river went N. to Pacaha, where he remained from June 19 till July 29. Thence he marched successively S. W. and N. W. till he reached the highlands of the White river, in the eastern portion of what is now the Indian territory. This was the western limit of his rambles. He then proceeded S. by the hot springs of Arkansas, which his companions at first supposed to be the fabled fountain of youth, and made his third winter station at Autiamque on the Washita river. In March and April, 1542, he continued S. along the Washita to the Mississippi, and while in vain attempting to descend the banks of the latter, through the bayous and marshes, he was attacked with a malignant fever, and died, after appointing Luis de Moscoso his successor. "His soldiers," says Bancroft, "pronounced his eulogy by grieving for their loss; the priests chanted over his body the first requiems that were ever heard on the waters of the Mississippi. To conceal his death, his body was wrapped in a mantle, and, in the stillness of midnight, was silently sunk in the middle of the stream. The wanderer had crossed a large part of the continent in search of gold, and found nothing so remarkable as his burial place." His followers, reduced more than one-half in number, venturing E., were driven backward to the river, where they passed the next winter. In the spring of 1543 they embarked in 7 boats, and after nearly 3 months the survivors reached the Mexican town of Panuco, now in the department of Vera Cruz, where they dispersed. The wife of De Soto expired at Havana on the third day after learning his fate.—A history of his life and travels, by L. A. Wilmer, was published at Philadelphia in 1858.

DESPARD, Edward Marcus, an Irish soldier, beheaded in London, March 21, 1803. He was a native of Queen's co., Ireland, a soldier in the West Indies, and superintendent of the English colony in Honduras. In consequence of complaints made against him he was recalled in 1790, but he could never procure an examination into his administration. This made him disaffected, and he was arrested for seditious conduct, but after his liberation he was only the more inflamed. He seduced some of the soldiers, and matured a plan to assassinate the king on his way to open parliament. The conspirators were arrested and tried by special commission at Southwark, Feb. 5, 1803. There being no doubt of their guilt, Despard and 9 of his associates suffered death.

DES PLAINES, or Aux Plaines (Indian

appellation, *She-shik-mah-o*), a river of Illinois, rising in the S. E. part of Wisconsin, flowing S. and S. W., and uniting with the Kankakee at Dresden, to form the Illinois. It is about 150 m. long, and derives its name from a species of maple called by the French *plaine*.

DESSAIX, Joseph Marie, a French general, born in Thonon, Savoy, Sept. 24, 1764, died Oct. 26, 1834. He was a physician at Paris, and in 1791 returned to his native country to diffuse democratic principles and organize a corps of volunteers. He served at the siege of Toulon, and in Italy under Bonaparte; was elected in 1798 to the council of 500, where he opposed the *coup d'état* of the 18th Brumaire; made a brigadier-general by Bonaparte in 1803, and, in the campaign of 1809 against Austria, a general of division, receiving from the emperor the surname of *L'intrépide*, and the title of count of the empire. Being wounded during the expedition to Russia, he was put in command of the city of Berlin, and in 1813 was intrusted with the defence of France on the line of the Alps. In 1814 he was kindly treated by the Bourbons, notwithstanding which he joined the standard of Napoleon after his landing at Cannes, and was imprisoned for 6 months in 1816. After the revolution of 1830, he was elected commander of the national guards at Lyons.

DESSALINES, Jean Jacques, emperor of Hayti under the name of Jean Jacques I., born about 1760, killed Oct. 17, 1806. He was a native of Guinea, and when a boy he was sold to a French planter whose name he adopted. On the revolt of 1791, Dessalines joined the insurgent army, and by energy and shrewdness, though entirely uneducated, soon obtained a prominent position. He became adjutant-general of the negro commander Jean François, who united his forces with those of the Spaniards against the French; and when Toussaint L'Ouverture suddenly left his Spanish allies and went over to the French side, Dessalines adhered to his fortunes. Having been raised to the rank of lieutenant-general, he led a successful campaign against the mulatto chief Rigaud. The promptness and energy evinced in this movement recommended him to Toussaint, who thenceforward always sent him where the utmost severity was considered necessary. His name spread terror wherever he went. Thousands of mulattoes were slaughtered, drowned, or shot by his orders. At the same time he led a most dissolute life, and enriched himself by extensive robberies perpetrated in the guise of legal confiscations. When Napoleon sent his brother-in-law, Leclerc, to reconquer Hayti, Dessalines conducted a bloody guerrilla war against the French, to which history scarcely furnishes a parallel. One of his most remarkable feats was the obstinate defence of the town of St. Marc against Gen. Boudet. When unable to hold the town any longer, he burned it down, himself setting fire to his own palace, butchered all the white inhabitants of the place, and likewise all whom he fell in with on his retreat. Peace having been made in 1802, by Christophe, Dessalines became a French general and governor of the southern portion of the island. Here he plunged once more into debauchery, but at the same time he intrigued against Toussaint, and, it is believed, secretly betrayed him. When Toussaint's nephew Belair rose against the tyranny of the French, Dessalines treacherously enticed him by promises of assistance, and had him murdered in cold blood with 300 of his followers. But his loyalty to the French was of short duration. Rochambeau, having succeeded Leclerc in the chief command of the French army of occupation, vied in bloodthirstiness with the savage negroes. Among others, he tortured to death the negro general Maurepas and his whole family. Dessalines resolved upon a terrible retribution. He erected 500 gibbets, and hung half a regiment of French whom he had captured by a bold countermarch. A brief war of extermination followed, and in Dec. 1803, aided by an English squadron, he definitively expelled the French from Hayti. In Jan. 1804, the army elected him governor-general of the new republic. For a few months he ruled in a spirit of moderation, and took some wise and just measures toward a healthy reorganization of the commonwealth. But soon his brutal nature prevailed over his judgment, and he returned to his favorite occupation of exterminating the whites. In April, 1804, he made an unsuccessful attempt to conquer the Spanish portion of the island, and after his return he became more frantic than ever. In imitation of Napoleon, he assumed the imperial crown (Oct. 8, 1804), and proclaimed a new constitution, which concentrated all real power in his own hands. A number of organic laws followed, most of them judicious, but inefficient, since his recklessness and eccentricities, bordering on absolute lunacy, frustrated their execution. His extravagance deranged the finances, his dissoluteness corrupted the morals of all classes. Beside his legitimate wife, he kept 20 concubines, who drew their salary from the public treasury. His thirst for blood became more and more insatiable. Suspicious of traitors and assassins, he put to death every one whom he supposed to have any independence of character. At last some of his generals entered into a conspiracy against him, and, entrapping him into an ambuscade, cut him to pieces. Of all fiends in human form who have obtained a place in history, Dessalines was undoubtedly one of the most remarkable. In a slender and hideous frame he united the wildest passions of the ferocious savage with extraordinary shrewdness, an undeniable keenness of judgment, and a clear statesmanlike knowledge of the men and things he had to deal with. However abominable his character may appear, it is nevertheless true that he understood the means of accomplishing the independence of Hayti better than even Toussaint himself. But he left Hayti a ruined and desolate, though an independent state. His widow, to whose influence are ascribed the few acts of forbearance

he exercised toward the whites, died in Gonaives, Aug. 8, 1858, at a very advanced age.

DESSAU, or Dessaw, the capital of the German duchy of Anhalt-Dessau, on the river Mulde, 2 m. from its junction with the Elbe, and on the Berlin and Leipsic railway, 67 m. S.W. from Berlin; pop. 12,000. The ducal residence is large, and has a fine park and a picture gallery. The theatre, the residence of the hereditary prince, the council house, the castle church, the government building, the gymnasium, St. Mary's church with some pictures by Lucas Cranach the younger, and the fine cemetery, are the most attractive features of the town. There are many scientific, artistic, religious, and industrial institutions and societies, a commercial school, a large ducal library, an orthopædic institution, and a bank with a capital of about $2,000,000. The manufactures embrace woollen, linen, and cotton fabrics, musical instruments, hats, leather, and tobacco. An important wool market is held here, and a flourishing trade in grain and other produce is carried on. Moses Mendelssohn, the philosopher, was born here in 1729. Dessau was noted as early as 1213, and in 1313 had a school independent of the church. In the German revolution of 1848 it was one of the most democratic cities of Germany. Its environs are adorned with beautiful gardens, which have been reclaimed from sandy wastes.

DESSOLLES, Jean Joseph Paul Augustin, marquis, a French general and statesman, born at Auch, Oct. 3, 1767, died Nov. 4, 1828. Having distinguished himself in Italy under the command of Bonaparte, he was appointed brigadier-general, May 31, 1797. A successful expedition in Valtelina was rewarded, April 13, 1799, with the rank of general of division. After the defeat of the French at Novi, where the commander-in-chief, Joubert, was killed, Dessolles joined the army on the Rhine, then under the command of Moreau, and participated in the two campaigns of 1800. He became attached to his new commander, and from this period a coolness seems to have existed between him and Bonaparte. He was, however, appointed a member of the council of state, and placed for a while in command of the French army in Hanover, but was soon superseded by Bernadotte. In 1808 he commanded a division in Spain. On the fall of Napoleon in 1814, the provisional government appointed him commander-in-chief of the Parisian national guards and the regular troops in the 1st military district. He was present at the meetings of the allied sovereigns at Talleyrand's, to decide upon the government to be given to France. He strenuously opposed the establishment of a regency under Marie Louise, and on the arrival of Count d'Artois he received the title of minister of state, and was appointed major-general of all the national guards of France. When the news of Napoleon's landing at Cannes reached Paris, Dessolles issued energetic orders to interrupt the progress of the usurper, and he retained his command until after the departure of the king on the morning of March 20, 1815. He then retired to his estate near Paris, where he lived unmolested during the Hundred Days. On the second restoration, he resumed the command of the national guard, but soon gave it up, being unwilling to support the reactionary policy then prevailing. In the chamber of peers he advocated the freedom of the press. On Dec. 28, 1818, he was appointed to the premiership and ministry of foreign affairs, receiving about the same time the title of marquis; but the king having determined that the electoral law of 1817 should be altered, Dessolles resigned his office, but continued to serve as a peer till his death.

DESTERRO, Nossa Senhora do Desterro, or Santa Catharina, a city of Brazil, capital of the province of Santa Catharina, on the W. coast of the island of that name; pop. with the adjoining district, 6,000. It has a small but excellent and well fortified harbor, and is the centre of an active commerce, the coffee exported hence bearing a high reputation. Artificial flowers made of fish scales, feathers, beetles' wings, &c., are also important articles of trade. The city has little or no architectural beauty, but is a favorite resort for invalids on account of its salubrious climate.

DESTOUCHES, Philippe Héricault, a French dramatist, born in Tours in 1680, died July 4, 1754. After leading a somewhat adventurous life, he was hospitably entertained at Lausanne by M. de Puysieux, the French envoy to Switzerland. His first comedy, *Le curieux impertinent*, was performed there with great applause, and was scarcely less successful when it appeared at Paris. Some other plays of his, among them *L'irrésolu*, attracted the attention of the regent duke of Orleans, who appointed him to several missions, the most important being that to London, where in 1717 he accompanied the abbé, afterward cardinal Dubois. After his return in 1723, on the sudden death of the regent, he retired to his country seat near Melun, where he wrote a number of comedies, the best of which are *Le philosophe marié* and *Le glorieux*, performed with great success in 1727 and 1732. His collected works were published in 1750, in 4 vols. 4to.

DESTUTT DE TRACY, Antoine Louis Claude, a French philosopher, born at Paray-le-Fresil, near Moulins, in the province of Bourbonnais, July 20, 1754, died near Paris, March 9, 1836. The descendant of a noble Scottish family, he entered the army, and was a colonel when the revolution broke out. As a deputy to the constituent assembly, he advocated liberal reforms, while adhering to the moderate party. In 1791 he retired to his country seat at Auteuil, and devoted his time to philosophical studies. During the reign of terror he was imprisoned, but liberated after the 9th Thermidor. The consular government appointed him a senator, and he was subsequently created a count of the empire. He published his *Éléments d'idéologie* in 1801, his *Grammaire* in 1803, and his *Logique* in 1805,

and was elected to the French academy in 1808. He took an active part in the fall of the empire; presented, April 2, 1814, in the senate, the motion of forfeiture against Napoleon; and entered the royalist chamber of peers, where he always voted with the majority. His *Traité de la volonté et de ses effets* appeared in 1815. He also wrote an *Essai sur le génie et les ouvrages de Montesquieu*, followed by a *Commentaire sur l'Esprit des lois*. A disciple of Locke, Condillac, and Hobbes, he belongs to the sensational or materialist school of philosophy. His theory of language is considered a masterpiece of analysis.

DETMOLD, the capital of the little sovereign principality of Lippe-Detmold, in Germany, on the river Werra and on the E. slope of the Teutoburg mountains; pop. 4,716. In the vicinity was fought the celebrated battle in which Arminius destroyed the army of Varus, A. D. 9, and also a battle between Charlemagne and the Saxons, in 783.

DETROIT, the chief city of Michigan, and capital of Wayne co., situated on the N. W. side of the Detroit river or strait, extending along the river nearly 4 m., of which over 2 m. presents a city-like appearance. The centre of the city is about 7 m. from Lake St. Clair and 18 m. from Lake Erie, 80 m. E. S. E. of Lansing, 302 m. W. of Buffalo, and 526 m. from Washington; lat. 42° 20′ N., long. 82° 58′ W. The river runs from Lake St. Clair to a point just below the city, in a direction about 30° S. of W., and from thence it runs nearly S. to Lake Erie, a distance of 15 m. The original bed of the river, before it was narrowed by docking out, was from 48 to 52 chains in width; but from the docks of the central portion of the city to the opposite docks of Windsor, in Canada, it is only about half a mile. The depth, in June, 1841, varied from 12 to 48 feet, averaging about 32 feet. The descent from Lake St. Clair to Lake Erie is about 6 feet, or 3 inches to the mile. The velocity of the current in the channel opposite the city is about 2¼ m. per hour. It rises and falls with the surfaces of the great lakes of which it is a connecting link, the average annual variation being only about 2 feet, and the extreme variation, from Feb. 1819, when it was the lowest, to July, 1838, when it was the highest ever known, was only about 6 feet. The waters of the river and lakes rise during a succession of wet seasons, and fall during a succession of dry ones. The Detroit river is so deep, and its current so strong and uniform, that it keeps itself clear, and its navigation is not affected (as the Ohio, Mississippi, and most other rivers are) by floods, droughts, sand bars, trees, sawyers, rocks, or dams of ice.—Where the principal part of the city is situated, the ground rises gradually from the river to the height of from 20 to 30 feet, at a distance of 15 to 30 rods from the river bank; it then falls off a little, and again rises gradually to the height of 40 to 50 feet above the river, which renders the drainage very good. The whole country for more than 20 m. back of the city is excessively level, rising gently and with great uniformity at the rate of about 5 feet in the mile. The Detroit river was visited by the French as early as 1610, but the first permanent settlement where the city of Detroit now stands was made in 1701 by a party under Antoine de la Motte Cadillac. It fell into the hands of the British in 1760, and was ceded with the country to the United States by the treaty of peace of 1783. Nearly the whole town was burned in 1805, after which its plot was changed under an act of congress in 1806. A portion of the city is regularly laid out, the streets running parallel with the river, and crossing each other at right angles thereto, though there are numerous irregularities. The streets and avenues vary in width from 50 to 200 feet, the most of them being either 60 or 66 feet, but some are 80, some 100, some 120, and a few avenues 200 feet in width. The inhabitants are supplied with water taken from the river opposite the upper part of the city, and raised by means of a hydraulic establishment and steam forcing pumps into a large reservoir about half a mile back from the river, sufficiently elevated to carry it in iron pipes to all parts of the city. Buildings are in course of erection (1859) for a court house, custom house, and post office. The Michigan insurance company bank is a fine building of shell limestone, which presents on its surface many beautiful petrifactions. The firemen's hall, odd fellows' hall, and some of the public school houses are also fine buildings. There are about 30 churches, of which several are large and splendid; many spacious and beautiful stores; some large and elegant dwelling houses, and several extensive hotels. There are various charitable institutions, and in 1857 there were 35 public and 22 private schools. There are 3 daily newspapers, each of which publishes a semi-weekly and weekly edition; there are also 5 other weekly newspapers, a monthly medical journal, a monthly journal devoted to education, and 2 semi-monthly "bank-note detectors." The following table shows the increase of the population:

Year.	Pop.	Year.	Pop.
1810	770	1850	21,019
1820	1,442	1854	40,373
1830	2,222	1855, estimated at	51,000
1834	4,968	1856	59,000
1840	9,102	1858	70,000
1845	13,065		

In 1858 there were about 12,000 to 15,000 Irish, an equal number of Germans, and about 4,000 French.—The U. S. government made 5 great leading roads (post roads) in Michigan while it was a territory, all diverging from Detroit. The Michigan central railroad was finished to Ypsilanti, 30 m. from Detroit, in 1837; to Ann Arbor, 38 m., in 1839; to Kalamazoo, 145 m., in 1845; and to Chicago, 282 m., in 1851. The railroad from Detroit to Toledo (60 m.) was completed in 1857, connecting at Monroe with the Michigan southern road. The Detroit and Milwaukee road, from Detroit to Lake Michigan, opposite Milwaukee, was opened for travel in 1858; and a road from Detroit to the foot of

Lake Huron, opposite Port Sarnia, the termination of the Grand Trunk railway in Canada, will be finished in the course of 1859.—Detroit is the great concentrating point of the produce, commerce, banking, and heavy business of the whole state. There are numerous large warehouses on the river, beside the great freight depot of the Central railroad, which is 800 feet long and 100 feet wide. The retail trade of the city is very large, and the wholesale business has become extensive also. Nearly all the merchants in the upper lake region, as well as in the interior of the state, make many of their purchases in Detroit, and a large proportion of them buy all their goods there. The largest branch of industry is the sawing of lumber. There are on the river within the city limits 9 large steam saw mills, which cut from 3,000,000 to 8,000,000 feet each per annum, making in the whole about 40,000,000 feet annually of pine lumber, the logs being floated down to the mills from Lake Huron and the creeks and streams which fall into the St. Clair river. Ship and boat building has also been a very large and important branch of business. The Michigan central railroad company have an extensive workshop for the manufacture of cars, and for repairing their locomotive engines. The Detroit locomotive works are connected with a large foundery, machine shop, and boiler factory, for the manufacture of locomotive and other engines, and the casting of mill irons and machinery of various kinds. There are many other establishments, large and small, for all kinds of machine work, and brass and iron casting, beside shops for working in wood, making sash, blinds, doors, casings, &c.; 2 steam pail factories, one steam flouring mill, 2 large tanneries, and several breweries. Two miles below the city works have been erected and in operation several years for smelting native copper and copper ore from the shores of Lake Superior; 10 m. below, a blast furnace and rolling mill have been in operation several years. The furnace is employed in smelting ironstone from the upper peninsula. From 10 to 15 m. from the south shore of Lake Superior there are several hills of ironstone, very rich in the finest quality of iron, which will furnish an inexhaustible supply. The following table shows the industrial progress of the city from 1855 to 1857:

Establishments.	1855.	1856.	1857.
Stores	335	383	420
Groceries	260	247	280
Taverns	49	52	56
Offices	175	236	255
Mechanic shops	343	399	421
Stationary steam engines	46	50	69
Forwarding houses	24	26	29
Iron machine shops	10	11	10
Iron founderies	7	8	11
Breweries	17	20	23
Bakeries	21	27	28
Fire engine houses	9	9	13
Flour mills	3	4	5
Saw mills	6	6	9

The estimated value of the leading articles of export in 1857 was $10,996,399, and of the total foreign imports $1,139,791 64. The imports by railway of flour and grain in 1857 and 1858 were as follows:

Articles.	1857.	1858.
Flour, bbls	482,192	592,287
Wheat, bushels	650,874	839,704
Corn, "	447,219	231,040
Oats, "	196,564	150,486

The number of vessels built in the Detroit collection district during the fiscal years 1856–'7, ending June 30, with their aggregate tonnage and the total tonnage of the district, are as follows:

Vessels.	1856.	1857.
Steamers	9	10
Ships and barks	1	1
Brigs	..	1
Schooners	22	7
Sloops and boats	1	10
Total number built	33	29
Tonnage of do	7,626	6,764
Tonnage of district	58,688	57,707

The assessed valuation for purposes of taxation was, in the latter part of 1858, $16,360,000, with a city debt of about $300,000.

DETROIT RIVER. See DETROIT.

DEUCALION, king of Phthia, in Thessaly, and son of Prometheus and Clymene. According to ancient tradition, being forewarned by his father of an approaching deluge, he built a ship in which he and his wife Pyrrha were saved from an inundation which destroyed all the rest of mankind. When the waters subsided, their vessel rested on Mount Parnassus, and their first care was to consult the oracle of Themis as to how the world should be repeopled. Being advised to throw behind their backs the bones of their great mother, and interpreting mother to mean the earth, they cast stones behind them, from which sprang up men and women.

DEUTERONOMY (the second law; Gr. δευτερος, second, νομος, law), the 5th book of the Pentateuch, containing the history of what passed in the wilderness during about 5 weeks (from the beginning of the 11th month to the 7th day of the 12th month), in the 40th year after the departure of the Israelites from Egypt. In it Moses recites to the people the events which had taken place in their history, and explains again the law which had been received at Sinai.

DEUX PONTS (Ger. *Zweibrücken*, two bridges), a canton and town in the circle of the Palatinate, Bavaria; pop. of the canton, about 150,000; of the town, 7,920. The canton was formerly an independent duchy, and in 1795 came by inheritance into the possession of the king of Bavaria. During the wars of the French revolution it passed into the hands of the French, to whom its possession was confirmed by the treaty of Luneville in 1801. In 1814 it was finally restored to Bavaria. Much of the canton is mountainous, but in the valleys and on the lower hills agriculture is carried on to a considerable extent. It has extensive forests, and iron, copper, and freestone are found. Much attention is also paid to the raising of

horses, cattle, and sheep.—The town of Deux Ponts was the capital of the ancient duchy, and once possessed a handsome ducal palace, which was partially destroyed by the French, and has since been converted into a church. The name of the town, which in Latin is *Bipontium*, was given to it on account of the two bridges across the Erlbach, near the old castle of the dukes. The Bipont editions of the Greek and Latin classics were commenced here in the latter part of the 18th century.

DEV (Sanscrit, *div*, to play, desire, shine, be mad or proud, tease, &c.; Slavic, *div-iti*, to wonder; *dzrir*, wild), the Parsee name of the *peetiare Ahriman*, or evil-breeding principle, and of his progeny of night, death, darkness, drought, dulness, dearth, dirt, negation, and starvation. The devs were the producers of these and of all other dire and dreadful calamities, as well as the seducers of men to all moral evils; the prototypes of the devils of Christian history. For the διαβολος (scatterer, confounder) itself seems to be of recent formation in this sense, having been unknown to the ancient Greeks. As Ahriman, though akin to Ormuzd, both being the offspring of Zervane Akerene (Slav. *trvanie*, duration, *a* privative, and Slav. *kraj*, margin), or endless time, was his antagonist, so were the 6 arch-devs opposed to as many Amshaspands representing the principles of light, life, love, law, right existence, and happiness; both being also the prototypes of the 7 choirs of devils and of angels. Beside the regular army of evil spirits, rushing down from the desert of Gobi upon the south-western people of Ormuzd, compelling them to leave their native land, Eeriene Veedjo (*Iran*, pure), under the guidance of Jemshid, and to change their settlements 13 times, there were especial devs of falsehood, envy, putridity, and all other evil things, distinguished by specific names, such as Eshem, the man-killer; Akuman, the ugliest of all; Epeosho, the destroyer of waters in the shape of a dragon-star (probably a comet), &c. The Darudjs, a particular sort of devs, opposed to the good Izeds, or secondary good genii, are also conspicuous. The ever renewed contest of the two principles will end with the destruction of the earth by the comet Gurzsher. The cosmogony and theology of the Parsees is contained in the Zend Avesta.

DEVA (Lat. *deus*, *divus*), among the Aryans in general, an epithet of divine persons and things; hence often opposed to the *dev* of the Parsees. It is commonly applied to the goddess Durgā, the wife of Siva, of terrific form and irascible temper. Devakātmajā is the mother of Krishna, who is also named Devāki. Devatarū is the holy fig-tree, belonging to Sverga or paradise. Devatā denotes a deity; Devadatta, the younger brother of Buddha, who is called Devadattārraja (Deodatus senior). Devadeva is a name of Brahma; Devapati is Indra, the god of the sky; Devayajna is the Homa or burnt sacrifice; Devarishi, a celestial saint. There are a great many classes or choirs of inferior devatas, who are ministers to the higher gods, such as the 12 Adityas or forces of the sun; the Maruts or winds, the celestial musicians; in short, endless motley hosts with variable attributes. (See Brahma.)

DEVANAGARI. See Sanscrit.

DEVAPRAYAGA, a town of Gurhwal, Hindostan, situated at the place where the rivers Bhagirathi and Alakananda unite and form the Ganges. This portion is considered by the Hindoos as the most sacred part of that holy river, and is believed by them to have the property of washing away sins. The town is not large, and is inhabited principally by Brahmins, who are supported chiefly by the contributions of pilgrims. It is built on an eminence about 100 feet above the river, and contains a celebrated Hindoo temple, built of large stones joined together without the use of mortar.

DEVENTER, or Dewenter, a fortified city of Holland, province of Overyssel, on the Yssel, 8 m. N. from Zutphen; pop. in 1850, 14,378. It has narrow streets, spacious market places, handsome public promenades, a large town house, a court house, a prison, a weigh-house, 5 churches, a synagogue, various literary and educational institutions, 6 hospitals, and an orphan asylum. It has an excellent harbor, a prosperous trade, and extensive manufactories of Turkey carpets, stockings, iron ware, &c. It exports annually about 600,000 lbs. of butter.

DE VERE, Maximilian Schele, professor of modern languages and belles-lettres in the university of Virginia, born near Wexio, in Sweden, Nov. 1, 1820. He first entered the military and afterward the diplomatic service of Prussia. Emigrating finally to the United States, he was appointed in 1844 professor in the university of Virginia, a position which he continues to occupy. Prof. De Vere has been an industrious and extensive writer, as well as a laborious student and teacher. His contributions upon a great variety of subjects, of a historical, literary, and scientific character, have appeared in the British quarterly reviews, the "Southern Literary Messenger," in "Putnam's" and "Harper's" magazines, and elsewhere. He has published 2 volumes: the first in 1853, "Outlines of Comparative Philology;" the second in 1856, "Stray Leaves from the Book of Nature." The former is a very full and comprehensive treatise, now in use as a text book at the university of Virginia; the latter a graceful and pleasing series of papers, dealing with a number of curious and interesting subjects, chiefly in the department of the minute naturalist. The miscellaneous articles contributed by Professor De Vere to the periodicals mentioned above have been valuable and interesting; among them we refer especially to a series of papers in the "Southern Literary Messenger," entitled "Glimpses of Europe in 1848," which are remarkable for political insight and vivid coloring. He has made himself master of English, and writes it with much perspicuity, force, and elegance.

DEVEREUX, Robert, 1st earl of Essex, born about 1540, died in Dublin, Sept. 22, 1576. He succeeded his grandfather early in the title of Viscount Hereford, and recommended himself to Queen Elizabeth by his bravery and good conduct in suppressing the rebellion of the earls of Northumberland and Westmoreland, in 1569. For his service in driving them into Scotland he received the garter and the earldom of Essex. Afterward, in 1573, he was persuaded to undertake an expedition against Ireland, in company with other noblemen and gentlemen. In consideration of his contract to furnish half the expense of the enterprise, he was to have one-half of the colony as soon as it was established. The expedition was directed against the Irish province of Ulster, but in its prosecution Essex was subjected to many trials and disappointments, to the desertion of his friends, and inability to carry out his plans. He was obliged to make peace with O'Neal, when, by continuing the war, he had the fairest prospects of driving him out of the country. Harassed with his difficulties, he retired to England, but was again induced to return, with the title of earl marshal of Ireland and the promise of support and assistance. As these promises were but poorly kept, he was overcome with grief, and the agitation of his mind threw him into a fatal dysentery. There was suspicion of poison, which was not diminished by the marriage, soon after, of his countess to the earl of Leicester.

DEVEREUX, Robert, son of the preceding, 2d earl of Essex, born at Netherwood, in Herefordshire, Nov. 10, 1567, executed in the court of the tower, Feb. 25, 1601. He succeeded to his title in his 10th year, and in 1578 was sent by his guardian Lord Burleigh to Trinity college, Cambridge, where after 4 years he took the degree of master of arts. He retired to his seat at Lampsie, in South Wales, but appeared at court in his 17th year, and his youth, address, and spirit soon captivated Elizabeth. In 1585 he accompanied the earl of Leicester to Holland, and displayed his personal courage in the battle of Zutphen, in which Sir Philip Sidney fell mortally wounded. In 1587 he was appointed to the honorable post of master of the horse, and in the following year the queen ostentatiously showed her favor for him while reviewing the army at Tilbury, created him captain-general of the cavalry, and conferred on him the honor of the garter. He succeeded Leicester as prime favorite, and his attendance was constantly required at court. In 1589, when an expedition against Portugal was undertaken by Drake and Norris, Essex suddenly disappeared from court, followed the armament, and joined it on the coast of Portugal, where he was a leader in taking the castle of Peniche and in advancing upon Lisbon. Though he had departed without the permission of the queen, he was quickly reconciled with her after his return, and at once assumed a superiority over Sir Walter Raleigh and Sir Charles Blount, the rival competitors for royal favor. He was challenged by Blount and wounded in the knee, and the queen is said to have expressed her gratification that some one had taken him in hand, as otherwise there would be no ruling him. In 1590 he married the daughter of Sir Francis Walsingham, the widow of Sir Philip Sidney, and in the following year had command of a fruitless expedition in Brittany against the Spaniards, who were attempting its conquest. When, in 1596, alarm was excited by the hostile preparations in the Spanish harbors, he was joined with Lord Admiral Howard in command of the expedition against Cadiz, and entered the city by land soon after the engagement in the harbor, in which 13 Spanish ships of war were taken or destroyed. The intrigues of the Cecils, who had regarded Essex with jealousy from his first introduction at court, caused him to be coolly received on his return; but he quickly recovered favor, the queen preferring him as an accomplished courtier and Sir Robert Cecil as a man of business. Two subsequent expeditions which he conducted against Spanish shipping, in one of which Lord Thomas Howard and Sir Walter Raleigh were his seconds, met with little success. The queen received him with frowns and reproaches, and he retired to Wanstead; nor would he be pacified by her acknowledgment that the charges against him were unfounded, but after a long negotiation he accepted the office of hereditary earl marshal as indemnity for the promotion that had been given to his rivals. In 1598 he quarrelled with the queen about the appointment of deputy in Ireland, and when she boxed him on the ear, and bade him "go and be hanged," for turning his back to her in presence of her ministers, he swore that he would not endure such an affront even from Henry VIII. himself, and withdrew from court. Only a formal reconciliation was ever effected. In 1599 the province of Ulster was in rebellion, and Essex, invested with unusual powers, accepted the lord-lieutenantcy of Ireland. His campaign resulted only in a temporary armistice, and completed his ruin. He returned in haste, retired from his first audience with a cheerful countenance, but was immediately ordered to consider himself a prisoner in his own house, and was for a time delivered to the lord keeper to be kept in "free custody." After months of hesitation, both on his own part and that of Elizabeth, he at length conceived the plan of forcibly banishing his enemies from her majesty's council. At the head of a force of 80 knights or gentlemen, and about 200 other persons attached to him by friendship or fear, he made his way into the city, but was disappointed in expecting the people to rise in his favor; he completely failed in his design, and took refuge in Essex house, where he was besieged and forced to surrender. He was committed to the tower, tried for treason, condemned, and executed, the queen reluctantly and irresolutely signing the warrant. He was an accomplished scholar, a patron of literature, and the most frank and impetuous of the politicians of his time. He erected a monument to Spen-

ser, gave an estate to Bacon, and was the friend of Wotton and other men of learning.

DEVEREUX, Robert, son of the preceding, 3d earl of Essex, born in London in 1592, died in the same city, Sept. 14, 1646. He was educated at Eton and at Merton college, Oxford. He succeeded to his title in 1603, and in his 15th year was married to Lady Frances Howard, who was a year younger than himself. He proceeded to the university and thence to the continent, while his wife remained at court, and numbered Prince Henry and Rochester (afterward earl of Somerset) among her admirers. A divorce ensued between her and the earl of Essex, on the plea of his natural incapacity, and she was soon after married to Rochester. Essex led a solitary life in his country house, till in 1620 he raised a troop and served under the elector palatine in the wars of the Netherlands. He was engaged in several campaigns abroad, and as vice-admiral commanded a fruitless expedition sent by England against Spain. His second marriage resulted unhappily and in a divorce. At the outbreak of the civil war he was appointed lord general by the parliament, laid siege to Portsmouth, and was proclaimed a traitor by Charles. He fought against the king at Edgehill (1642), captured Reading (1643), advanced into Cornwall, and, after refusing to negotiate with the royalists, met with a succession of disasters which forced his army to capitulate, he himself escaping in a boat to Plymouth. He repaired to London, where a parliamentary deputation waited on him in honor of his faithful services. He again raised a corps, but ill health soon obliged him to quit his command. As early as 1644 he suspected Cromwell of a design to obtain the supreme command of the army, abolish the house of lords, and erect a new government according to his own principles. He therefore urged his impeachment before the house of lords, and Cromwell took revenge by proposing the "self-denying ordinance," by which members of both houses were excluded from all offices, whether civil or military. This measure having passed, Essex ceased to be a parliamentary general, but for his services £10,000 per annum was voted to him out of the sequestered estates of the loyalists. He died in the next year, and was interred in Westminster abbey, the houses of parliament expressing their respect for his memory by attending his funeral.

DEVIL (Gr. διαβολος, scatterer or accuser), in Jewish and Christian theology, the sovereign spirit of evil. The doctrine of the fathers of the church, founded upon certain passages of the Scriptures, makes him the leader of a rebellion in the angelic world, the enemy of God, the author and constant promoter of sin, now suffering chastisement for his crimes, and destined to eternal punishment. Though called the prince of this world, and though all heathendom was the effect of his agency, yet his power was broken by the work of Christ, so that Christians can rise superior to the might of his influence. As sovereign of the demons, he figured prominently in the practice of magic and in many of the poetical legends of the middle ages. In the mysteries he was often represented on the stage, with black complexion, flaming eyes, sulphuric odor, horns, tail, hooked nails, and cloven hoof. Milton in the character of Satan, and Klopstock in that of Abbadonna, have personified the devil as a fallen angel, still bearing traces of his former dignity amid the disfigurements caused by sin. The Mephistopheles of Goethe is a more malignant character, and chuckles in anticipating the ultimate ruin which he is preparing by his arts.—The Yezidis, a singular race found in Koordistan and Armenia, are perhaps the only acknowledged worshippers of the devil. They seem to have once professed Christianity, then Mohammedanism, and now risk their destiny on devilism. Admitting that the mighty angel Satan, the chief of an angelic host, at present has a quarrel with God, they yet believe that a reconciliation will hereafter take place, and that he will be restored to his high estate in the celestial hierarchy. This is the foundation of their hope, and they esteem their chance for heaven a better one than if they trusted to their own merits or to the merits of the leader of any other religion whatsoever. (See Demons.)—Among the most complete theological treatises on the subject are those of Mayer, *Historia Diaboli* (2d ed., Tübingen, 1780); Semler, *Versuch einer biblischen Dämonologie* (Halle, 1785); and Schulz, *Untersuchung über die Bedeutung des Worts Teufel und Satan in der Bibel*.—The devil, as the ideal of evil, vice, craft, cunning, and knavery, has played a prominent part in literature. The following are examples: Hocker, *Wider den Bann-Teufel* (Magdeburg, 1564); Musculus, *Wider den Ehe-Teufel* (Frankfort, 1566); Fabricius, *Der heilige, kluge, und gelehrte Teufel* (Eislingen, 1567); Luberti, *Fast-Nachts-Teufel* (Lübeck, 1573); Brandmüller, *Der Geiz-Teufel* (Basel, 1579); Musäus, *Melancholischer Teufel* (Tham, 1572), and *Speculativischer Teufel* (Magdeburg, 1579); the *Theatrum Diabolorum* (Frankfort, 1565, containing 20 old German writings similar to the preceding); Velez de Guevara, *El diabolo cojuelo* (Barcelona, 1646); Damerval, *Le livre de la diablerie* (Paris, 1508); *Le diable bossu*, *Le diable femme*, *Le diable pendu et dépendu*, *Le diable d'argent*, *Le diable babillard* (all early in the 18th century); *Le diable confondu* (the Hague, 1740); *Le diable hermite* (Amsterdam, 1741); Le Sage, *Le diable boiteux* (Paris, 1755); Frédéric Soulié, *Mémoires du diable* (Paris, 1844); the "Parlyament of Deuylles," printed by Wynkin de Worde (1509); the "Wyll of the Deuyll and Last Testament;" the "Devill's White Boyes" (1644); "Devil turned Roundhead" (London, 1642); the "Devill of Mascon" (Oxford, 1658); and Defoe, the "Political History of the Devil, as well Ancient as Modern" (London, 1726).

DEVIL-FISH, a cartilaginous fish of the ray family, and the genus *cephaloptera* (Duméril).

In this genus the head is truncated in front, and provided on each side with a pointed, wing-like process, separate from the pectoral fins, and capable of independent motion; these processes, however, seem sometimes to be prolongations of the pectorals, and give the name to the genus, which signifies wings upon the head. The pectorals are of great breadth, triangular, resembling wings, and making the transverse diameter of the fish greater than the longitudinal, with the tail included; the jaws are at the end of the head; the lower are the most advanced; the eyes are prominent and lateral; the tail is armed with one or two serrated spines, and is long and slender; in front of the spine is a small dorsal fin with 36 rays; the teeth are small, numerous, flat, and arranged in many rows; the small nostrils are placed near the angles of the mouth, and openings (probably the auditory) are situated on the dorsal aspect of the appendages to the head, behind the eyes; the branchial openings are 5 on each side, large, linear, near each other, the 5th being the smallest; the ventral fins are small, rounded, near the base of the tail; the skin is rough to the touch, like that of some sharks; the skeleton is cartilaginous. The old genus *cephaloptera* has been divided by Müller and Henle, and the genus *ceratoptera* added. In the first the mouth is on the ventral aspect, and the pectorals are prolonged forward to a point beyond the head, resembling horns; 4 species are described. In the second the mouth is at the end of the snout, the upper jaw is crescentic, and the under convex; there are no teeth in the upper jaw, and they are small and scale-like on the under; the pectorals are separated from the precephalic fins by a rayless space; this includes 3 species, and among them, probably, the one mentioned below as caught at Kingston, Jamaica. The devil-fish mentioned by Catesby, in his "Natural History of Carolina," is probably the same as the gigantic ray described by Mitchill in vol i. of the "Annals of the Lyceum of Natural History of New York," under the name of the "vampire of the ocean" (*C. vampyrus*, Mitch.). This specimen was taken in the Atlantic, near the entrance of Delaware bay, in 1823, and was so heavy as to require 3 pair of oxen, a horse, and several men to drag it on shore; it was estimated to weigh about 5 tons, and measured 17¼ feet long and 18 feet wide; the skin on the back was blackish brown, and on the belly black and white, and very slimy; the mouth was 2¾ feet wide, the greatest breadth of the skull 5 feet, and the distance between the eyes 4⅙ feet; the cranial appendages were 2½ feet long and a foot wide, tapering, supported internally by 27 parallel cartilaginous articulated rays, allowing free motion in almost all directions, and probably used as prehensile organs; the immense pectorals were attached to the scapular arch, and contained 77 articulated parallel cartilaginous rays, and were used like wings to fly through the water. The specific name of this ray was given by Mitchill from its size, representing in its family what the vampire does in the bat family. This specimen was again described by Lesueur in the "Journal of the Academy of Natural Sciences" (vol. iv., 1824), as *C. giorna* (Lacép.). Cuvier and Dekay consider the latter a distinct species, rarely exceeding the weight of 50 lbs. The devil-fish is occasionally seen by the fishermen on the coast of the southern states in summer and autumn, and many wonderful stories are told of its strength and ferocity, its extraordinary shape and size having transformed a powerful but inoffensive animal into a terrible monster in the eyes of those who cannot see the admirable adaptation of means to ends even in the most hideous creatures. Other species of the genus are met with in the tropical parts of the Atlantic and Pacific, both in mid ocean and on sandy coasts, which they approach to bring forth their young; and doubtless many of the marvellous stories of the sea serpent and other marine monsters have arisen from the sight of these animals sporting on the surface of the water, or dimly seen beneath the vessel's keel. They are not uncommon in the West Indies, and Dr. Bancroft, in vol. iv. of the "Zoological Journal," describes one which was captured in 1828 in the harbor of Kingston, Jamaica, after a resistance of several hours, which had strength sufficient to drag 3 or 4 boats fastened together at the rate of 4 miles an hour. In this specimen, which was smaller than the one described by Mitchill, the mouth was 27 inches wide, opening into a cavity 4½ feet wide and 3 feet deep, and so vaulted that it could easily contain the body of a man. He named it *C. manta*, which is doubtless a synonyme of *C. vampyrus* (Mitch.). In Anson's "Voyage round the World" there is an account of an immense fish which, "broad and long, like a quilt, wraps its fins round a man that happens to come within its reach, and immediately squeezes him to death." Another writer says that it is so inimical to the pearl diver that it darts at him "immediately that he submerges, and envelops and devours him." The fish thus characterized is, no doubt, the ray called devil-fish, but it is anatomically impossible that it can so seize its prey; the accounts above mentioned are mere traditions, as it does not appear that any one has ever been a witness of such an event. The pectoral fins of the devil-fish are too thick at their base and anterior margin, and their cartilages are too rigid, to allow of their being so bent downward as to enfold a man or any other prey in the manner alluded to; they are composed of a great number of joints, more than 600, and must be capable of a considerable variety of motions calculated to impel the animal through the water with great strength and speed; any one who has caught a skate, and experienced the resistance of a fish 2 or 3 feet in diameter, can readily believe that an animal 18 feet in extent of fins might, if entangled in the cable of a small vessel, draw it for miles with considerable velocity, as was observed by Catesby, and has since happened in the harbor

of Charleston, S. C.; it is equally conceivable that by means of the immense pectorals they could raise a great commotion on the surface of the water, and even leap entirely out, yet the pectorals must be considered as organs of locomotion, and not of prehension. The appendages to the head can hardly be used in locomotion; Lieut. St. John, who has watched attentively the movements of this fish, says that these flaps are used in driving a large quantity of water toward the mouth when the animal is at rest, feeding; they can be bent in front of, and even into the mouth, and are probably prehensile organs for various purposes; when swimming, the flexible ends are coiled up. The nature of the teeth, and the narrowness of the gullet, also render it improbable that this fish feeds upon any thing but small fry, which it sweeps toward the mouth by its cranial flaps. The truth appears to be that the devil-fish, though powerful and hideous, is a timid and harmless creature, avoiding rather than attacking man; but when attacked and defending itself, the serrated spine of the tail would prove a dangerous weapon, inflicting a deep, lacerated, and possibly fatal wound to man or fish within its range. They are gregarious, and are pursued by fishermen for the oil which the liver contains.—Another large and hideous fish, sometimes called sea devil and devil-fish, is the *lophius piscatorius* (Linn.), which will be described under the title of Goose Fish.

DEVIL'S ADVOCATE. See Advocatus Diaboli.

DEVIL'S BRIDGE, a remarkable stone bridge over the Reuss, in Switzerland. It is on the road from Germany to Italy, over the pass of St. Gothard, and crosses the river from mountain to mountain, a distance of about 75 feet. It is one of the most ancient structures of the kind in Switzerland, though there are others which surpass it in height, length, and width. The surrounding country abounds in romantic and beautiful scenery.

DEVIL'S WALL, a name given during the middle ages to the remains of some Roman fortifications designed to protect the Roman settlements on the Rhine and the Danube against the inroads of the free German tribes. These defences originally consisted of a row of palisades, in front of which extended a deep ditch. The emperor Probus strengthened them by the erection of a wall 368 m. long, passing over rivers and mountains, and through valleys, and protected by towers placed at intervals. The only portions of this wall now distinguishable are between Abensberg, in Bavaria, and Cologne, on the Rhine. In some places the ruins are overgrown with oaks, in others they form elevated roads or pathways through dense forests, while not unfrequently modern edifices have been built above them.

DEVISE. By this term is designated the disposition of lands to take effect after the death of the devisor. It is of Norman origin, and signified at first any division of lands, *marque de division ou partage de terres*, from the Latin *divido*. The instrument by which lands are devised is called a will; the disposition of personal estate to take effect after the death of the person making it is in legal language a testament; but the common appellation, where both real and personal estate are included, is last will and testament. The Roman *testamentum* applied equally to the disposition of real or personal estate, and the same rules were observed in either case. But the mode of executing a will has been always more formal in England than was required for the validity of a testament.—For a further explanation of the principles applicable to devise, see Will.

DEVIZES, a parliamentary borough and market town of Wiltshire, England, built on a fine eminence on the Kennet canal, 82 m. S. W. of London; pop. in 1851, 6,554. It has 3 silk factories; the woollen manufacture, once carried on, is now extinct. The town is supposd to owe its origin to a strong castle built here in the reign of Henry I. by Roger, bishop of Salisbury, and dismantled toward the close of the reign of Edward III. The grain market held here every Thursday has been famous ever since the time of Henry VIII.

DEVONIAN, the name of one of the great geological formations, including the old red sandstone, and the groups below it to those of the upper silurian. It is named from South Devon in England, where its strata were first distinguished in 1837 from those of the silurian and carboniferous by Prof. Sedgwick and Sir R. Murchison. The formation is recognized by its fossils and relative position in various parts of Europe; but it is nowhere found so largely developed as in the United States. In the New York system of the rocks it includes the following groups, though it is thought by Prof. Hall that the fossils of the 3 last named nearly resemble those of the Ludlow group of Murchison, and that these should consequently be referred to the upper silurian:

Names.	Approximate thickness in N. Y.
Catskill group, or old red sandstone	2,000 feet
Chemung	1,500 "
Portage / Genesee	1,000 "
Tully	15 "
Hamilton	1,000 "
Marcellus	50 "
Corniferous / Onondaga	50 "
Schoharie / Caudi-galligrit	10 "
Oriskany sandstone	5 to 30 "

Of these groups, some of the thickest thin away in other states, while others, as the calcareous strata of the corniferous and Onondaga groups, which together seldom exceed 50 feet in thickness in New York, spread out over the western states between the great lakes and the Ohio and Tennessee rivers in almost continuous strata of coralline rocks. Sir Charles Lyell notices a fine display of these calcareous rocks at the falls of the Ohio at Louisville. In the horizontal water-worn strata, "the softer parts having de-

composed and wasted away, the harder calcareous corals stand out in relief, their erect stems sending out branches precisely as when they were living." Fine specimens of various species of coralline are obtained at this locality, and new are continually brought out by the action of the river upon the rocks, and may be collected at low stages of the water. But only 6 species found in this country in the whole Devonian series are identified with the 46 British Devonian corals described in 1853 by Milne-Edwards and Jules Haime. The formation abounds with the greatest variety of fossil molluscous animals and crinoïdea, the genera of which, and some of the species, are identified with the Devonian fossils of Europe.

DEVONPORT, a parliamentary and municipal borough and naval arsenal in Devonshire, England, built on the Tamar, where that river makes a bold sweep toward the E., and widens into the fine estuary called the Hamoaze, just before its entrance into Plymouth sound, 218 m. S. W. of London, and 1½ m. W. of Plymouth; pop. in 1851, 50,159. Its harbor, one of several remarkable natural havens opening into the sound, is 4 m. long, ½ m. wide, from 15 to 20 fathoms deep, perfectly safe, and capable of sheltering the whole British navy at once; but it is difficult of entrance. The town is bounded S. and W. by the river, and E. by a creek which separates it from Stonehouse, contiguous to Plymouth. With these two places it is so closely connected, that the 3 may almost be said to form a single city, and it was not until 1824 that Devonport acquired separate municipal privileges, and changed its old name of Plymouth Dock for that which it now bears. A fluted column of the Doric order, approached by a flight of 140 steps, was erected in commemoration of the event. There are 6 churches, 2 chapels of ease, 17 places of worship for dissenters, 17 principal schools, including a naval and military free school, and an institution in which 100 girls are educated and clothed, a public library, orphan asylums, and a theatre. Water is brought from Dartmoor, in a winding conduit nearly 30 m. long. With the exception of some breweries and soap-boiling houses, Devonport contains no factories of importance. The density of the population is greater than that of any other place in England, there being no fewer than 26,000 people living on ½ of a sq. m., with an average of 10 individuals to each house, whereas the proportion in Liverpool is but 7, and in Manchester but 6. Devonport is fortified on the N., S., and E. by a wall, a breastwork, and a deep ditch, while the entrance from the sea is commanded by several heavy batteries. These works were begun by George II. The chief feature of the town is the dock yard, commenced by William III., who built the basin and 2 docks. It has a river front of 3,500 feet, and a maximum breadth of 1,600 feet, the area enclosed being about 96 acres. There are 2 dry docks, one double and one single dock for ships of the line, one graving dock, 5 building slips, and vast docks or basins at Point Keyham for fitting and repairing war steamers, commenced in 1844, and embracing an area of 72 acres. The immense roofs over the docks, consisting of single arches, without buttresses or pillars, are wonders of architectural skill. A canal 70 feet wide runs nearly through the yard, communicating with the boat pond. On the S. side are an outer mast pond and mast house, timber berths, saw pits, a smithery with 48 forges, an inner mast house and mast locks, a building in which planks are steamed and curved, a hemp magazine, and a rope factory, consisting of 2 stone and iron buildings, each 1,200 feet long and 3 stories high. The number of men employed in the whole establishment sometimes amounts to 3,000.

DEVONSHIRE, a maritime co. of England, second in size only to that of York, its greatest extent from N. to S. being 71 m., from E. to W. 72 m.; area, 2,585 sq. m.; pop. in 1841, 532,959; in 1851, 567,098. It is bounded on the N. and N. W. by the Bristol channel; on the W. by the river Tamar and Marsland-water, which separate it from Cornwall; on the S. and S. E. by the British channel; and on the E. and N. E. by the counties of Dorset and Somerset. The rivers of Devon are the Taw, Torridge, Tamar, Dart, Teign, Exe, Tavy, Plym, Yealm, Erme, Avon, Otter, Sid, Axe, and Lyn. Trout are found in great plenty in most of these; the Tamar and Tavy furnish valuable salmon fisheries; the Exe salmon are thought the best in England; and at the mouths of the various streams are found plaice, kingfish, torpedoes, and cuttle fish. The county has 3 canals: the Great Western, 35 m. long, connecting the S. E. coast with the Bristol channel, the Tamar canal, and the Tavistock canal. The Bristol and Exeter and the South of Devon railways also traverse the county. Devonshire is a rich mineral country, furnishing copper and lead in considerable abundance, with smaller quantities of tin, iron, bismuth, and many other mineral substances, beside coal and marble. It is supposed that the inhabitants worked the iron and other metallic mines before the arrival of the Romans. The tin mines were anciently numerous and valuable, but are now nearly abandoned, those of Cornwall being so much richer. There are several varieties of lead ore, one of which is very rich in silver. Cobalt, antimony, and native silver have been found in considerable quantities. The marbles quarried from the limestone rocks on the E. and S. coasts are of fine colors and beautifully veined, hard, susceptible of a good polish, and much resemble Italian marble. Fine pipe clay, potters' clay, which is exported to other countries, and slate of excellent quality, are found abundantly. The agriculture of Devonshire is in a flourishing condition. Of the 1,654,400 acres of land, about 1,200,000 are under cultivation. The S. and S. E. parts of the county contain extensive wastes, the surfaces of which are covered with immense rocks and detached masses of granite. To the N.

and N. W. are found large tracts of swampy ground and many peat bogs of great depth. The vale of Exeter, containing about 200 sq. m., consists of some very fine land, and is one of the richest valleys in the kingdom. The district called South Hams, extending from Torbay round to Plymouth, is known as the garden of Devonshire, and is finely diversified and very productive. In the vale of Exeter are raised wheat, beans, barley, peas, and flax. The pasture lands are chiefly devoted to dairy uses, though some attention is paid to raising sheep and cattle. In West Devon ⅔ of the enclosed lands are alternated with corn and various kinds of grasses, such as red clover, rye grass, white clover, and trefoil. Irrigation is commonly practised, as also peat burning; orchards and apple trees in hedges are common, and oats, turnips, and potatoes are raised in many districts. The yield of wheat is from 16 to 25 bushels per acre; of barley, from 35 to 50. Devonshire is celebrated for the quantity and quality of its cider. Butter is made in considerable quantities, the average produce of cows being a pound per day. Devonshire cows are noted throughout England, and have been imported into the United States. The purest breeds are distinguished by a high red color, without white spots; they are fine in the bone and clean in the neck, thin skinned, and silky in handling; have horns of medium length bent upward, a small tail set on very high, a light dun ring around the eye, and are noted for feeding at an early age. A good Devonshire cow will yield, for the first 20 weeks after calving, about 3 gallons of milk per day. The cows weigh from 420 to 460 lbs., the oxen from 700 to 820 lbs. The North Devon cattle, another variety, are in great demand for the firm grain of their meat, and the superior qualities of the oxen for work. The native horses are small, but hardy, and much accustomed to the pack saddle. The breed of sheep is various, but mostly of the Dorsetshire kind. Landed property in Devonshire seems to be more regularly divided than in most other counties, there being few very large freeholds; the farms are held generally by leases of 3 lives, or for 99 years. As the lives drop, new ones are put in, on payment of an adequate sum. Farms average from 100 to 200 acres. Devonshire formerly manufactured thin woollen goods, and carried on a considerable woollen trade with Spain, but this branch of industry has greatly declined; the spinning and weaving of a species of serge, known as long ells, being the only remains of it. The spinning of linen yarn, and manufacture of linen goods, have superseded the former industry; also, in and about Tiverton, great quantities of lace and lace net are made, which find a market on the continent of Europe. Ship-building is another branch of labor giving employment to numbers of men. The chief ship yard is the royal dock yard at Devonport. The county contains 33 hundreds, 465 parishes, and 36 market towns. The annual value of real property assessed to property tax, 1850–'51, was £2,736,361. The county town is Exeter, where the assizes are held. The county is in the episcopal see of Exeter, and is included in the western circuit. It returns in all 22 members to parliament, viz.: 4 for the county (2 for the northern and 2 for the southern division), 2 for each of the towns of Barnstaple, Tiverton, Exeter, Devonport, Honiton, Plymouth, Tavistock, and Totness, and 1 each for Ashburton and Dartmouth. It has 1,614 day schools, with 64,266 scholars, and 772 Sunday schools, with 58,408 scholars; 1,297 places of worship, of which 549 belong to the established church. The county gives the title of duke to the Cavendish, and of earl to the Courtenay family. There are ancient ruins in various parts of the county, among which are several abbeys, and numerous old British cairns. The chief noblemen's and gentlemen's seats are Castle hill, seat of Earl Fortescue; Stover lodge, that of the duke of Somerset; Endsleigh, of the duke of Bedford; Saltram, of the earl of Morley; Mount Edgecumbe, of the earl of Mount Edgecumbe; Bagtor manor, of Lord Cranstoun; Exeter palace, of the bishop of Exeter; Bicton, of the late Lord Rolle; Haldon house, of Sir L. Palk, bart.; and Escot, of Sir J. Kennaway, bart.

DEVRIENT, the name of a distinguished family of German actors, of whom the most eminent are: I. Ludwig, born in Berlin, Dec. 15, 1784, died Dec. 30, 1832. His father, a silk mercer, intended him for a mercantile life, but in obedience to his instincts he forsook the paternal mansion at the age of 18, joined a company of strolling actors, and made his first appearance upon the stage in Schiller's "Bride of Messina." He afterward travelled with the same company through Saxony, and in 1806 accepted an engagement at the court theatre of Dessau, from which he was tempted to retire on the promise of his father to pay his debts if he would renounce the stage. Devrient, however, rejected the offer. Soon after the demands of his creditors compelled him to take refuge in Breslau, where he acted with great success for several years. At the suggestion of the actor Iffland, who at the close of his career recognized in Devrient a fit successor to himself, he was induced to go to Berlin, where in 1815 he appeared for the first time as Franz Moor, in Schiller's "Robbers." From that time until his death he stood at the head of his profession in Germany, and was in the highest degree popular with Berlin audiences. A fatal passion for spirituous liquors, which he had indulged for many years, brought him to a premature grave. Devrient was not less esteemed for his amiable and almost childlike character than for his histrionic powers. His eminence as an actor was the offspring of his natural genius, rather than the result of study or reflection. He was equally great in comedy and tragedy. He was married at the outset of his career, but left no children. II. Karl August, nephew of the preceding, born in Berlin, Aug. 5, 1798. He served in a regiment of hussars, in the campaign

of 1815 against France, and was present at the battle of Waterloo; was afterward engaged in mercantile pursuits, and in 1819 made his début on the stage at Brunswick. In 1823 he was married to the celebrated singer, Wilhelmine Schroeder, from whom he was divorced in 1828. He has acted in all parts of Germany, but for many years past has been established at Hanover. He was long celebrated for his spirited personation of leading parts in genteel comedy. III. Philipp Eduard, brother of the preceding, born in Berlin, Aug. 11, 1801. He commenced his artistic career as a bariton singer, but afterward appeared almost exclusively in the spoken drama. He has less natural genius than any of his family, but is a careful and cultivated actor, a successful writer of dramas, and an authority on all that pertains to the profession. His chief works were published in 6 vols., in Leipsic, in 1846–'9, under the title of *Dramatische und dramaturgische Schriften*, and include several plays, miscellaneous publications relating to the stage, and a history of the drama in Germany. IV. Gustav Emil, brother of the preceding, born in Berlin, Sept. 4, 1803. Like his two brothers and his uncle, he was intended for the mercantile profession; but an irresistible inclination led him in 1821 to the theatre, where he soon rose to great eminence. He is well known on almost every stage in Germany, and has assumed with success many of the parts, both in tragedy and comedy, with which his uncle Ludwig's name is identified. His wife, Dorothea Boehler, from whom he was divorced in 1842, was an excellent comic actress, and ably seconded her husband for many years. On Nov. 11, 1857, the 98th anniversary of Schiller's birthday, 3 members of the Devrient family, Gustav Emil, Karl August, and Karl's son, appeared together at Hanover, in the play of "Don Carlos." V. Wilhelmine Schroeder Devrient, a well-known singer on the German stage, born in Hamburg, Oct. 6, 1805. From her mother, the celebrated actress Sophie Schroeder, she inherited considerable dramatic talent, and in 1820, having from the age of 5 upward distinguished herself in children's parts, and in the *corps de ballet*, she appeared in Vienna as Aricie in Schiller's translation of the *Phèdre* of Racine. She soon after devoted herself to the study of music, and in 1821 made her début as Pamina in Mozart's *Zauberflöte*. The beauty of her voice, her artistic skill and dramatic powers, soon placed her in the first rank of German *prime donne*, and for many years she had no superior on the German stage in such parts as Donna Anna in *Don Giovanni*, Leonora in *Fidelio*, the *Vestale* in Spontini's opera of that name, the *Euryanthe* of Von Weber, and others of a similar character. She has also sung in Paris and London, but her chief laurels have been gained in Germany. She was married in 1823 to Karl August Devrient, was divorced from him in 1828, and in 1850 contracted a second matrimonial engagement with a Livonian nobleman, named Von Bock.

DEW, the humidity of the air deposited on surfaces with which it comes in contact. The atmosphere always contains within it more or less aqueous vapor in an invisible form. The vapor appears to be dissolved in it, as salt is held dissolved in clear sea water; and as the capacity of a fluid to hold salts in solution depends commonly on its temperature, so does that of the air to retain vapor. If the temperature be depressed, the vapor begins to appear. When a body of warm air strikes the summit of a cold mountain, the moisture is precipitated in the form of rain. Partially cooled, it takes the form of mist or fog, and floats in a dense cloud in the low places where the soil is warmer than the air. A current of warm air dissolves the vapor, and the fog "lifts." Dew is the vapor of the air, extracted by the greater chilliness of the surfaces upon which the moisture is deposited. It may be made to separate from the apparently dry air of a warm room, by placing in it a pitcher of cold water. The air in contact with the pitcher sheds its moisture, which collects in minute drops, and more is added from adjoining strata of air, so long as the temperature of the pitcher is kept sufficiently below that of the room. The degree of temperature to which the air must be reduced for it to begin to deposit its moisture, is called the dew point. It varies with the greater or less quantity of moisture which the atmosphere happens to contain for its actual temperature. If it has just been deprived of a considerable proportion, and has acquired a higher temperature, it must be reduced to as great a degree of cold as before to part with any more moisture; but if already saturated with as much moisture as it can contain at its temperature, any chilliness being induced will cause its precipitation to commence. Dew is not therefore, as it has been generally described by poets, a shower "which falls like gentle rain from heaven." Almost universally its nature has been misconceived. Horace speaks of *rores pluvii;* Virgil says: *roranti a vidimus astra;* and Pliny: *cum ros cecidisset;* and our common form of expression at this day speaks of the dew drops. Aristotle alone appears to have conceived its true nature, when he describes it as the moisture separated from the cold air. Mysteriously appearing upon the blades of grass, and refreshing the vegetation in climates where rain rarely if ever falls, and gathering upon the herbage in sparkling beads, while it avoided the barren and rocky surface, the simple peasant might well look upon it as a special blessing sent like manna direct from heaven, and possessed of wonderful virtues, far transcending those of other crystal waters, however pure. Hence it came to be prescribed for restoring to the features the fresh charms of youth, and by the alchemists to be used in their processes as a solvent of subtle and mysterious powers. And when at the close of life the ancient patriarch confers his blessing in the words: "God give thee of the dew of heaven," the simple dew drop seems to typify all heaven's choicest gifts. The phenomena attending the

production of dew were imperfectly comprehended previous to the researches of Dr. Wells, and the publication in 1814 of his essay upon the subject. This treatise, pronounced by Dr. Thomson to be "one of the most beautiful examples of inductive reasoning in the English language," presents in clear form the various phenomena as observed by him for two successive years in the vicinity of London. The observations are criticized by Sir John Leslie for want of address and delicacy in the experiments, and omission to make use of the hygrometer and pyroscope; and he expresses much regret that Dr. Wells should have sought to explain the production of the cold by the aid of the "very loose, cumbrous, and visionary hypothesis of M. Prevost of Geneva, concerning what is gratuitously called radiant heat." According to Prof. Leslie, the low temperature of the bodies upon which the dew collects is induced by the descent of cold air, which is precipitated in distinct pulsations, determined by the application of the ætheriscope, by which their intensity also is measured. Two requisites are essential, it appears, for the abundant precipitation of dew; one is the saturation of the atmosphere with moisture, and the other a chilled surface to condense it. The atmosphere is likely to contain the most moisture for its temperature after rains, when the air is cooled, and abundant evaporation is going on from objects upon the surface, and through the pores of the soil. This evaporation tends to chill the surfaces from which it is taking place, and the blades of grass and all shrubs and light bodies near the ground assume a much lower temperature than that of the air above them. Dr. Wells states that this difference of temperature between the grass and the air 4 feet above the ground amounts in clear and still nights to 8° or 9°, and in one instance he observed a difference of 14°; but in cloudy nights the grass was sometimes as warm as the air. Bodies of a filamentous structure, like cotton, flax, hair, silk, gossamer, &c., and of a downy nature, as swan's down especially, are particularly subject to be thus affected, and the deposit of dew first takes place upon them. Each growing plant has its own peculiar power of condensing moisture, which is no doubt proportioned to its requirements of this refreshing agent. When the rays of the sun cease to strike directly upon the surface, the dew-gathering objects soon manifest the want of that temperature which during the heat of the day had kept them above the dew point. If no wind is stirring to mix the air and produce uniformity of temperature, the blades of grass may exhibit moisture upon their surface before the sun has reached the horizon, and soon after having passed it drops are likely to collect. If it be a cool night of spring or autumn, succeeding a hot day, the deposition of dew is likely to increase as the night becomes colder; and in the latter half more is precipitated than in the early part of the night. Should clouds gather, the process ceases, these seeming to reflect the heat that radiates from the surface, and turn it back, so that the requisite difference of temperature between the surface and the air can no longer exist. Any other overshadowing object, as a tree or a bush, has the same effect as the cloud; and the gardener, fearing that when the dew is changed to hoar frost the results of this radiation may reach upon the plants the freezing temperature, throws over them a thin sheet or mat, which retains the radiating heat as it is retained by a cloud. Numerous observations have been made upon the relative capacity of metals and other substances to receive dew. It is probable that they may be arranged in the same order as that which would represent the relative rapidity at which they would be cooled down when exposed under a clear sky. This rate of cooling would evidently vary in the same substance according to its structure and the smoothness or roughness of its surface. Twigs and bushes change their temperature much more rapidly than the same material would in a solid block. The polished surfaces of metals receive less dew than other substances; and bodies laid upon them lose in part their capacity for receiving this deposit by reason of the contact. Probably the worst conductors of heat as a general rule, other circumstances of texture, smoothness, &c., being the same, receive the most dew. It is deposited freely upon glass. The electrical condition of these objects has no influence upon their collecting dew. The quantity of dew which has gathered in a single night has been so great, that it could be determined by the rain gauge. Dr. Dalton estimates the amount precipitated annually in England to be 5 inches. In some countries it is so copiously produced, that the want of rains such as fall in other regions is not seriously felt by the vegetation. Along portions of the western coast of both North and South America rain clouds are rarely seen in many years; the Cordilleras have stripped the air passing over them in the trade winds of nearly all its moisture, and the pleasantly cool and clear nights along the Pacific coast are particularly favorable for the deposition of dew. In the dry regions of Palestine, according to Maundrell, the dew gathering upon the tents wets them as if it had rained all night. The great deserts alone receive no moisture by rain or by dews. Their heated surface presents no cool object to arrest any vapor that may pass over it; and the fall of the temperature of this surface can rarely reach a point at which the little moisture contained in the air above could be so condensed as to saturate it. The vapors of the Mediterranean may be swept by the Etesian winds over the sandy plains of Sahara, but the clouds are no sooner touched by the burning rays reflected from these than they disappear like the morning mists before the rising sun.

DEW, Thomas Roderic, an American writer on government, history, and political economy, born in King and Queen co., Va., Dec. 5, 1802, died in Paris, France, Aug. 6, 1846. He was

graduated at William and Mary college, and began the study of the law; but his health failing, he spent 2 years in the south of Europe, in the autumn of 1827 was elected professor of political economy, history, and metaphysics in William and Mary college, and in 1836 was made president of that institution. In 1829 he published his "Lectures on the Restrictive System," which had been delivered before his college class. It was brought out at a moment when feeling ran high on the subject of the tariff, between protectionists and free-traders; and though emanating from the closet of a thinker removed from the agitations of political warfare, it took a strong hold on the public mind, and the subsequent adoption of the compromise of 1832 may be attributed in part to its silent influence. About the same time, a serious, and it was thought at first alarming rebellion of the slave population was quelled in Southampton co., Va. So great were the terrors inspired by this event, that, combining with a preëxistent desire to abolish slavery on the part of the leading men of the commonwealth, they led to an able and protracted debate in the Virginia legislature, in which the diversity of sentiment was by no means so great upon the policy of emancipation as with respect to the mode in which this should be effected. At this juncture, Mr. Dew's essay on "Slavery" appeared. The change of opinion it brought about was extraordinary and instantaneous. Whatever may be thought of the positions taken by the writer, it must be admitted by all that he sustained them with great ability, and it is certain that the essay set at rest, at that time, the question of emancipation in Virginia. Mr. John Quincy Adams declared that this essay inaugurated a new era in the history of the country, and it is believed that the pro-slavery doctrines now so generally entertained in the southern states of the Union are chiefly due to the moral weight of the novel argument in favor of domestic servitude. When the "Southern Literary Messenger" was established in the year 1834, Mr. Dew became one of its regular contributors, and published in its pages a series of papers on the distinguishing characteristics of the sexes, which attracted much attention. But his most elaborate work was published in New York, in 1853, 7 years after his death, under the title of "A Digest of the Laws, Customs, Manners, and Institutions of the Ancient and Modern Nations." It was modestly called by the author "Notes on History," and had been previously printed in sheets, though in an unfinished state, for the use of his classes in college. It is a treatise on the history of the world from the earliest ages down to the first French revolution, and deals more with the philosophy of history than the mere relation of events, but it exhibits all the best traits of the author's mind. In person, Mr. Dew was tall and lithe, his temperament was nervous, and his movements were somewhat awkward and constrained; yet in the social circle he was always eagerly welcomed for the richness and variety of his conversation. In the summer of 1846 he married, and immediately afterward embarked with his bride for a short European tour. He lived only to reach Paris, and died there suddenly on the night of his arrival. His remains repose in the cemetery of Montmartre.

DEWEES, William Potts, an American physician, professor of obstetrics and diseases of women and children in the university of Pennsylvania, born at Pottsgrove, Penn., May 5, 1768, died in Philadelphia, May 18, 1841. His great-grandfather, who was a Swede, was one of the early settlers on the banks of the Delaware river, before the arrival of William Penn. The father of Dr. Dewees died while the subject of this notice was yet young; and being left without any pecuniary means, he was emphatically the architect of his own fortune. He attended several courses of lectures at the university of Pennsylvania, and in 1789, without taking any formal degree, commenced the practice of medicine at Abington, Penn. The degree of M.D. was at a subsequent period conferred on him by the university. The yellow fever, which visited Philadelphia in the summer and autumn of 1793, having sadly thinned the ranks of the physicians there, in December of that year Dr. Dewees resolved upon selecting this new and enlarged field for his labors. Here he achieved for himself a high and enduring reputation, more especially in that important department to which he devoted particular attention, midwifery, previously much neglected in America. To no one in this country is the medical profession more indebted for its progress in this branch of the science than to Dr. Dewees. In 1812, being threatened with a pulmonary affection, he relinquished the practice of his profession, and for the 5 subsequent years devoted himself to the severe physical labor of agriculture, at Phillipsburg, Penn. In 1817, however, he returned to the field of his former triumphs. Subsequently he published "Inaugural Essays," "Medical Essays," "System of Midwifery," of which latter 12 editions have been printed; in 1825, "A Treatise on the Physical and Medical Treatment of Children," and in 1826, "A Treatise on Diseases of Females," of which 2 last named volumes 10 editions have been printed. His last systematic work was his "Practice of Medicine," which was published in 1830. In 1826 he was elected adjunct professor, and in 1834 professor of obstetrics and diseases of women and children in the university of Pennsylvania. In this latter year, although attacked by paralysis, he was not prevented from delivering the full course of lectures for the season of 1834–'5. At the commencement of the following year he was obliged to resign, and to seek a more genial climate. After spending one winter in Cuba, and the following summer in the North, he settled in Mobile. About a year before his death he returned to Philadelphia, where he resided when he died.

D'EWES, Sir Symonds, an English antiquary, born in Coxden, Dorsetshire, Dec. 18, 1602, died April 18, 1650. He was admitted to the bar, but never practised law, and lived on his property at Stow Hall, in Suffolk. He was high sheriff of Suffolk in 1639, and was one of the Puritan members expelled from the house of commons by "Pride's purge." He commenced collecting materials for a history of England at the age of 18, and though the fruits of his research were not published by him, they were of great use to Selden and other writers. After his death a valuable compilation of his was given to the world by his nephew Paul Bowes, under the title of "The Journals of all the Parliaments during the Reign of Queen Elizabeth" (folio, London, 1682). His "Autobiography and Correspondence," edited by J. O. Halliwell (2 vols. 8vo., London, 1845), contains some interesting pictures of his times and contemporaries, intermixed with much that is useless and with a comical display of vanity.

DE WETTE, Wilhelm Martin Leberecht, a German theologian and biblical critic, born at Ulla near Weimar, Jan. 14, 1780, died at Basel, June 16, 1849. Having studied at Weimar and Jena, he was appointed professor of philosophy, and subsequently of theology, at Heidelberg, and received in 1810 a professorship at the university of Berlin. This situation he lost in consequence of a letter of consolation written to the mother of Sand, the murderer of Kotzebue, which was regarded by the government as extenuating this act of political fanaticism. He retired to Weimar, and was afterward elected professor of theology by the university of Basel. Here he met with an undisturbed acknowledgment of his merits, was made citizen of Basel, member of the committee of education, and shortly before his death rector of the university. De Wette distinguished himself by his lectures and sermons as well as by numerous works. The latter belong to the most remarkable productions of German theological science and criticism. The most important of them are: "Contributions to an Introduction to the Old Testament" (2 vols., 1806–'7); "Commentary on the Psalms" (1811); "Manual of Jewish Archæology" (1814); "Religion and Theology" (1815); "Christian Dogmatics" (2 vols., 1813, 1816); "Critical and Historical Introduction to the Old and New Testaments" (1817–'26; the Introduction to the Old Testament was translated and enlarged by Theodore Parker, Boston, 1843, 2d ed. 1858; and that to the New, by Frederic Frothingham, Boston, 1858); "Christian Morality" (3 vols., 1819–'21); "Theodore, or the Sceptic's Conversion" (1822; translated by James F. Clarke, Boston, 1841); "Lectures on Practical Ethics" (1823; translated by Samuel Osgood, Boston, 1842); *Opuscula Theologica* (1830); "The Essence of Christian Faith" (1846); a new translation of the Bible, executed together with Augusti in 6 vols. (1809–'14); and an unfinished edition of Luther's works.—Ludwig, son of the preceding, born at Berlin about 1814, published a "Journey through the United States and Canada in 1837" (Leipsic, 1838).

DEWEY, Chester, D.D., LL.D., an American clergyman and teacher, born at Sheffield, Mass., Oct. 25, 1784. He was graduated at Williams college in 1806; studied for the ministry; was licensed to preach in 1808, and during the latter half of that year officiated in Tyringham in western Massachusetts. The same year he accepted a tutorship in Williams college, and in 1810 was appointed professor of mathematics and natural philosophy, an office which he discharged for 17 years. During his connection with the college he did much to advance the standard of scholarship, and enlarge the course of study in his own and kindred departments. Over the students his influence was often beneficially exerted. Between 1827 and 1836 he was principal of the "Gymnasium," a high school for boys in Pittsfield, Mass., and in the latter year he removed to Rochester, where he was principal of the Rochester collegiate institute until 1850, when he was elected professor of chemistry and natural philosophy in the university of Rochester, which position he still holds. Professor Dewey has been a frequent contributor to the "American Journal of Science and Arts," and is the author of several special botanical treatises, including a "History of the Herbaceous Plants of Massachusetts," written for the state government. Until recently he has been in the habit of employing his vacations in lecturing at the medical colleges of Pittsfield and Woodstock, Vt. In the course of his long career as a teacher of youth he has delivered over 4,000 lectures, and preached nearly as many sermons. He has effected much for the advancement of public schools, and was active in the establishment of the "Teachers' Institute," of which he has been president.

DEWEY, Orville, D.D., an American clergyman, born at Sheffield, Mass., March 28, 1794, was graduated at Williams college in 1814; pursued his divinity studies at Andover theological seminary from 1816 to 1819; preached 8 months as agent for the American education society; declined an immediate and permanent settlement on account of unfixed opinions in theology, but accepted a temporary call at Gloucester, Cape Ann (with a candid explanation of his unsettled views), and here became a Unitarian; soon after became an assistant of Dr. Channing, preaching two years in his pulpit, and forming with him a life-long intimacy; in 1823 accepted the pastorate of the Unitarian church in New Bedford, where he remained 10 years, until, broken in health, he sought restoration in his first voyage to Europe, June, 1833. The "Old World and the New" (2 vols., 1836), one of the freshest and most instructive records of travel, contains the history of his two years' absence. In 1835 he was called to the 2d Unitarian church in New York, which, during his ministry, built the "church of the Messiah," and became a very large and prosperous society. In 1842, his health

again failing, he went abroad for two years, and returning in 1844 to his post, was compelled by continued ill health to dissolve his connection with his church in 1848, and retire to his paternal farm in Sheffield, long and piously preserved by him, at great sacrifices, for the use of his mother and sisters. Here he devoted the remnants of his strength to the preparation of a course of lectures for the Lowell institute at Boston, on the "Problem of Human Life and Destiny," which was repeated twice in New York, and in Brooklyn, New Bedford, Baltimore, Washington, Charleston, St. Louis, Louisville, Nashville, Madison, Cincinnati, and Sheffield. This course was followed, in 1855, by another Lowell course on the "Education of the Human Race," which was almost as widely repeated. Meanwhile he filled the Unitarian pulpit in Albany one winter, and in Washington two. In 1858 he was again settled as pastor over the Unitarian society in Church Green, Boston, known as the "New South," where he now is. The first book which Dr. Dewey published was a little work, which made a noise in its day, entitled "Letters on Revivals." During his ministry at New Bedford he contributed much to the "Christian Examiner" and the "North American Review." On leaving New Bedford, he published a volume of sermons, which produced a marked sensation. His various works since have been collected and published in 3 vols. (New York, 1847). They consist of "Discourses on Human Nature," "Discourses on Human Life," "Discourses on the Nature of Religion," "Discourses on Commerce and Business," "Miscellaneous and Occasional Discourses," "The Unitarian Belief," "Discourses and Reviews," including several articles which first appeared in the "Christian Examiner." His works have been reprinted in London, 1844, in an octavo volume of nearly 900 pages.—The application of religion to the whole sphere of human life is the characteristic of Dr. Dewey's writings, and the central purpose of his mind. For this work he is admirably fitted both by native endowment and the discipline of experience. His writings exhibit a philosophical tendency, much practical knowledge, wide and lively sympathies, and rare dramatic talent. As a pulpit orator, he enjoys a high reputation for earnestness, originality, and power of impression.

DE WITT. I. A S. E. co. of Texas, drained by the Guadalupe river; area, 898 sq. m.; pop. in 1858, 3,786, of whom 1,189 were slaves. It abounds in fine scenery, and has a hilly or rolling surface. The soil, particularly in the valley of the Guadalupe, is fertile. In 1850 it produced 547 bales of cotton, and 67,560 bushels of corn. Value of real estate in 1858, $545,000. The county was named in honor of De Witt, an empresario under the Mexican government of what was called De Witt's colony. Capital, Clinton. II. A central co. of Illinois, mostly level, comprising forests of valuable timber and fertile prairies, remarkably easy of cultivation; area, 675 sq. m.; pop. in 1855, 18,508. In 1850 the productions were 704,600 bushels of corn, 22,401 of wheat, 45,737 of oats, 2,083 tons of hay, and 18,833 lbs. of wool. There were 6 churches. Bituminous coal is the chief mineral product. The county was named in honor of De Witt Clinton. Capital, Clinton.

DE WITT, Jan, a Dutch statesman, born in Dort, Sept. 1625, murdered at the Hague, Aug. 20, 1672. From his father, who had been a member of the states of Holland, he inherited republican principles opposed to the power of the house of Orange, which had been regarded with suspicion from the time of Barneveldt. In 1652 he became grand pensionary of Holland, an office which gave him great influence in the federal assembly of the Seven United Provinces; and he immediately exerted himself to break up that combination of offices in the hands of the princes of Orange, which had made their power almost sovereign. The last stadtholder had died in 1650, and his son, afterward William III. of England, was an infant; and at this favorable time the party of De Witt succeeded in abolishing the office of stadtholder, and declaring the states-general supreme. In 1654 he negotiated the peace of Westminster with Cromwell, by a secret article of which the members of the house of Orange were in future excluded from the highest offices of state. After the restoration of Charles II., England declared war against Holland; but though her arms were at first successful, the sagacity of De Witt restored the fortunes of his countrymen, and obliged her to sue for peace. The negotiations were hastened by the appearance of De Ruyter with a powerful fleet in the Thames, where he burned the English shipping in the Medway; and a treaty was concluded at Breda in July, 1667. When the aggrandizing policy of Louis XIV. began to aim at the possession of the Spanish Netherlands, De Witt became obnoxious to a strong party in the state, which sought to elevate William of Orange to the dignity of his ancestors. He hastened to form a triple alliance with Sweden and England, but violated the federal constitution by causing the treaty to be at once ratified by the states-general, instead of being first referred to the council of each province. Though the measure may have been justified by the emergency, it was a principal cause of the hostility to De Witt. Louis XIV. succeeded in detaching England from the alliance, and in forming a counter alliance between England and France against Holland; and in 1672 the United Provinces were invaded by French armies, which advanced nearly to Amsterdam. The blame was thrown on the grand pensionary; and by the popular voice the young prince of Orange was called to command the Dutch forces by land and sea, and was nominated stadtholder. Cornelius, the brother of Jan De Witt, was suspected of having plotted against the life of the prince, and was imprisoned at the Hague. The grand pensionary resigned his office, went to visit his brother, and perished with him by the violence

of a mob. His abilities and exemplary private character were applauded even by his political opponents. His principal political work, on the "True Interest and Political Maxims of the Republic of Holland," was translated into English by Dr. Campbell (London, 1746).

DEXTER, Samuel, an American statesman and jurist, born in Boston in 1761, died while on a journey at Athens, N. Y., in 1816. He was graduated at Harvard university in 1781, with the highest honors of his class, and received in 1813 the degree of LL.D. from the same university. Immediately after leaving college he began the study of law, and being admitted to the bar in 1784, after some years of practice in Lunenburg, in Chelmsford, in Billerica, and in Charlestown, he removed to Boston, and had his home there during the remainder of his life. He was repeatedly chosen to the legislature of Massachusetts, and in 1798 was elected senator of the United States. While senator he was appointed secretary of war by John Adams in 1800, and in the same year secretary of the treasury. He was afterward, at different times, offered foreign missions, but always refused them. About the year 1802 he withdrew from political life, and returned to his profession; and there he occupied a high, and in some respects the highest place. He was not regarded as a man of extensive professional learning, or as eloquent in the ordinary sense of that term; but he was well acquainted with the leading principles of law, and possessed the faculty of learning rapidly and well all that was needed in any particular case, by study *in rem*. While he seldom indulged in figures or ornaments of any kind, his powers of argument were almost irresistible. He was often spoken of as "the lawyer for desperate cases," because no case seemed desperate in his hands. As a politician he was in early life a decided federalist; and he never approved all the principles or doings of the republican party of that day. He argued against the validity of the embargo with all his strength, and always maintained the unconstitutionality of that measure. But, on the other hand, he differed from his party in reference to the war of 1812. While, however, he left his own party, he could not be said to have joined the other; and when they nominated him as the republican candidate for governor, in 1814, he immediately published an address to the electors of Massachusetts, in which he declared that he did not belong to the party which had nominated him, and differed radically from them. He was, however, retained as their candidate; and his competitor, Gen. Brooks, the candidate of the federalists, was elected by a majority of only 2,000 out of 47,000 votes. He was the first president of the first society formed in Massachusetts for the promotion of temperance.

DEXTRINE, also known as British Gum, a soluble variety of starch, obtained by boiling starch in water, or heating it to the temperature of 392°, or by the action upon it of diastase or acids. In the malting of grain it is produced with the forming of the sprout, the diastase and acetic acid first appearing, and then converting the starch of the grain into dextrine, from which it passes into sugar, and this into alcohol. When starch is boiled to produce this gum for stiffening linens, its change into sugar may be effected by continuing the boiling. No change in the chemical composition takes place in this process, but the alteration is probably in the arrangement of the particles among themselves. In both starch and dextrine the constituents are, carbon 12 atoms, and hydrogen and oxygen 10 atoms each. Grape sugar, into which they pass, differs from them only by taking another atom of hydrogen and oxygen, or, what is the same thing, one atom of water. Dextrine forms a mucilaginous solution with hot or cold water, from which it is precipitated by alcohol. It is prepared in France to considerable extent from potato starch, to be afterward fermented and converted into brandy. It is also used by the French pastry cooks and confectioners. In medicine it may serve the same uses as gum arabic, and in surgery it is applied to the preparation of bandages for fractures. For this purpose it is triturated with $\frac{2}{3}$ of its weight of camphorated spirit, till it acquires the consistency of honey. Water is then added, and the bandage is immersed in the mixture. As British or "artificial" gum, it is employed by the calico printers for thickening their colors. It is sold in the form of a brilliant white powder, as a mucilage, and in lumps like those of natural gums. Its smell and taste of potato oil distinguishes it from gum arabic, and it differs from natural gums in not forming mucic acid by the action of nitric acid, and in being convertible into grape sugar. The name is derived from its property of turning more than any other body the plane of polarization to the right hand side.

DEY, in Algiers, from 1600 to 1710, the commander of the armies of the state, subject to a pasha appointed by the Porte. In 1710 the dignity of pasha was united with that of dey, and the dey was the highest officer of Algiers from that time till the conquest of the country by the French in 1830.

DEYRA DOON, or Dehra Doon, a fertile valley of British India, between the S. W. base of the lowest and outermost ridge of the Himalayas, and the N. E. slope of the Sewalik mountains, the former having an elevation of 7,000 or 8,000 feet, and the latter of about 3,000; lat. 30° and 30° 32′ N., long. 77° 43′ and 78° 24′ E.; area, 673 sq. m.; length, 5 m.; breadth, from 15 to 20 m. It is bounded S. E. by the Ganges and N. by the Jumna, is drained by their tributaries, and with the hilly region called Jounsar Bawur forms a district under the lieutenant-governorship of the N. W. provinces. The productions are rice, maize, grain, cotton, sugar, opium, indigo, plantain, and hemp. Every English plant is said to thrive luxuriantly, and considerable success has attended the cultivation of tea. The climate during part of the year is

very unhealthy. This district was formerly part of the dominions of the rajah of Gurhwal, was overrun by the Goorkhas in 1803, and in 1815, during the Nepaul war, was invaded by the British, who suffered great loss here, and who, after the expulsion of the Goorkhas, kept possession of the territory.—Deyra, the principal town of the district, is situated in the midst of dense mango groves, at the intersection of 2 routes of trade, 2,369 feet above the sea.

DEZFOOL, Dezful, or Dezphoul, a city of Persia, in the province of Khoozistan, on the eastern bank of a river of the same name; pop. estimated at 15,000. It is the principal mart of the province, and has a fine bridge of 22 arches, said to have been built by command of the celebrated Sapor. About 10 miles S. W. from the city are mounds of ruins which cover the site of the ancient city of Susa.

D'HILLIERS. See Baraguay d'Hilliers.

DIABETES, Glucosuria, Diabetes Mellitus, Glucohæmia (Gr. διαβαινω, to pass through), a disease characterized by an excessive secretion of saccharine urine. Though disease marked by diuresis and attended with wasting of the body was frequently spoken of by earlier authors, Willis (1659) was the first who noted the distinctive character of the complaint, the presence of sugar in that fluid. Since his time diabetes, which is not a very rare complaint, has been frequently made a subject of study, yet still a great deal of obscurity envelops its causes, its essential character, and its treatment. The invasion of diabetes is commonly insidious. The attention of the patient is perhaps first attracted by the quantity of urine he passes and by the frequent calls to void it, or he notices that while his appetite is greatly increased he is growing weaker and thinner. If the urine be now examined, it is found to be not only greatly increased in quantity, but somewhat changed in appearance; it is paler, transparent when first passed, and assumes on standing an opalescent tint like the whey of milk or a solution of honey in water. It has no odor, or a somewhat aromatic one, compared by some to that of new-made hay, by Dr. Watson to that of a room in which apples have been kept. If kept for a few days at a moderately elevated temperature, instead of acquiring an ammoniacal odor like ordinary urine, it has a sharp vinous smell, and will be found to be acid rather than alkaline. The urine has commonly a decidedly sweet taste; drops of it upon the patient's linen or clothes stiffen them like starch, and sometimes leave on evaporation a powdery efflorescence. The specific gravity of the urine is greatly augmented; instead of being from 1.015 to 1.020, as is commonly the case, it ranges from 1.025 to 1.050; M. Bouchardat reports it even as high as 1.074. Two or three simple and easily applied tests are sufficient to render the presence of sugar certain. In what is called Trommer's test, a drop or two of the solution of the sulphate of copper is added to a little of the urine in a test tube; a solution of caustic potash is now added in excess, and the mixture gently boiled over a spirit lamp for a few minutes; if sugar is present, a precipitate of a reddish or yellowish brown (suboxide of copper) will be thrown down, otherwise the precipitate will be black (common oxide). In Moore's test, a little of the suspected urine is mixed in a test tube with about ⅓ its volume of liquor potassæ, and the mixture boiled for 5 minutes; if sugar be present, the fluid will acquire a brown hue, otherwise it remains unchanged. A 3d test is founded on the fact that diabetic urine rapidly undergoes fermentation when mixed with a little yeast and kept in a warm place. The sugar to which diabetic urine owes its peculiar properties exists in the form of glucose or grape sugar. This is present in all proportions, from a mere trace to 30, 50, and even 134 parts in 1,000. The quantity of solid matter thus drained from the system is very great; Dr. Thomas Watson estimates it on the average at 1¼ lbs. per day, but it sometimes amounts to many times this quantity; and it is this drain of solid matter, together with the large amount of urine passed, which gives rise to the constant thirst and the enormous appetite of diabetic patients. Early in the disease, as was before observed, the symptoms are not well marked; when the complaint is established, and the large excretion of urine begins to attract attention, the patient complains that despite his excessive appetite he grows thinner and weaker; the mouth is pasty, the skin dry and hard, the bowels constipated. The digestive functions, at first normal, become deranged; the patient is troubled with heartburn, with a feeling of weight and pain in the epigastrium, sometimes with vomiting. The strength declines, the patient becomes emaciated, the generative functions are impaired or lost; vision often becomes dim, the gums are spongy, there is tenderness and swelling about the orifice of the urethra, the memory and intellect fail, and the temper becomes irritable. In the course of the disease pulmonary consumption is very apt to supervene and carry off the patient. Toward the last, diarrhœa, fetid breath, effusion into the great cavities, and œdema of the extremities, precede death. Diabetes is essentially a chronic disease, lasting often many years; it is also an obstinate and intractable one, although most of the cases seem benefited by treatment, and sometimes it would appear to be completely cured.—*Treatment.* In the beginning of the present century Dr. Rollo found that the amount of urine in diabetic patients as well as its sweetness was very much diminished by confining them to an animal diet. When the ready conversion of starch into grape sugar became known, this was assumed to be the origin of the sugar, and the benefit derived from an exclusively animal diet was thus explained. Unfortunately, few patients have the resolution to restrict themselves for any length of time to such a diet, and even when persevered in it is found to be merely palliative. The experiments of C. Bernard have thrown a new light

upon the subject. He has ascertained that sugar is a normal secretion of the liver in all classes of animals, carnivorous as well as herbivorous; that it takes place in the liver of the fœtus as well as in that of the adult; that irritating the origin of the 8th pair of nerves in the 4th ventricle increases the secretion of sugar, producing an artificial diabetes. In a state of health the normal secretion of sugar poured into the circulation by the hepatic veins is rapidly decomposed and excreted by the lungs; when the amount is increased by disease, the excess passes off by the kidneys. Under the influence of diastase, sugar is likewise formed from the starch of the food in the process of digestion, as a necessary preliminary to its absorption. When diabetic patients are placed upon an animal diet, this source of supply is cut off, and the amount of sugar in the urine is diminished, but it is still present, since the liver keeps up the supply. M. Mialhe, influenced by the theoretic belief that sugar in the course of the circulation is decomposed under the influence of the alkalinity of the blood, and that in diabetes the blood is deficient in alkalinity either positively or relatively to the amount of sugar contained in it, recommends the use of the bicarbonate of soda in large doses. He recommends ½ a dram to be taken 3 times a day, morning, noon, and night; this is gradually increased until from 180 to 270 grains are taken in the course of the day. In addition, the patient is directed to take Vichy water with his meals, and is recommended to drink lime water to the extent of 2 or 3 pints daily. He is permitted to indulge in the ordinary variety in his diet, but the quantity of farinaceæ is reduced ½ or at least ⅓. Flannel is ordered to be worn next the skin; the vapor bath is administered 2 or 3 times a week. By these means M. Mialhe reports a number of cases to have been cured. Dr. A. Clark of New York (New York "Medical and Surgical Journal," Jan. 1859) reports several cases of diabetes either cured or greatly benefited by the use of bicarbonate of soda and of blisters to the nape of the neck. Dr. Clark administered the soda in doses of 11 grains, to be taken as frequently as could be borne until the urine was rendered alkaline or the stomach was nauseated. Beside the alkaline treatment, the means principally relied on have been restricting the quantity of farinaceous matter in the patient's diet as far as possible, indulging him in watery vegetables (spinach, turnips, cabbage, &c.) rather than in bread or potatoes, and the use of opium. This last remedy allays the nervous irritability of the patient, and diminishes the thirst and the amount of the urinary secretion.

DIAGNOSIS (Gr. διαγνωσις, examination, decision), a term in medicine indicating that department of pathology whose object is the distinguishing of diseases by the knowledge of their special pathognomonic signs. To distinguish a disease under all its various forms, and when complicated by symptoms of other affections, is of the first importance in practical medicine, and requires all the acuteness and discrimination of the physician; without a correct diagnosis, treatment must be empirical and hazardous. A mere acquaintance with the symptoms of each disease cannot enable the physician to make his diagnosis. These symptoms are given briefly under the different diseases; diagnosis will be treated here only as a branch of general pathology. Of the symptoms of disease, some are characteristic and pathognomonic, essential and always present; some are common to other diseases, and are of value only when taken in connection with the former class. Examples of the former are the eruptions of the exanthemata, and the mobility of the ends of broken bones; of the latter, the increased frequency of the pulse, heat of the skin, and thirst, common to many different diseased states. A physician must know how to examine and interrogate a patient, to use his own senses of sight, hearing, and touch, to sift the statements of attendants, to weigh justly positive and negative signs; which he can only learn by a knowledge of anatomy and pathology, by experience at the bedside, by an acquaintance with the physiological functions of organs, and by familiarity with the physical examinations of the sick. His fingers must be educated to a sensibility equal to that of the blind man's; his ear, armed with the stethoscope, must hear the first footsteps of disease in the heart and lungs, or the first murmur of life in the gravid uterus; his eyes, assisted by the microscope, must follow the course of morbid growths back even into the primary structure of the cell; he must press, percuss, and measure with the greatest delicacy and exactness; he must be familiar with chemical reactions, in order to detect and neutralize poisons, and arrest the formation of dangerous precipitates in the nutrient and excrementitious fluids. By this manner of interrogating and examining, both by physical and rational signs, every organ and function, the seat, extent, and nature of the disease are ascertained; and it is in making a diagnosis, more than in the treatment, that one physician excels another; for though a blind exhibition of remedies may occasionally be successful in arresting disease, it must be obvious to every reasoning mind that a knowledge of the disease is the first and great essential to its rational treatment. There are many causes which render the diagnosis of disease difficult and uncertain—such as the advanced stage at which many affections are seen; the unusual predominance of certain merely sympathetic phenomena, which mask the primary lesion; the occurrence of new and anomalous types of disease; the complication with other diseases; and the tender age, imbecility, insanity, dissimulation, and deceit of patients. It must be evident from this, what a union of rare faculties and varied acquirements is necessary to enable a physician to make a correct diagnosis of disease; and also that, without this primary result, all speculation as to its progress and termination is mere con-

jecture, and all treatment blind and base empiricism. The French school of medicine is famous for the stress it lays on diagnosis; and students from other parts of Europe, and more especially from the United States, flock to Paris to acquire the elements and practice of this most essential branch of their profession.

DIAGORAS OF MELOS, surnamed the Atheist, a Greek philosopher, lived in the time of Socrates and Aristophanes, but neither the date of his birth nor that of his death is known. He must have removed from his native island to Athens before the performance of the "Clouds" of Aristophanes (424 B.C.), for he is alluded to in that piece as one well known to the Athenians. He was a disciple of Democritus of Abdera. He ridiculed the popular religion, and attacked especially the Eleusinian mysteries, on account of which he was accused of impiety (411 B. C.). Fearing the result of a trial, he made his escape from the city. He was condemned to death by the court, and a price set upon his head. Notwithstanding this, after living for a time at Pallene, he finally died at peace in Corinth. His works are all lost.

DIAL. Sun dials are among the most ancient of human inventions, and, although sometimes said to have been invented in Lacedæmon, were more probably derived by the Greeks from eastern nations. The dial of Ahaz, the king of Judah, is one of the earliest mentioned in the history of the East, and it is probable that the Jews learned the use of this invention from the Babylonians. According to Wilkinson, "there are no indications in the sculptures to prove the epoch when the dial was first known in Egypt." The modern improvements in artificial modes of measuring time are so great, that sun dials are now more a matter of curiosity than of use. They may be divided into 2 essentially different kinds, one of which we may call geometrical, the other algebraical. In order to comprehend the first, we need only observe, that if a rod or gnomon be placed parallel to the axis of the earth, its shadow, conceived of as a sheet of darkness passing in a plane from the rod on the opposite side of the sun, would swing steadily and equally round the rod as a hinge, so long as the sun shone upon it. Upon whatever surface this shadow fell, whether horizontal, vertical, or inclined, its place could be used as a means of measuring time. And if upon this surface lines were drawn, marking the place of the shadow at definite hours of the day, the rod might be made as short as we pleased, reduced indeed to a single ball, held in the place where the extremity of the rod had been, and the shadow of this ball would mark the time upon the lines of the shadow of the rod. The other sort of dial, the algebraical, is more difficult to explain without the use of a diagram. It is drawn upon a piece of card, to which is attached a plumb line with a bead sliding upon it; the card being held in such a manner that the upper edge shall point at the sun, its plane being vertical, the bead marks the hour upon the face of the card. This dial has the advantage of being portable. Dials of the first kind, of a rude nature, may be made portable by having the rod and the dial surface light enough to be balanced upon a compass needle. Beautifully engraved sun dials, for the regulating of clocks, are manufactured by the electrotype process in copper.—The term dial is also applied to any graduated surface, such as a clock or watch face, upon which time is marked out.

DIALLAGE (Gr. διαλλαγη, change, alteration), a mineral of the augite family, so named from its tendency to cleave in different directions. It is a variety of hornblende, in thin foliæ, of various shades of green, gray, brown, and bronze colors, and is found in serpentine and greenstone. Its specific gravity is 3.25. Diallage rock, also called euphotide, is a compound rock of diallage and feldspar.

DIAMAGNETISM. In the native magnet (an ore of iron) a peculiar force resides, which, if a mass of this body be suspended freely, turns or directs it into a line varying slightly from the course of a meridian on the earth's surface. The same end of the magnet being always directed toward the north, this has been termed its N. pole; the opposite, its S. pole. Certain bodies, especially iron, brought near to a magnet, have the magnetic condition induced in them, the extremity nearest either magnetic pole becoming a pole of the opposite name, that most remote a pole of the same name. This result is in accordance with the law that like poles repel, while unlike attract each other. A soft iron bar, around which the electrical current is made to circulate upon a coiled conductor, or helix, becomes magnetic for the time, but loses its magnetism when the current ceases. Small magnetizable particles, as iron filings, dusted upon a surface on which a magnet rests, or agitated near it, become arranged in lines which, between unlike poles that are presented to each other, run across in straight lines, while about these on either side they form curves, making larger and larger sweeps into space. The lines thus indicated have been named magnetic curves, or lines of force. Until recently, the number of magnetic bodies was supposed to be very small. Becquerel, in 1827, found that a needle of wood playing freely on a pivot took a direction across, not in, the magnetic curves; and in 1829 Le Bailli also observed that bismuth repelled the magnetic needle. But the significance of these facts was not understood until an accidental discovery of Faraday, in 1845, led that philosopher into a full investigation of the phenomenon. In the course of his experiments on magnetic rotary polarization, he observed that a bar of so-called "heavy glass," suspended between the poles of an electro-magnet, moved, as soon as by the passage of the electrical current magnetism was induced in the latter, into a position crossing the lines of force, or at right angles to the line joining the poles. Terming the position assumed by a soft iron bar which is lengthwise between the two poles,

or from one to the other, axial, Faraday gave to the new direction assumed by the glass the name of equatorial. The glass was not merely thus directed, it was repelled by either pole; and if, reduced to the form of a small mass or cube, it was thrown out of the line joining the poles to one side or the other, it moved into the position of weakest magnetic action. This new-found property of certain bodies Faraday termed diamagnetism; and in contrast with this, he denominated the familiar form of magnetic action paramagnetism. His experiments warrant the conclusion that, with a sufficiently powerful electro-magnet, all substances whatever can be shown to exhibit one or other of these properties. Liquids and solutions were examined by being suspended in glass vials, the known influence of the glass being allowed for. Among paramagnetic substances, by far the most powerful is iron, then nickel and cobalt, and, in a slight degree, manganese, palladium, crown glass, platinum, osmium, and some others. Vacuum serves as zero in the scale. Then, passing from the less to the more diamagnetic bodies, are found arsenic, ether, alcohol, gold, water, mercury, flint glass, tin, heavy glass, antimony, phosphorus, and, by far the most powerful, bismuth. Flames are diamagnetic, being so strongly repelled by the poles that they divide and pass up on either side, a descending current of air going down in the middle. Most organic substances are diamagnetic; wood, starch, sugar, leather, bread, and even animal tissues and blood, are instances. Oxygen, and perhaps nitrous gas, are the only gases which are known to be ordinarily magnetic; and when it is added that oxygen loses in a degree, though not wholly, its magnetic condition by increase of temperature, it will be seen that the properties of this constituent of our atmosphere probably have important bearings on the production of terrestrial magnetism. Green glass is magnetic in consequence of the iron it contains; and to render wood ordinarily magnetic, it is only necessary to cut a chip of it with a common knife. The magnetic condition of any compound body is found to be determined by what may be called the algebraic sum of the magnetic and diamagnetic powers of its constituents. Thus a compound or solution containing much iron will always be paramagnetic in greater or less degree; but if the iron be blended with comparatively large amounts of water and other diamagnetics, it may be brought to the neutral point, or the compound may be actually diamagnetic. Under all ordinary circumstances, the decidedly magnetic or diamagnetic bodies give to combinations their own character. Another important point is the influence of enveloping material. Certain substances that are repelled, and take the equatorial position in air, are attracted and set axially in water; and even a solution of iron, magnetic in air, if weaker than another solution in which it is immersed, will stand equatorially, and act as a diamagnetic. In terming a body magnetic or diamagnetic, then, we mean that it is such with reference to the medium in which it is tried; and as this medium is commonly air, in which the magnetism of the oxygen dominates over the opposite property of the nitrogen, it is evident that some so-called diamagnetics are only relatively such. With reference to the theory, Faraday now considers that the diamagnet is not rendered polar, as is the magnet, but simply repelled. Prof. W. Thomson has supposed the diamagnet to be simply a body less magnetizable than air, but still polar. In this case it would move away for the more magnetic air, just as in gravitation smoke makes way and ascends above the more strongly gravitating cold air. Plücker, Tyndall, and others adhere to a modified form of Prof. Faraday's earlier view, namely, that the diamagnet is a body susceptible in greater or less degree of a double polarity opposite in character to the double polarity of the magnet; or, in the language of Ampère's theory, that as the currents induced in soft iron are parallel to the currents in the inducing magnet or battery wire, so, in bismuth and other diamagnetics, the currents are induced in contrary directions, so that these bodies become inverted magnets, and place themselves across the magnetic lines of force.

DIAMANTINA, formerly Tejuco, a city of Brazil, and capital of the diamond district, situated in a valley of the province of Minas Geraes, at an elevation of 5,700 feet above the sea; lat. 18° 28′ S., long. 43° 50′ W.; pop. about 6,000. It is built in the form of an amphitheatre, with wide, ill-paved streets, and handsome churches, one of which, belonging to negroes from the coast of Africa, contains an image of a black Virgin. Most of the houses are surrounded by pleasant gardens, and the environs of the city are adorned with orange and banana trees. The climate is mild. The inhabitants are employed chiefly in the gold or diamond trade.

DIAMETER, a straight line passing through the centre of a circle, terminated at each end by the circumference. Straight lines holding an analogous relation to curves, such as the conic sections, are also called diameters of those curves.

DIAMOND (from adamant, and this from Gr. *α* privative and *δαμαω*, to subdue), so named on account of its extreme hardness and indestructibility, a gem distinguished above all other precious stones for its brilliant lustre and hardness. It is met with in solid pieces of small size in alluvial deposits which are worked for gold. In a few instances diamonds have been found attached to loose pieces of brown hematite, and one was discovered in a kind of conglomerate rock, composed of rounded silicious pebbles, quartz, and chalcedony, cemented together by ferruginous clay; but no positive knowledge is had of the particular rock in which they originated, more than that it is one of those belonging to the metamorphic group, which yield gold. In the districts where they occur, a peculiar variety of light yellowish and white quartz rock, of laminated structure, called itacolumite,

is very commonly met with in these rocks. It is remarkable for its flexibility, and the peculiar manner in which the long strips yield to a slight pressure without parting, as if broken in their interior. It is found in Brazil, and in Georgia and North Carolina, in the vicinity of the localities that furnished the few diamonds discovered in these states. In the Golconda district the diamond is found in a black carboniferous boggy earth, in which the natives seek for it by feeling with their feet. The belief is current with them that in this material it grows. In Brazil diamonds have been found massive, in the form of pebbles. Their color is black; specific gravity, 3.012 to 3.416; composition carbon, with sometimes 2 per cent. foreign matter. This quality is valued at 75 cents the carat of 4 grains nearly. The brilliancy and indestructibility of the diamond attracted attention to it at very early periods, and caused it to be highly esteemed as a gem. It was long known in Asia before it was discovered in any other quarter; and the greater part of the supplies have been from that part of the world. Indeed, it was not until the early part of the last century that diamonds were known to exist elsewhere. The mines of Brazil were then discovered, and from 1730 to 1814, according to Baron d'Eschwege, their production was at the rate of 36,000 carats per annum. After 1814 it fell off greatly; but from 1845 to 1858 there has been an enormous increase, the statistics of which have been already furnished in the article Brazil. In the gold region of Siberia a few have been obtained, and within the last 20 years a few also in that of North Carolina and Georgia. In Asia, the most noted localities were the island of Borneo, Bengal, and the famous mines of the kingdom of Golconda in Hindostan. The city of this name was the repository of the diamonds collected in the territory of the kings of Golconda. These mines, celebrated as having produced some of the most valued precious stones in the world, have for some time past been unproductive, and are not now worked.—The diamond is pure crystallized carbon. Its hardness = 10, the highest number of the scale; but the external coat is harder than the internal portion, and may be rated at 10.5 or 11. The following are ascertained specific gravities of different varieties: Brazilian, 3.444; Brazilian yellow, 3.519; oriental, 3.521; oriental green, 3.524; oriental blue, 3.525. The primitive form of the crystal, and that into which the numerous secondary forms may be converted by cleavage, is the regular octahedron, consisting of 2 four-sided pyramids joined at their bases. The faces of the crystals are often rounded off, so as to present a convex surface, and the edges are also often curved. The cleavage planes greatly facilitate the cutting of the diamond, and also present the most brilliant natural surfaces. Some diamonds found of a spherical figure are deficient in these planes, or they lie in a concentric arrangement which renders their cutting almost impracticable by any known process. The diamond is not acted upon by acids or alkalies, and when protected from the action of the air may be heated to whiteness without injury. Exposed to the intense heat produced by a powerful Bunsen's battery, or by a condensed mixture of carbonic oxide and oxygen gas, it fuses, and is converted into a mass resembling coke, and its specific gravity is reduced in some cases to 2.678. Heated in the open air, it burns at the temperature of 14° Wedgwood, or about that of melting silver, and is dissipated in the form of carbonic acid gas, thus proving its composition to be pure carbon. Its inflammability was suspected by Boetius de Boodt in 1607, and in 1673 Boyle discovered that it was dissipated in vapor at a high heat. Its combustibility was first proved by the Florentine philosophers in 1694, by subjecting the gem to the solar rays concentrated in the focus of the large parabolic reflector made for Cosmo de' Medici, when it burned with a blue lambent flame. The experiment has been several times repeated by Sir Humphry Davy with the same speculum, and by Lavoisier, Mr. Tennant, and others, by different processes. Sir George Mackenzie made use of the diamond for furnishing the carbon to convert iron into steel. The property of phosphorescence has been attributed to the diamond after it has been exposed to a heat approaching redness, or to the action of the solar rays, especially the blue rays; and it has been stated that when the phenomenon is produced by the latter method the effect continues some time after the stone is removed from the light. But this is not confirmed by late authorities. Experiments conducted through several months in 1858 at Messrs. Tiffany and company's, of New York, failed to develop any save negative evidence; and when they were renewed in January, 1859, for the purposes of this article, they were abruptly terminated through the carelessness of a workman, by the unfortunate destruction of a valuable gem obligingly lent by them. In no instance did any symptom of phosphorescence appear; but a remarkable increase in refraction was several times observed, and this appeared to be permanent. The diamond possesses single or double refraction according to its different crystalline forms; and it has an extraordinary power of refracting light, the index of refraction being 2.44, which led Sir Isaac Newton to suspect its inflammable composition. The dispersive quality of diamond is high; its index is equal to 0.0109. Its refraction index (exceeded only by that of chromate of lead) equals 2.439; of some brown stones it has been observed to be 2.470, 2.487, and 2.775.—Diamonds are found of various colors, as well as colorless and perfectly transparent. The latter are most esteemed, and are distinguished as diamonds of the first water from their semblance to a drop of clear spring water. When of a rose tint and of clear water, they are also highly valued. A yellow shade is objectionable, as is a cinnamon color, a stone having these rarely being clear and sound. Next to the rose, a green color is the least objectionable; many very fine diamonds have this

tint; and some are found of a bluish color, and some black. For the valuation of diamonds an arbitrary rule has been given, which is, however, little regarded in actual sales of the most costly of these gems. Purchasers for such being few, the only real rule adopted, as in the sale of many other commodities, is to demand the highest price there is the least probability that one may be induced to pay. The mere statement of the rule is sufficient to show its indefiniteness. It is to multiply the square of the weight in carats by a sum varying according to the state and quality of the stone. If clear and of good shape, this sum is £2; if perfect and well cut, £6 or £8 for the brilliant or rose, but a lower figure for the table. The rate is now $15 in place of the £2 above, and a specimen brilliant is worth $75. For diamonds of moderate size the rates vary as little as those of exchange between countries. They follow from the natural proportions in which diamonds are found. Diamonds weighing over 10 carats are generally esteemed at a higher proportional rate than the smaller sizes; yet the latter can commonly be sold at higher proportional rates, on account of the few purchasers for those of large size. In the great sale of jewels in London in 1837, on the distribution of the Deccan booty obtained by the army of the marquis of Hastings, the splendid Nassuck diamond, weighing 357½ grains, and of the purest water, brought only £7,200. The present value of diamonds may be inferred from the price paid in Dec. 1858, for a stone weighing 61 carats, £33,000. A pair of drop-shaped diamonds for ear-rings were bought at the same sale for £15,000. A steady increase has taken place since the last century, and a much more rapid increase in the price of fine gems is to be expected, from the increased demand and diminished supply. It is an interesting fact that the finest gems of commerce are now in great part supplied by the old jewels of Portuguese, Spanish, French, and English families, the proportions from each nation in the order named; and that the best market for them is now the United States.—The art of cutting and polishing probably originated in Asia, at a very early period, but was first introduced into Europe about the middle of the 15th century by Louis Berquen of Bruges, who accidentally discovered that by rubbing 2 diamonds together their surfaces might be abraded. The powder obtained in this way is used for polishing the stone. Diamond cutting was for a long time a monopoly in Holland, and the business is at the present day mostly confined to Amsterdam. The process, which consists of grinding down the surfaces as well as cutting, is slow and tedious, and being done entirely by hand, occupies for a single stone the continual labor of months. The Pitt diamond indeed required 2 years for the completion of the process. Two diamonds are employed, each cemented into the end of a stick or handle, a model in lead being taken of the one to be cut, by which the faces are determined. The stones are then rubbed together with a strong pressure, being held over a metal box having a double bottom, the upper one perforated with small holes, through which the diamond dust falls. This is afterward carefully collected, mixed with vegetable oil, and used for polishing the gem upon a revolving cast-iron disk. When a large piece is to be removed from the stone, it is sometimes cut off by means of a steel wire covered with diamond powder, and sometimes by the use of a chisel and hammer, though in this way there is danger of destroying the stone. The workman should understand perfectly the position of the cleavage planes, as it is only upon them that pieces can be removed by the chisel. The forms usually adopted in cutting the diamond are the brilliant, the rose, and the table. The first shows the gem to the best advantage. It is composed of a principal face called the table, surrounded by a number of facets, which is all that is visible above the bezil when set. The stone in depth below the bezil should be equal to half its breadth. On the under side it terminates in a small table, which is connected with the upper surface by elongated facets. As the brilliant is the most economical of material, and shows the stone most advantageously, it is usually preferred to any other. The rose, which is very brilliant, is flat below and cut into facets entirely over the upper surface. The table is least beautiful, and is used mostly in India for thin stones with a large surface, which are ornamented by being cut into facets at the edges.—Among the most celebrated diamonds known, that obtained by Mr. Pitt, governor of Madras, is perhaps one of the finest and most perfect. It is known as the regent. Its weight before cutting was 410 carats, and by this process, which occupied 2 years, it was reduced to 136 carats, and was purchased by the regent duke of Orleans in 1743 for $675,000. Its present value is estimated at $1,000,000. It was placed by Napoleon in the hilt of the sword of state. A splendid diamond recently found in Brazil, and imported into France, is called the "Star of the South." It weighs in its rough state 254½ carats. Its general form is a rhomboidal dodecahedron, and upon its faces are impressions which appear to have been made by other diamonds, so that the whole was probably a group of diamond crystals. The famous diamond in possession of the king of Portugal is also from Brazil. If genuine, of which there is some doubt, its value, according to the rule of computation, should be $28,000,000, weighing as it does in the rough 1,680 grains.—The famous Koh-i-noor or "Mountain of Light" is now in possession of the queen of England. This wonderful stone, interesting alike for its historical associations and for its intrinsic beauty, was, according to Indian tradition, obtained before the Christian era from one of the mines of Golconda. From the rajah of Oojein, who seems to have possessed it at the beginning of the Christian era, it passed to successive sovereigns of central India, and in the early part of the 14th century was added to the treasures of Delhi by the Patan monarch Aladdin. It remained in possession of the rul-

ing families of the empire until the irruption of the Persian conqueror Nadir Shah, who saw it glittering in the turban of the vanquished Mohammed Shah, and proposing an exchange of head dress as a mark of friendship, bore it away with him, and gave it the name by which it is still known. After the assassination of Nadir it passed through the hands of Ahmed Shah of Cabool to Shah Soojah, who paid it as the price of his liberty to his conqueror Runjeet Singh, the "lion of the Punjaub," in 1813. On the annexation of the Punjaub to the East India company's territory in 1849, it was stipulated that the Koh-i-noor should be surrendered to the queen of England, to whom it was accordingly delivered by the company, July 3, 1850. At this period its weight was 186 carats. It was exhibited at the crystal palace in London in 1851, where it attracted universal attention; but when found to exhibit an inferior display of colors to its glass model, and that it was necessary to surround it with a number of vivid lights to develop its colored refractions, multitudes turned away disappointed from the world-renowned "Mountain of Light." An examination was made of it by scientific gentlemen, with reference to the propriety of recutting the gem. After obtaining the opinions of skilful cutters at Amsterdam, it was decided that the attempt should be made, though some fears were entertained as to its success. Being the largest diamond cut in Europe for a long time, it was a work of no common interest. Orders were given that the proper machinery should be prepared, and a small steam engine was procured for the purpose. The duke of Wellington commenced the work. The stone being imbedded in lead, excepting only that portion which was first to be cut, he held it firmly against a rapidly revolving wheel, which by its friction removed the angle exposed, and thus the first facet of the fresh cutting was accomplished. The operation was continued and successfully completed by careful and experienced workmen. Now, the splendid Koh-i-noor, freed from all blemishes and defects, blazes brilliantly among the crown jewels of the sovereign of England.—The diamond so long in possession of the sultan of Matan, of the island of Borneo, is remarkable for its size and purity. It weighs 367 carats, and should be worth at least $3,500,000. It is shaped like an egg with an indented hollow in the smaller end. It was discovered at Landak. The Orloff diamond purchased for the empress Catharine of Russia is about the size of a pigeon's egg, and weighs 195 carats. It is said to have formed the eye of a famous idol in a temple of Brahma at Pondicherry. A French deserter robbed the pagoda of this valuable stone. After passing through the hands of various purchasers, it came into the possession of a Greek merchant, who received for it from the empress $450,000, an annuity of $20,000, and a title of nobility. The Austrian diamond is of a beautiful lemon color, and cut in rose; its weight is 139 carats. Its value is less than it would be but for its color and the form in which it is cut, ranking as worth $500,000 instead of $750,000. The most valuable diamond found in the United States was picked up by a workman at Manchester, on the banks of the James river, opposite Richmond, in 1856. The locality is in the tertiary formation, and the diamond originally belonged, no doubt, to the gold region up the river. It is of curvilinear octahedral form, specific gravity 3.503, and weighs 23.7 carats. It is lightly chatoyant, and would probably cut white; but an original flaw was increased by the rough treatment it received from those into whose hands it fell, so that its value was greatly deteriorated. It is now in possession of Prof. Dewey. Another valuable diamond, owned by Thomas G. Clemson, Esq., was found among the gold washings of North Carolina about the year 1842. This was of curvilinear form, and was set without cutting. Others of less importance have been found in Georgia.—The imitation of diamonds has been carried to an astonishing degree of perfection among the French. M. Bourguignon has been especially successful in this manufacture. The sand employed for the production of his splendid diamonds is procured from the forest of Fontainebleau, and forms a considerable article of trade. The setting of these mock stones is always of pure gold, and of the newest fashion, and the ornaments when completed rival in delicacy and lustre the purest diamonds which nature has produced, and only by the closest inspection can the difference be detected. The chief objection to them is their liability to become dull in time by deliquescence.—The process of collecting diamonds is similar to that of collecting gold in the alluvial deposits. The coarse gravel and rolled pebbles derived from the primary and metamorphic rocks, form the lowest stratum among the sands and clays of the alluvium. This stratum, resting upon the surface of the rock, is the repository alike of gold and of diamonds. It is laid bare in the beds of the streams, when these cease to flow in the dry season, or are drawn off by sluices made for the purpose. From these beds, as well as from excavations in the bottom, the gravel is removed, to be washed when convenient. This in Brazil is usually in the rainy season, and the work is done in a long shed, through which a stream of water is conveyed, and admitted into boxes in which the gravel is washed. A negro works at each box, and inspectors are placed to watch the work, and to prevent the laborers from secreting the diamonds. It is the custom to liberate the negro who finds a diamond weighing 17½ carats. Dr. Beke, in a paper read at a meeting of the British association, relates that a slave in Brazil seeking for diamonds in the bed of a river broke with his iron bar through a crust of silicious materials, cemented together by oxide of iron, in which he discovered a bed of diamonds, which were afterward sold for $1,500,000. This immense quantity, being carried to England, so

overstocked the market that few of the English houses were able to stand up against it.—Beside their use as ornaments, diamonds are applied to several practical purposes. Those that are unfit from their imperfections for jewelry, are sold under the technical name of bort. They are crushed to fine powder in a steel mortar, and used for coating the metallic disks employed by lapidaries for producing flat surfaces on precious stones of great hardness. The fine splinters are made into drills, for piercing small holes through rubies and other hard stones. The property possessed by the diamond of cutting glass is due not merely to its extreme hardness, but to the peculiarity of its crystallization in rounded faces and curvilinear edges. The natural crystal only is suitable for this purpose. According to Dr. Wollaston, many hard stones, and even flint cut in this form, possess the same property, but soon lose it in use, for want of hardness. Small microscopes of a single lens, and of great power and clearness, have been cut out of diamonds.—The diamond exhibiting the physical properties of matter in their highest state of perfection, and proving after all to be of the simplest chemical composition, it has been a matter of no little scientific interest to study the peculiarities of its construction, and to determine if possible the secret processes by which nature has elaborated the most perfect gem from so homely a substance as charcoal. Its high value has stimulated these researches, in the hope of individual profit by its artificial production. But though more complicated forms of matter have been successfully reproduced, carbon has not yet been made to attain the simple perfection of the diamond, unless it be in crystals invisible to the naked eye; nor have we yet learned from what department of nature's works the material has been taken, that has been so beautifully perfected. The vegetable kingdom may have furnished it, after itself receiving it from the atmosphere, or it may have been unlocked from those repositories of carbon shut up from remote geological periods in the carbonic acid of the calcareous rocks, or from such collections of fossilized plants as are now seen in various stages of change to mineral substance. But if the direct object of these researches has not been attained, the forces which have acted upon it to give to it some of its peculiarities have been partially determined, as also a previous condition in which it must have existed. Sir David Brewster, from the exhibition of polarized light around the minute and irregular cavities in diamonds, has concluded that the substance has once been in a soft state, and compressed in these parts by the expansive action of a gas or fluid contained in the cavities; and as various circumstances indicate that this softness was not the effect of either solvents or heat, he is of opinion that, like amber, the diamond is a vegetable substance, slowly consolidated into a crystalline form. The nearest approach to its reproduction has been in the experiments of M. Desprétz, announced in the year 1853. By long continued voltaic action, carbon free from every trace of mineral substance, prepared from crystallized sugar candy, was made to deposit microscopic crystals in black octahedrons, in colorless translucent octahedrons, and in colorless and translucent plates, the whole of which had the hardness of the powder of the diamond, and which disappeared in combustion without leaving any perceptible residue. Being, however, only in powder, it was impossible to isolate and weigh these crystals, or to determine their index of refraction and angles of polarization. It is said that a similar result has been obtained by decomposing a mixture of chloride of carbon and alcohol by weak galvanic currents.—The principal English works on the subject are D. Jeffrey's "Treatise on Diamonds and Pearls" (8vo., London, 1750); J. Mawe's "Treatise on Diamonds and Precious Stones" (8vo., London, 1826).

DIAMOND DISTRICT, a part of the district of Serro Frio, in the province of Minas Geraes, Brazil, famous for the production of diamonds. It is a mountainous tract, not far from Villa do Principe, extending about 16 leagues from N. to S. and 8 from E. to W. The diamonds were first discovered here by a company of gold miners in 1730. At first they were ignorant of the value of the gems, and threw away many of them as useless. Others were sent to the governor of Brazil, who supposed them to be curious crystals. A few of the stones having been carried to Lisbon were shown to the Dutch consul, who recognized them as diamonds, and had them transmitted to Holland. Immense numbers of the gems were now exported from Brazil, and the Portuguese government soon took measures to secure a monopoly of the valuable trade. The district was surrounded by lines of demarkation, which were guarded with the utmost strictness. No one was permitted to pass these in either direction without a permit from the intendant of the mines, and travellers leaving the diamond ground were obliged to submit to a thorough examination of their persons, baggage, and horses. A peculiar system of police was established for the regulation of the district, and stringent laws were passed to provide for the registering of the inhabitants, the admission of settlers, the erection of inns and shops, and the punishment of infringements of the government monopoly. The diamond mines were at first rented to private individuals, but the frauds and violations of contract of which these persons were constantly guilty induced the government to take the matter into its own hands, and the mines were long worked under the direction of officers of the crown. The precious stones are found in a kind of gravel, called *cascalhão*, which is dug up and removed to a convenient place for washing. A shed, about 25 or 30 yards long and 15 wide, consisting simply of upright posts and a thatched roof, is erected over the spot where the heaps of cascalhão are to be deposited. Through the centre of this shed is conducted a stream of

water, on one side of which is a range of sloping troughs, each about 3 feet wide, and communicating with the stream at the upper end. Opposite to the troughs are high chairs placed at equal distances for the overseers, or *feitores*. A slave stations himself in each trough, and with a short-handled rake draws up a pile of 50 or 80 pounds of cascalhão. He lets in water upon this, to wash away the earthy particles, and after throwing out the largest stones, examines the rest with great care for diamonds. As soon as he finds one, he stands upright, claps his hands, and holding it between his finger and thumb shows it to the overseer, who receives it from him, and places it in a bowl half full of water, suspended from the centre of the structure. The mines are now open to all who choose to invest their capital in them, and the cost of working them has been estimated at about $8 per carat. They give employment and support to about 10,000 persons.

DIAMOND HARBOR, a roadstead in the river Hoogly, presidency of Bengal, British India, 29 m. below Calcutta. It was the first place in Bengal acquired by the East India company, and is now a shipping depot. The climate is very unhealthy; the neighboring swamps exhale the most noxious vapors, and the night dews are remarkably heavy. An excellent road and an electric telegraph connect the place with Calcutta.

DIANA, an ancient Italian divinity, identified by the Romans with the Artemis of the Greeks. Servius Tullius is said to have introduced her worship at Rome, dedicating to her a temple on the Aventine. As goddess of light she represented the moon. The root of her name seems to be the same as that of the word *dies*. In images and legends of a later period she fully answers to the Grecian Artemis. (See Artemis.)

DIANA of Poitiers, duchess of Valentinois, mistress of Henry II. of France, born Sept. 3, 1499, died in Anet, April 22, 1566. She was maid of honor to Queen Claude, and when her father, the count of St. Vallier, had been condemned to death for favoring the escape of the constable Bourbon, she so touched the heart of the susceptible Francis I. by her tears and beauty, that the punishment was commuted. At the age of 13 she became the wife of Louis de Brézé, count of Maulevrier, by whom she had 2 daughters. In 1531 her husband died, and Diana, putting on a widow's weeds, expressed a resolve to wear them to her grave; but this did not prevent her when nearly 40 years old from becoming the mistress of the dauphin, afterward Henry II. The duchess of Étampes then possessed the affections of Francis I., and the 2 favorites divided the court until the accession of the dauphin, when Diana's rival was sent into exile. Diana now became almost mistress of the kingdom. The beauty and accomplishments of the young queen, Catharine de' Medici, could not prevail against her influence. The king delighted in giving public tokens of his infatuation, and not content with wearing her colors and blazoning the palaces and public buildings with her emblems and devices, he admitted her to his councils, and in 1548 created her duchess of Valentinois. She retained her ascendency until Henry's death in 1559, when she retired to the palace built for her by her royal lover at Anet; but in 1561 she was recalled by Catharine de' Medici to exert her influence in detaching the constable de Montmorency from the Châtillons. From that time until her death she remained in retirement, retaining her personal charms, of which she had always taken the most extraordinary care, to the last. Her power over the king, even when she had reached the ripe age of 60, was due no less to her beauty than to her intellectual gifts. She seldom made a bad use of her position, and she spent large sums in charity.

DIAPASON (Gr. δια, through, and πας, all), a term employed by the old Greek and Latin musicians to denote the scale or octave. Modern musicians sometimes employ it in a similar manner. The diapason stops of an organ are so called because they run through the whole register of the keyboard.

DIAPER, a linen fabric, said to have been originally made at Ypres in Belgium, and hence known as d'Ypres, whence its present name. It is distinguished by its flowered patterns, and sometimes resembles damask. It is largely manufactured for napkins, table-cloths, &c. Ireland, Germany, and Scotland especially produce excellent qualities of the article.

DIAPHORETICS, or Sudorifics (Gr. διαφερεω, to carry through), stimulant medicines, which increase the cutaneous transpiration. In this class were formerly included many substances, especially the mints and similar plants, which are only diaphoretic in virtue of the abundant, warm, and watery infusion in which they are administered. There are, however, certain substances, vegetable and mineral, which exert a special action upon the skin, stimulating the sudoriferous glands, and eliminated by the cutaneous surface. Warm water is an excellent diaphoretic, either simple or in the form of the many domestic herb teas; the vapor and warm baths are effectual and natural stimulators of the skin; the cold bath, and the various applications of the hydrotherapic method, are sure but disagreeable and often dangerous sudorifics. Among vegetable remedies of this class are aconite, opium (alone or combined in the form of Dover's powder), dulcamara, guaiacum, sarsaparilla, mezereon, and squill. At the head of the mineral diaphoretics stand the antimonials; others are sulphur and the preparations of ammonia. The ethers, especially the nitrous, are powerfully diaphoretic when the surface is kept warmly covered. Indeed, many of the so-called diaphoretics, if the body be not kept warm, act as diuretics, increasing the urinary secretion; and almost any stimulating medicine will increase the secretion of the skin, if the surface be warmed or prevented from losing its heat by evaporation. Deficient action in the skin is seen in a great variety of complaints,

and in certain stages of almost all fevers, and the choice of the proper remedy to stimulate its action often requires the highest skill of the physician. Diaphoretics are employed to most advantage in chronic diseases of the skin, in gout and rheumatism, syphilis, dropsy, and catarrhal affections. When we consider the amount of carbonic acid and azotized matters thrown off by the skin, in its vicarious and alternating performance of the offices of the lungs and kidneys, we can understand how necessary it is to keep this surface in a healthy condition. The skin is a most important respiratory organ, and will keep up the standard of animal heat when the lungs are almost destroyed as aërating organs, giving a most valuable therapeutic indication in the treatment of pulmonary affections. According to Mr. Wilson, the total number of pores of the sudoriferous glands on the surface of the human body is about 7,000,000, and the length of the perspiratory tubing connected therewith nearly 28 miles. Such an extensive system as this cannot be neglected in disease with impunity, and the medicines which can stimulate it, when depressed or obstructed, must be among the most useful in the materia medica. It is highly probable that, in many forms of fever, the suppression of the perspiration is the cause of the disordered vascular action; and that deficient action of the cutaneous glandulæ, from want of exercise and inattention to cleanliness, is a frequent source of disease, from the accumulation in the blood of decomposing organic matter whose natural outlet is the skin. The cutaneous surface seems to be the natural channel for the elimination of many morbid products, and the use of diaphoretics to be the only rational method of removing such from the system. The experience of physicians in tropical climates shows that the great art of preserving health there consists in attention to the regular performance of the cutaneous functions, and that the adynamic fevers of those unhealthy regions are best treated by active diaphoretics.

DIAPHRAGM, the transverse muscle which separates the thoracic from the abdominal cavity in mammalian vertebrates. It is flattened in shape, nearly circular, fleshy at the edges, tendinous in the centre, elongated, and ending in a point behind. In front it is attached to the ensiform cartilage of the breast bone, on the sides to the posterior surface of the last 6 ribs, behind to the transverse process of the 1st lumbar vertebra and to the bodies of the first 3 vertebræ of the loins by tendinous slips; the fleshy fibres of the last form the pillars of the diaphragm, and their fasciculi cross each other in such a way as to leave 2 openings, one superior and most anterior, giving passage to the œsophagus and par vagum nerve, the other inferior and more to the left, for the passage of the aorta, thoracic duct, and vena azygos; the tendinous centre has been compared to a leaf of clover. Between the middle and right portion of the tendinous centre is the opening for the passage of the inferior vena cava. The diaphragm is in relation, above, with the pericardium in the middle, and with the pleuræ, base of the lungs, and walls of the chest on the sides; below, with the aorta in the middle, the kidneys, renal capsules, pancreas, and duodenum; on the right side with the liver, and on the left with the stomach and spleen. The direction of the posterior fibres is nearly vertical; all the others converge toward the tendinous centre. The diaphragm is the great muscle of respiration; when it contracts, its upward convexity becomes a plane surface, the cavity of the chest is enlarged, and air rushes in to expand the lungs during the act of inspiration; when forcibly contracted, it may act as an assistant to the abdominal expiratory muscles by diminishing the size of the base of the chest; by its action on the abdominal viscera it aids in the expulsion of fæces and urine; in ordinarily tranquil breathing the diaphragm is sufficient for the performance of the function. In animals the extent and position of the diaphragm vary according to the number of the ribs; in those whose ribs extend nearly to the pelvis, as in the horse, the thoracic convexity of the diaphragm is much greater than in man. This important muscle is liable to malformations, wounds, and morbid conditions; its total absence is incompatible with any other than intrauterine life, as aërial respiration would be impossible; its partial absence, like dilatation of its natural openings, or laceration of its fibres, is accompanied by the passage of more or less of the abdominal viscera into the chest, impeding the action of the heart, lungs, and digestive organs; in such cases, the liver, stomach, omentum, ileum, cæcum, and part of the colon, have been found above the diaphragm. This partition is also liable to penetrating wounds, and to rupture from external violence, the latter being the most dangerous; in either case, nature alone can remedy the evil. It is sometimes inflamed, and in the rheumatic diathesis is the seat of the most acute pain, increased by every respiratory act, and forcing the patient to breathe almost entirely by means of the abdominal muscles. Spasmodic contractions are familiarly known by the phenomenon of hiccough; this is sometimes merely a nervous affection, and at others is a symptom of peritonitis, strangulated hernia, and other abdominal diseases. Paralysis of the diaphragm is speedily fatal, from the suspension of respiration.

DIARBEKIR, Diyar-Bekr, or Diarbekr, a town of Turkey in Asia, formerly capital of an ancient pashalic of the same name, on a rocky eminence a short distance from the right bank of the river Tigris, in lat. 37° 55′ 30″ N., long. 39° 52′ E. A fertile and well cultivated plain surrounds the city, which is encompassed by walls pierced by 4 gates, and surmounted by many towers. In the N. E. portion of the town are the ruins of the citadel, formerly the residence of the pasha. The town was once a very flourishing place, and contained, it is said, 200,-

000 inhabitants; but owing to the predatory disposition of the Koords, who by their attacks have rendered unsafe the intercourse with Bagdad and Aleppo, its prosperity has declined, and it now contains no more than 40,000 inhabitants, the greater part Turkish, the rest mostly Armenian. Some trade is, however, carried on with Aleppo, and the manufacture of cotton and silk goods, though much diminished, is still continued. The streets, like those of other eastern cities, are narrow and dirty, and most of the houses are constructed of rough stone covered with a plaster composed of mud and straw. The town contains many mosques, an Armenian cathedral and other Christian churches, numerous baths, caravansaries, and bazaars, and is well supplied with water, which is introduced by a fine aqueduct, and distributed through the city in numerous stone fountains. The walls are built of a dark-colored basalt, quarried in the neighborhood, and many of the principal buildings of the city are constructed of the same material, whence the Turks call the place Kara Amid, or Black Amid; Amida being the ancient name of the town. A British consul resides here.

DIARRHŒA (Gr. διαῤῥέω, to flow through), a disease characterized by the occurrence of frequent, loose, alvine discharges. In a proper system of nosology diarrhœa would scarce find a place; it is a symptom rather than a disease, and is produced by a number of different pathological conditions. It is present in the course of typhoid fever, is a frequent accompaniment of phthisis, and is sometimes an attendant upon albuminuria and other forms of blood poisoning; it is caused by inflammation and ulceration of the bowels. Those slighter forms of the complaint only will be noticed here which are independent of constitutional causes, and which are produced by a temporary irritation or sub-inflammation of the intestinal mucous membrane. Diarrhœa is often caused by the use of crude and indigestible food, or even by food ordinarily wholesome taken in too great quantity or variety. Fruit, particularly when acid and unripe, uncooked vegetables, as cucumbers and salads, food in a state of incipient decomposition, the flesh of immature animals, as young veal, &c., are all liable to act upon the bowels. Certain articles, as mushrooms, shellfish, the richer varieties of ordinary fish, as salmon, from peculiarity of habit disagree with particular individuals and produce diarrhœa. The same is true of a total change of diet; food perfectly wholesome to those accustomed to it, and the water used habitually in certain districts of country, often cause bowel complaints in the stranger. Emotions of the mind, particularly grief and anger, in some persons promptly occasion an attack of diarrhœa; others are affected in the same way by sudden changes of temperature, wet feet, or exposure to cold. Where diarrhœa is caused by the ingestion of food rendered irritating by its quantity or quality, the purging itself soon removes the cause of irritation and the diarrhœa ceases; if this should not be the case, a moderate opiate or an anodyne combined with an astringent are all that will be found necessary. When diarrhœa is dependent on exposure to cold, a bland, unirritating diet, the warm bath, and the use of opium or of opium and ipecacuanha in small doses, may be had recourse to; in such cases the patient is generally benefited by wearing a flannel bandage around the abdomen.—Young infants at the breast sometimes suffer from bowel complaint; here it is commonly caused by over-feeding. Ordinarily nature provides against this by the facility with which the infant vomits; the stomach frees itself from the excess of food, and no mischief is done; but when the infant does not vomit, diarrhœa is caused, and undigested curd is present in large quantity in the evacuations. The obvious remedy is a prolongation of the intervals at which the child is suckled. During dentition in infants, from the large quantity of blood sent to the digestive organs, and the rapid evolution which they are undergoing, the bowels are irritable, and diarrhœa often supervenes; this is best guarded against by care in the diet and a proper observance of hygienic regulations. The severer forms of the complaint which occur in large cities, from the combined effect of an impure atmosphere and the excessive heat of our summers, are spoken of under the head of Cholera Infantum.

DIAS, A. Gonçalvez, a Brazilian poet, born in Caxias, Aug. 10, 1823. He was educated in Portugal, and returning to his native country, published at Rio de Janeiro in 1846 a volume of poems entitled *Primeiros cantos*, which was followed by his drama of *Leonor de Mendonça* (1847), *Segundos cantos* (1848), and *Ultimos cantos* (1850). In 1848 he was chosen professor of national history in the college of Don Pedro II.; in 1850 he was sent on a scientific mission to the provinces bordering on the Amazon; on his return he was employed in the office of the minister of foreign affairs, and in 1855 was charged with a scientific mission to Europe. His poetry is exceedingly popular in Brazil.

DIAS, Bartholomeo, a Portuguese navigator, born in the latter part of the 15th century, lost in a storm at sea, May 29, 1500, while on his way from Brazil to India. In 1486 he sailed on an expedition to explore the W. coast of Africa, and without knowing it was carried around the southern point of the continent and landed at the mouth of Great Fish river, where he discovered that he was on the E. coast. The stormy cape he called *Cabo Tormentoso*, a name which the king of Portugal changed into Cape of Good Hope. Dias subsequently sailed on another African expedition under Vasco da Gama, and he commanded one of the vessels in the fleet with which Cabral discovered Brazil. It was on this expedition that he perished.

DIAS, Henrique, a Brazilian general, born at Pernambuco at the beginning, died in the latter part of the 17th century. He was a freed negro, who by his superior attainments rose in 1639 to

the supreme command of the colored soldiery of the Brazilian army. He took a conspicuous part in the protracted warfare which finally led to the overthrow of Dutch supremacy in Brazil.

DIASTASE (Gr. *διϊστημι*, to separate). When the grain of wheat, oats, or barley begins to germinate, there is formed at the base of the sprout a peculiar nitrogenous compound, very soluble in water, called diastase, the exact composition of which has never been determined. It is also found in the germ of the potato. It seems to be gluten in an altered form. By the action of this substance and of acetic acid, which also now first appears in the seed, the mucilaginous substance called dextrine, formed from the starch of the grain, is converted into starch sugar. This by fermentation passes into alcohol. It is therefore an essential element for the process of brewing. It may be obtained by digesting bruised barley malt with a little cold water, then expressing it through cloth. The liquor is then treated with sufficient alcohol to destroy its viscidity and cause the albumen to separate. This is removed by filtration. An additional quantity of alcohol then throws down the diastase in an impure state. It is redissolved in water and again precipitated with alcohol. When separated and dried, it is a white, tasteless, solid substance, without action upon gum or sugar, but capable at a temperature of 160° of converting starch suspended in water into dextrine, and this into grape sugar. One part of dextrine, it is found, is sufficient to cause 2,000 parts of starch to undergo this change.

DIATHERMANCY AND ATHERMANCY. The various dispositions of light entering the substance of different bodies are familiar. Some bodies, extinguishing the light, are termed opaque; others, through which it passes without sensible diminution, transparent, or diaphanous; but in most media both diaphaneity and extinction occur, in degree. Results entirely similar are now found to hold in the case of heat. All may observe that the sunbeams after passing through the air or through window glass are still very sensibly warm, while the glass and the air may remain at the same time in a great degree unwarmed. By a double convex lens of ice, the heat of the solar beam has been brought to a focus, and gunpowder and other combustibles fired, while the ice itself remained quite unaffected by the heat passing through it. A pane of glass held before a fire, however, stops the transmission of the heat striking it, and becomes warmed. From these facts, we conclude that from sources of heat there proceed outward on all sides rays of heat, just as from luminous bodies we have light rays; moreover, that there are media, as the air, which transmit heat rays freely, while others arrest (or, as it is often with doubtful propriety phrased, absorb) these rays; still a third class of bodies both transmitting and arresting portions of them. Bodies of the first of these classes are termed diathermanous; those of the second, athermanous; those of the third are imperfectly diathermanous. These subjects were first investigated in 1811–'12, by M. Prevost of Geneva, and M. de la Roche in France, but our knowledge of them is mainly due to M. Melloni, who began in 1832 a series of remarkable investigations, which won for him from M. de la Rive the title of "the Newton of heat." These researches, determining as they did the transmission of an invisible agent, heat, and often in degrees far too feeble to be detected by the nicest sensibility of the hand or by the ordinary means, would have been impossible but for the invention, by Nobili and Melloni, of a new thermoscopic apparatus, consisting of a thermo-electric pile connected with a highly sensitive galvanometer; the delicacy of the arrangement being such that if, in a room at ordinary temperatures, the human hand were presented in a line with the apparatus and at the distance of several feet, the heat radiating from the hand would cause the needle to be sensibly deflected. Some of the results discovered with the aid of this apparatus will be briefly stated. A plate or crystal of rock salt, even if an inch in thickness, was found, after diminishing the incident heat 7.7 per cent. by reflection, to transmit the entire remainder; this body, only, arrested within its substance no sensible portion of the heat rays. Hence, rock salt has been styled the true glass for heat; and its permeability by heat exceeds even that of glass by light. Smoked, or coated with soot, so as to be quite opaque, this body still allowed many of the heat rays to pass through it; and the same was true of smoked quartz and black glass. But citric acid, alum water, and limpid candy, although quite transparent, almost totally arrested the heat of the sun, of a flame or other source of intense heat, while they cut off entirely the rays from bodies raised to about red heat, and of all temperatures below. Bodies are not, therefore, diathermanous in proportion as they are transparent. But the amount of transmission of heat rays is found to depend on at least 4 particulars: 1, the nature of the source of heat; 2, the intensity of heat of the source; 3, the nature of the medium; and 4, its thickness. Solar heat has the greatest penetrating power; that of bodies in an incandescent state passes through the same medium in greater quantity than that of bodies at a dark heat; while of the heat of naked flame rock salt transmits 92.3 per cent., Iceland spar passes 39, white topaz 33, and alum 9 per cent.; and up to a certain thickness in every case, the amount transmitted diminishes with increase of thickness of the medium. Beyond a certain increase of the number or thickness of the plates, however, the diminution of heat ceases. The heat rays that can get through the first half inch or inch of glass, for example, will then go on undiminished through a much greater distance; so that it seems that certain heat rays are sifted out by each medium, as being incapable of moving through it with freedom; the others

then pass on. If, again, the heat beam which suffers no more loss by going through glass be now received in rock crystal, in the first part of this medium it suffers a remarkable diminution; other rays are sifted out, and a diminished beam passes. The same thing happens with light in colored media. The sunbeam in going through a certain depth of a red glass or solution has its bluish green rays sifted out and extinguished; the remainder, on being passed into a bluish green medium, is lost in like manner; a feeble beam only escapes, or none at all. Hence, the heat beam, like the beam of light, is regarded as a sheaf of heat rays of varying degrees of refrangibility; or we have a true heat spectrum. Dark and feeble sources of heat, it is found, emit rays analogous to blue and violet rays of light (Whewell), and highly luminous sources such as are analogous to yellow and red rays. The former, however, are proved to be the less refrangible heat rays; so that it is the more refrangible heat rays which are the more transmissible. This department of the subject has received the name of thermochrosy, or heat coloration. In this view, then, rock salt is a body quite colorless to heat; while alum, water, and some other transparent bodies, are nearly heat-black. The true heat color of water, however, is dark red, since the few rays it transmits are of the more refrangible class; and if this beam be received in a glass tinged green with copper, and the heat color of which may be considered blue, the remaining rays are lost; the heat beam is entirely arrested, though a greenish light still passes. This combination is then, apparently, a total black for heat. Where it is required to admit light without heat, therefore, this combination, or, as ordinarily more convenient, a solution or plate of alum, may be made the medium; where heat is to be admitted without light, smoked rock salt or black glass serves the purpose. In some operations in the arts, workmen exposed to an intense heat protect their faces to a good degree by wearing a glass mask.

DIATOMACEÆ, minute plants growing in moist situations, in collections of fresh water or in the sea, consisting of frustules of various forms, the walls of which contain a large quantity of silex, and are often beautifully diversified and marbled by striæ or by dots. Notwithstanding the general resemblance of these curious vegetations to the species of desmidieæ, they are clearly made distinct by the flinty fronds, singular striation, and absence of green coloring matter. Agardh asserts that many of these organisms have as much affinity with the mineral kingdom as with the vegetable, being in fact vegetable crystals, bounded by right lines and collected into a crystalliform body, and having no other difference from minerals than that the individuals have the power of again separating from each other. As in the case of the desmidieæ, there are solitary species, and others grouped so as to form lines and membranes. In some, the production of new plants from spores presents the same dissimilarity between the young and the adult forms. There are also numerous genera which can be accurately distinguished not only by the difference of form or outline, but by their own peculiar striations, markings, and dots. Both in the single and associated species there is a distinct pellucid peduncle or footstalk. This is sometimes considerably dilated above, or else forked, sometimes repeatedly. In this case, each frustule remains attached, the base dilating as may be required. This arrangement gives a fan-like appearance of great beauty. But in the thread-like species it is only the corners that remain attached; as no stem or footstalk is visible here, it has been conjectured that it exists only in those plants which have grown from spores or in the seedling forms. Certain channels or apertures are so arranged as to convey the water to the inner cellular membranes, and thus to afford nutriment. The same curious conjugation to be seen in other algæ has been detected in the diatomaceæ by Thwaites, and has been confirmed by Berkeley and Broome. It is computed that vast areas of solid earthy matter are due to the growth, presence, and decay of these minute organisms. Many of the most beautiful are found in the guano of commerce, doubtless swallowed in the food of birds, and still remaining in perfect preservation. In the United States, masses of several inches in thickness are found on the bottom of ponds, composed of myriads of these organisms, which on being exposed to desiccation become as white and friable as chalk. Even peat bogs and meadows abound with them. The polishing powders sold under the name of Tripoli are composed of these natural silicious fragments. The soundings on the shores of Victoria Barrier, in water whose average depth is 1,800 feet, were found by Dr. Hooker to be invariably charged with diatomaceous remains. These fossil species are often so identical with recent ones, that it were scarcely too extravagant to admit the assertion of Ehrenberg, that species are to be found in a living state in situations where they have been propagated from times far anterior to the existence of man. The United States are rich in the diatomaceæ, both fossil and living. We are indebted to the perseverance and scientific skill of the late Prof. J. W. Bailey, of West Point, N. Y., for a list and arrangement of species detected by him. In the tertiary infusorial stratum of Richmond, Va., Ehrenberg detected 20 genera and 46 species, of which all were also European excepting two. This group of American forms is of peculiar interest, because the strata at Richmond are decidedly of marine origin, and consequently give at once a general view of these marine microscopic forms along the North American coast. We shall briefly notice, in conclusion, some of the most remarkable of these vegetable organisms occurring in the United States and not uncommon in Europe. Of the perfectly free diatoms we have many species of *naviculaceæ* remarkable for beauty,

symmetry, delicacy, or else for their striations. The largest, most common, and most easily distinguished, is *N. viridis*, found in every ditch and pond, of an oblong outline. It can be detected in great abundance in the ashes of peat, and in the deposits of infusorial earths. Its length is about $\frac{1}{95}$ of a line. Several of a sigmoid outline are very remarkable for the delicacy of their striæ, of which may be mentioned *pleurosigma Baltica*, *P. hippocampus*, but more particularly *P. angulata*. The lines of striation upon *Nitzschia sigmoidea* are about $\frac{1}{100,000}$ of an inch apart. In *fragilaria* we have long threads of frustules adhering with considerable firmness at their commissures; but in *diatoma* they adhere only at a single point, so as to form curious chains of divided or separated joints. Prof. Bailey describes *bacillaria paradoxa* as a very interesting species, presenting by its curious motions and its paradoxical appearance an object well calculated to astonish all who behold it. At one moment the needle-shaped frustules lie side by side, forming a rectangular plate; suddenly one of the frustules slides forward a little way, the next slides a little also, and so on through the whole number, each, however, retaining a contact through part of its length with the adjoining ones. By this united motion the parallelogram is changed into a long line; then some of the frustules slide together again, so that the form is then much like a banner. Similar motions are constantly going on, and with such rapidity that the eye can scarcely follow them. The cause of this motion is wholly unknown, but it is most probably mechanical and not vital. Mr. Smith, in his work on the diatomaceæ, estimates this motion as being $\frac{1}{250}$ inch per second. In *meridion vernale* we have one of the most beautiful of the fresh-water diatoms. It consists of spiral or helicoidal chains, to perceive which the specimens must be tilted on edge. It occurs in immense quantities in mountain brooks, covering every submerged stone, or twig, or spear of grass, in the early days of spring. Among the groups with vittate or ribbon-like fronds, we may notice *striatella arcuata*, occurring in vast quantities on the filiform marine algæ, and covering them so much oftentimes as to make them glitter in the sunbeams as if invested with crystals. In still another natural group, where the striæ are no longer visible in the frustules or fronds, we find a multitude of microscopic objects, furnishing sources for fresh admiration whenever they are examined. In some of these the fronds, which are disciform, are marked with radiating lines, of which *coscinodiscus*, very common in a fossil state in the Richmond earth and elsewhere, is most beautiful. In *C. lineatus* the cellules of the frond form parallel lines in whatever direction they may be viewed, and *C. oculus iridis* gives curious colored rings. When perfect, the disk of *coscinodiscus* is covered with circular spots in rows corresponding with the radii. In consequence of this arrangement they also form beautiful spiral rows in other directions, so that the curves present no inconsiderable resemblance to patterns produced by engine-turning; at other times the spots are found to form 3 sets of lines, making angles of 60° and 120° with each other; and on others the spots are disposed without much apparent regularity, frequently having a star-like figure in the centre. The spots are so small on some of the disks as to be almost invisible even by the highest magnifying powers; on others they are quite large and hexagonal. In *podiscus Rogerii* (Bailey), the whole surface is so beautifully punctate, that no engraving could do it justice. The most complicated markings on the *coscinodiscus* scarcely rival the elaborate ornaments of this truly elegant organism. It has proved very common in Virginia and Maryland in a fossil condition. The beauty of *isthmia obliquata*, detected in the mud of Boston harbor, can only be appreciated by ocular examination. The diatomaceæ enter largely into the food of the mollusca. Dr. Hooker found *dictyocha aculeata* in the stomachs of salpæ taken off Victoria Land, and remains of diatomaceæ occurred in the same ascidiums examined between the latitudes of the N. tropic and 80° S. The medusæ are also in particular often filled with these forms.—See Bailey in "American Journal of Science and Arts," vols. xli., xlvi.; "Proceedings of Essex Institute," vol. i., pp. 33–48, and vol ii., pp. 70, 71; Smith's "British Diatomaceæ;" Kützing's *Species Algarum* (Leipsic, 1849); Berkeley's "Introduction to Cryptogamic Botany" (London, 1857).

DIAZ, Miguel, an Aragonese explorer, born in the latter part of the 15th century, died about 1514. He took part in the 2d expedition of Columbus, and having arrived in St. Domingo in 1495, he became involved in a duel which forced him to flee to the southern part of the island, where he married the female ruler of the tribe. From information given by her, and with the coöperation of Bartholomew Columbus, who was governor of the colony, he discovered the gold mines of St. Christopher, and afterward took a conspicuous part in the foundation of Nueva Isabella (afterward St. Domingo) in the vicinity of the gold districts. He faithfully adhered to the cause of Columbus until his death.

DIAZ DEL CASTILLO, Bernal, a Spanish adventurer and chronicler, born in Medina del Campo, Old Castile, about the close of the 15th century. He went to seek his fortune in the new world in 1514, and joined the expeditions which sailed from Cuba to Yucatan under Fernandez de Cordova in 1517, and under Grijalva in 1518. He afterward attached himself to the fortunes of Cortes, and followed that chief in all his most important battles and marches with distinguished valor and loyalty. In 1568 he was regidor of the city of Guatemala. When Gomara's "Chronicle of New Spain" appeared, Diaz began his *Historia verdadera de la conquista de la Nueva España*, the object of which was to correct the many

misstatements of his rival, and to claim for himself and his comrades a share of the glory which Gomara gave almost wholly to Cortes. The work was finished in 1558, and though destitute of literary merit, and disfigured by the author's vanity, it nowhere betrays a wilful perversion of truth, and is prized for its simplicity of style. It was first published at Madrid in 1632. An English translation by J. I. Lockhart appeared in 1844. A recent American writer has assailed the authenticity of the narrative, which he attempts to resolve into a collection of fables. (See Wilson's "New History of the Conquest of Mexico," Philadelphia, 1859.)

DIBDIN. I. Charles, an English song writer and composer, born in Southampton in 1745, died July 25, 1814. He was the 18th child of his parents, who intended him for the church. Following his own inclinations, however, he cultivated the study of music, and at the age of 16 went to London, where at first he supported himself by composing ballads for the music sellers and by tuning pianos. In 1763–'4 the opera of the "Shepherd's Artifice," written and composed by him, was produced at Covent Garden theatre, after which he appeared for several years in the joint capacity of actor and composer. Among his most popular works were the "Padlock," the "Deserter," the "Waterman," and the "Quaker," produced at Drury Lane, under the management of Garrick. Having quarrelled with the latter, he was for several years engaged in various theatrical speculations as manager or proprietor, and in 1789 instituted a species of musical entertainment, in which he was the sole author, composer, and performer. So successful did the enterprise prove, that in 1796 he erected a small theatre in Leicester fields, called Sans-Souci, in which he performed until 1805, when he retired from professional life in somewhat embarrassed circumstances, owing to his improvident habits. A pension of £200 was procured for him, of which in 1806 he was deprived by the whig ministry of Lord Grenville. The tory administration, which came into power the succeeding year, restored his name to the pension list, but his improvidence kept him in poverty until his death. His theatrical compositions, 47 of which are enumerated in the "Biographia Dramatica," amount to about 100. Upon his songs, however, of which he is said to have written upward of 1,000, his reputation mainly rests. Most of these were ephemeral productions, and many were below mediocrity; but his nautical songs and ballads are among the finest specimens of their kind in the language; and some of them, like "Poor Tom Bowling," written on the death of his brother Thomas, a sea captain, and "Poor Jack," are established favorites. They were set to simple and expressive melodies, and were exceedingly popular at the beginning of the present century, having, it is said, been influential in supplying the navy with volunteers. He published a history of the stage and some miscellaneous works of no great value. A new edition of his songs, with a memoir by T. Dibdin, illustrated by George Cruikshank, was published in London in 1850. II. Thomas, son of the preceding, born in London in 1771, died there, Sept. 16, 1841. He adopted the profession of his father, and for many years appeared before the public as actor, author, and composer. His songs and dramatic pieces are probably as numerous as those of his father, but are now comparatively forgotten. He died in poverty, while employed in compiling an edition of his father's sea songs, for which he received an allowance from the lords of the admiralty. III. Thomas Frognall, D.D., an English bibliographer, nephew of Charles Dibdin, born in Calcutta in 1775, died Nov. 18, 1847. He was educated at Oxford and studied for the law, but afterward took orders. In 1807 he became editor of a weekly journal called the "Director," and in 1809 published in the form of a dialogue his "Bibliomania," reprinted with great enlargements in 1811. In 1818 he travelled abroad, and in 1824 was appointed to the rectory of St. Mary's, Bryanstone square, which he held until his death. In 1814–'15 he published, under the title of "Bibliotheca Spenceriana," an account of the rare books in Earl Spencer's library, to which he afterward added a description of the earl's seat at Althorp, and an account of the Cassano library purchased by him. The work is often referred to, but is inaccurate. In his latter years Dr. Dibdin was involved in pecuniary embarrassment. His principal works, beside those above mentioned, are: "Typographical Antiquities of Great Britain" (4 vols., 1810–'20); "Bibliographical Decameron" (3 vols. 8vo., 1817); "Bibliographical, Antiquarian, and Picturesque Tour in France and Germany" (3 vols. 8vo., 1821); "Introduction to a Knowledge of rare and valuable Editions of the Greek and Roman Classics" (4th ed., 2 vols. 8vo., 1827); "Reminiscences of a Literary Life" (2 vols. 8vo., 1836); "Bibliographical, Antiquarian, and Picturesque Tour in the Northern Counties of England and Scotland" (3 vols. 8vo., 1839).

DICE (plural of die), small cubes of ivory, bone, serpentine stone, or close-grained wood, used in gaming. Each of their 6 faces is marked with a different number of points, from 1 to 6, in such a way that the numbers upon any 2 opposite sides together count 7. They are shaken and thrown from a box on to a table, and the game depends upon the number of points presented by the upper faces. This is one of the most ancient of games, and was said to have been invented by the Greeks to divert themselves during the siege of Troy. Plutarch makes it an early invention of the Egyptians, in whose mythological fables it is mentioned. Dice have been discovered in Thebes, made of bone or ivory, and similar to those in use at present. Herodotus ascribes the invention of this, as of all other games of chance, to the Lydians. It is alluded to as a favorite amusement by Æschylus and Sophocles. The chief distinction between the ancient and the modern game is, that in the

former 3 dice were employed, and in the latter ordinarily but 2. The Greeks gave to the various throws that were possible the names of their gods, heroes, princes, and hetæræ, the best throw being called Aphrodite. This game was adopted by the Romans, and the example of some of the emperors, especially of Nero, gave to it a dangerous popularity. Wealthy Romans, during the declining period of the empire, frequently staked their entire fortunes upon a single chance. It was introduced into France in the reign of Philip Augustus, and has continued from that time a favorite game.

DICE (Gr. Δικη), in ancient mythology, a goddess of justice, daughter of Jupiter and Themis, and sister of Eunomia (good rule) and Irene (peace). She appears as one of the Horæ, and as attendant of the father of the gods, and in the tragedians also as an avenging and rewarding divinity. Her business was not only to punish injustice, but to reward virtue.

DICENTRA (Borkh.), the generic name of some very showy herbaceous perennials, of which there are several species found wild in the United States. Of these latter, a very delicate and singularly flowered one is *D. cucullaria* (De Candolle), called Dutchman's breeches, the form of the corolla, with its spurs, reminding us of that article of apparel suspended in an inverted position. These blossoms are cream-colored tipped with white, and hang in a simple raceme upon a slender drooping scape, rising from the bosom of a set of tender, deeply cut, long-stalked leaves. Both the flowers and leaves soon fade away on the approach of summer, and leave exposed on the surface of the ground clusters of little grain-shaped tubers, arranged in the form of scaly bulbs. A second species, called squirrel corn (*D. Canadensis*, De C.), has scattered, round, flattened tubers, as large as grains of Indian corn, to the resemblance to which it owes its name. Its flowers are greenish white, tinged with red, and possess the fragrance of hyacinths. It is found in rich woodlands. *D. eximia* (De C.), found in W. New York, and among the Alleghanies of Virginia, is larger than the others, with reddish-purple flowers on a compound, clustered raceme, and with the lobes of the leaves broadly oblong. *D. chrysantha* (Hooker and Arnott), a native of California, has large, showy, golden-yellow flowers, leaves 2 and 3 pinnately divided, glaucous, with linear, acute segments, and a stem 2 or 3 feet high, leafy branching. But the most remarkable of all was introduced from Japan in 1846. From thick, brittle, fleshy roots there arise, early in the spring, numerous stout hollow stems about 3 feet high, bearing large, spreading, deeply divided, compoundly ternate leaves of a glaucous hue, not unlike some of the tree paeonias, from which issue strong flower stalks, branching into axillary and smaller racemes, loaded with large, rosy blossoms, each flower being about an inch long. In the early stage of the inflorescence the buds have a deeper tint, which is very beautiful. Several weeks elapse from the commencement of the expansion of the first blossoms until the period of blossoming is over; but sometimes a few smaller racemes will appear again toward the end of the summer. It does not seem to mature seeds readily, and as yet no new varieties are known to florists. This fine species has received the appropriate name of *D. spectabilis*. Side shoots or cuttings taken off early in spring, and planted out, will flower in August and September; but for early forcing it is better to put them into suitably sized pots, and suffer them to ripen away the foliage that has been produced in this condition, in preparation for another season, taking due care lest they strike their freely growing root fibres through the bottom of the pots. To prevent this, they may be placed upon a platform, on the stone or brick pavement, or even on the hard ground; in the latter case, it is better to move the pots at least once a week. On the approach of severe frost, the pots should be removed to the shed of the greenhouse, or placed under the stage, or protected in frames, or even put into the cellar, whence they are to be removed into a warmer atmosphere as they are needed for flowering. For early blossoming parlor plants we scarcely know of any other so easily prepared, or so sure of successful management, or which will so well reward any attention. In the garden the *dicentra spectabilis* thrives in any good soil, but that which is light, rich, and deep suits it best; in such a situation it will produce a dozen or more stems covered with flowers. A slight protection of leaves and litter is sufficient in winter. It should be allowed abundance of room.

DICK, Thomas, a Scottish scientific writer, born in Dundee in 1772, died at Broughty Ferry, July 29, 1857. He was educated for the ministry, and was ordained and settled as pastor of the Secession church in Stirling, but became so much devoted to scientific pursuits, that he relinquished his profession, and for 10 years was engaged as a teacher at Perth. While there he wrote the "Christian Philosopher," a work which brought him considerable reputation, and some pecuniary remuneration. From this time he devoted himself more exclusively to the writing of popular scientific works, which, though successful, were not a source of much pecuniary profit to their author, who was during part of his life in straitened circumstances. His works having had a large sale in the United States, a subscription was taken up for his benefit in this country some years before his death, and by this means, as well as by the contributions of some gentlemen of Dundee, and the aid of a small pension from the government, he was enabled to pass the latter years of his life in comfort. Among his works may also be mentioned, "Philosophy of Religion" (1825); "Improvement of Society by the Diffusion of Knowledge;" "Philosophy of a Future State" (1828); "Mental Illumination of Mankind" (1835); "Celestial Scenery" (1838); "Sidereal Heavens" (1840); "Telescope and Microscope" (1851).

DICKENS, Charles, an English novelist,

born at Portsmouth, Feb. 7, 1812. His father, Mr. John Dickens, who had held for many years an office in the navy pay department, retired on a pension in 1815 ; and being a man of some literary faculty, he became a reporter for the daily press in London. He intended his son for the profession of an attorney, and placed him in an attorney's office for that purpose. Here the youth acquired that knowledge of the machinery and technical phraseology of the law which he has turned to such good account in many of his works of fiction. But the drudgery of his work weighed heavily upon his spirit; a taste for literature, manifested mainly by an indiscriminate reading of novels and plays, began to develop itself; and his father's connections enabled him to exchange his uncongenial occupation for the more agreeable duties of a newspaper critic and reporter. He was attached to the "True Sun," and afterward to the "Morning Chronicle," which was at that time a daily paper of large circulation and influence. A series of sketches of London life, manners, and localities, published in the evening edition of the "Chronicle," under the signature of "Boz," attracted much attention, and showed the unknown writer to be possessed of a remarkable and original vein of observation and reflection, though by some it was regretted that such powers were exercised to so great an extent in the delineation of scenes of vice and misery, and the exposure of the weaknesses and infirmities of humanity. The sketches were afterward collected and published (1836) in 2 volumes. The ability displayed in these sketches was so great that Mr. Hall, of the firm of Chapman and Hall, proposed to the writer the scheme of preparing a work of fiction, to appear in monthly numbers, with illustrations by Mr. Seymour, a popular comic draughtsman. It was suggested that the adventures and mishaps of a club of originals would furnish a happy medium for the powers both of author and artist. Upon this hint the first number of the "Pickwick Papers" was written, and published with illustrations by Mr. Seymour. This clever artist died by his own hand before the appearance of the second number; and the task of illustration devolved upon Mr. H. K. Browne, who under the signature of "Phiz" continued with great spirit the style of pictorial embellishment which his predecessor had so happily begun. The work was completed and published collectively in 1837. But before it was finished it had attained a degree of popularity to which nothing in English literature since the publication of the Waverley novels could furnish a parallel. Everybody, both in England and America, was laughing over the ludicrous adventures of Mr. Pickwick and his associates, the trial scene of Bardell *vs.* Pickwick, and the quaint sayings, grotesque comparisons, and inimitable conversations of the elder and younger Weller. Between the appearance of the first and last numbers the author rose to be the most popular living writer in the English language. By some the "Pickwick Papers" is still esteemed Dickens's best work. We cannot subscribe to this judgment; but we admit that there are parts of it which he has never excelled, and that he has never drawn a character more original in conception and more happily sustained than that of Sam Weller. His next work, "Oliver Twist," appeared originally in monthly numbers in "Bentley's Miscellany," a magazine of which Dickens assumed for a time the editorship, and was published collectively in 1838. This novel fully sustained the high reputation acquired by the "Pickwick Papers." If the humor was not so rich, so abundant, so genial, there was a deeper tragic power, especially in painting the darker passions of the soul and the terrible retributions of guilt. Next appeared in serial numbers, published collectively in 1839, the "Life and Adventures of Nicholas Nickleby;" which, with some little hesitation, we should place at the head of all Dickens's novels, as being the most carefully constructed, and containing the widest range of character and the greatest variety of inventive power. From no other work of his could one who had never read any thing from his pen derive a more just estimate of all the wealth of his genius. "Master Humphrey's Clock," comprising the stories since separately known as the "Old Curiosity Shop" and "Barnaby Rudge," appeared in weekly numbers during 1840 and 1841. This was received, and deservedly so, with a degree of favor equal to that which had been accorded to his previous productions. Indeed, the character of little Nell awakened a depth and fervor of sympathetic admiration which no earlier creation had won. After the publication of this work, Dickens made a visit to America, arriving in Boston Jan. 22, 1842, and sailing for England on June 3 following. He was everywhere received with a degree of enthusiasm proportionate to his popularity as a writer and the excitable character of the American people. His views of American life and manners were published upon his return, at the close of 1842, under the title of "American Notes for General Circulation;" a work which added nothing to his reputation, though it was brightened here and there with gleams of his peculiar humor. In 1843 he wrote his "Christmas Carol," a short story inculcating the virtues of benevolence and generosity, which was received with great favor. Several similar productions have since from time to time appeared from his pen, under the general title of Christmas stories, of various degrees of merit, though no one can be pronounced quite equal to the first of the series. In 1844 he published in monthly numbers the "Life and Adventures of Martin Chuzzlewit;" and toward the close of the same year he went to Italy with his family, and resided there for some time. On Jan. 1, 1846, he assumed the editorship of the "Daily News," a morning newspaper started in London, on the liberal side in politics, to which several able writers were secured as contributors. In this journal were originally published his "Pictures

of Italy," which were gathered into a volume and issued in 1846; a work of a peculiar, almost unique character, containing as it does the impressions of a man of original genius who views Italy not as a scholar, an antiquary, or an artist, but as a humorist. He did not continue long in his new post of editor of a daily newspaper. His next publication, "Dealings with the Firm of Dombey and Son," came out in monthly numbers, during 1847 and 1848. In this novel the beautiful sketch of little Paul and the humorous delineation of Capt. Cuttle recalled the best efforts of his genius, and renewed the admiration awakened by his earlier works. Then followed the "History of David Copperfield," in monthly numbers, concluded in 1850. In this year he assumed the editorship of a weekly periodical, started by himself, called "Household Words," which has ever since continued to be published under his charge, and has a wide circulation both in England and America. Here appeared his "Child's History of England," republished separately in 1852; and his story of "Hard Times," republished in one volume, 1854. In 1853 was finished "Bleak House," which had been issued in monthly numbers; and in 1856 and 1857 "Little Dorrit" was given to the world, by parcels, in the same way. Beside the above works, Dickens is the author or editor of the "Memoirs of Joseph Grimaldi," published in 1836. Such a list proves him to be a man of vigorous industry and methodical habits of labor; and his example is valuable as showing that the highest genius is not incompatible with uniform diligence and a life of steady toil.—The great popularity which Dickens enjoys wherever the English language is spoken renders it a superfluous task for us to enter upon any extended or elaborate criticism of his works. He has opened a new and original vein of fictitious composition. His popularity is not a transient whim or fleeting fashion, but is fairly earned by great and obvious excellences. His place in English literature, throughout all time, will be as secure as that of Sterne, Fielding, or Scott. He is peculiarly and preëminently a man of genius. He has fashioned himself upon no existing models; no writer draws more exclusively from innate and self-contained sources; in no one do we see fewer indications of the influence of other men's minds. Very rarely in Dickens do we find a quotation from, or an allusion to, any other writer. His novels, as works of art, are open to obvious criticism. His plots are not skilfully constructed; many incidents are introduced which are improbable in themselves, and do not of necessity contribute any thing to the final catastrophe. His leading quality is his humor, which is original in its essence and boundless in its supply. His combinations, quaint, startling, and grotesque, are never forced, but are the spontaneous growth of a mind of inexhaustible fertility. In pathos, the reverse pole of humor, his merit is hardly less conspicuous. He has a peculiar comprehension of the sorrows and sufferings of childhood; and some of the most beautiful and effective of his pathetic passages have been drawn from this source. He is a very sharp observer, and an excellent artist in that style of verbal painting in which the effects are produced by the minute delineation of particulars. This power, it must be admitted, he uses rather too freely; and many of his descriptions, especially in his later works, would be improved by compression. The charm and success of his writings are in some degree to be ascribed to the fact that they are so strongly infused with the personal qualities of the writer. He is a man of genial nature and humane spirit, with a vehement hatred of injustice and oppression, a strong aversion to cant and hypocrisy, and generous and expanded sympathies. His powerful and popular pen has always been exerted on the side of social reform. Through these traits of character, as revealed in his writings, a sort of personal relation is established between him and his readers, which makes them very kind to his literary virtues, and a little blind to his literary faults. It has been objected to his novels that they set too high value upon good temper and geniality—the easy growth of a healthy organization and happy temperament—as compared with the sterner virtues which are the fruit of self-discipline and self-control; and that they make convivial pleasures too attractive, and fail to warn against convivial excesses. —Mr. Dickens has also acted with distinguished success in private theatricals, and has publicly read his own works to large and gratified audiences in almost every part of the United Kingdom. In 1858 he amicably separated from Mrs. Dickens, with whom he had lived some 20 years, and had several children. The cause was an uncongeniality of temper, implying no dishonor to either party.

DICKINSON, a N. W. co. of Iowa, bordering on Minnesota; area, 430 sq. m. The surface is diversified by a number of small lakes, the principal of which is Spirit lake. The largest river is the Okoboji, an affluent of the Little Sioux. This county is of very recent formation, and is not included in the census of 1856.

DICKINSON, Daniel Stevens, a U. S. senator from New York, born in Goshen, Conn., Sept. 11, 1800. The family removed in 1806 to the state of New York, and settled in the beautiful valley of the Chenango, where Daniel was inured to the hardy life of a plain farmer's son. He also worked for a while at a mechanical trade. During his boyhood he was able to acquire only the rudiments of learning under a system of common schools then in its infancy. Having a natural inclination to politics, he became an ardent member of the democratic party, and was rewarded for his zeal first by an election to the office of town constable, and then by an appointment as deputy sheriff of Chenango co. Thus brought in contact with the local courts, he took a fancy to the legal profession, studied law, was admitted to the bar about 1826–'7, soon became famous in the Chenango valley as a "rough and ready" practitioner before justices

of the peace, and worked his way steadily upward, till he obtained a good position and a fair business in the highest tribunals. He was chosen in 1836 a member of the state senate from the 6th district, for 4 years. He took a leading part in disposing of the many important questions that agitated the senate of New York in these 4 years—as the general banking law, the small bill law, the bank suspension law, and other financial measures arising out of the overthrow of the U. S. bank and the establishment of the independent treasury, the construction of the Erie railroad, the enlargement of the Erie canal, and other works of internal improvement; and he frequently delivered opinions upon grave legal questions brought before the senate, which, as the court for the correction of errors, was then the highest judicial body in the state. He won so much reputation during these 4 years in the legislature that at the close of his term the democratic party put him in nomination for lieutenant-governor. He was defeated, but 2 years subsequently (1842) he was triumphantly elected, thereupon becoming *ex officio* president of the senate, of the court of errors, and of the canal board, for 2 years. In 1844 he was a member of the convention that nominated Mr. Polk for the presidency, and was subsequently one of the electors at large for the state of New York. In December of that year he was appointed by Gov. Bouck, and afterward chosen by the legislature, to the U. S. senate, in the place of N. P. Tallmadge, where he continued till March 4, 1851. During 7 eventful sessions he took a prominent share in the discussion of the questions that convulsed that body, such as Texas annexation, Oregon joint occupation, the Mexican war and its consequent territorial acquisitions, the Wilmot proviso, and the compromise measures of 1850. On the power and duty of congress to prohibit slavery in the territories, he differed with his colleague, Gen. John A. Dix, as also with his subsequent colleague, Gov. Seward. In Dec. 1847, he introduced in the senate two resolutions respecting territorial government, which embodied the doctrine of "popular sovereignty," so called. This being anterior to the Nicholson letter of Gen. Cass, and long previous to the Kansas-Nebraska act of Judge Douglas, the credit of propounding that doctrine belongs to him rather than to either of them. While in the senate he was the ardent advocate of a branch mint in the city of New York, of the coinage of three-cent pieces, and of the free circulation of weekly newspapers through the mails within the counties where they are published. He was an effective debater, exerted a strong influence in the senate, and was honored by it with the chairmanship of the committee of finance. Mr. Dickinson's course on the slavery question placed him at the head of the conservative or "hunker" section of the democracy of New York, and rallied around him numerous friends in all parts of the Union, and especially in the southern states. He was brought forward as a democratic candidate for the presidency in 1852, and on one of the ballots in the national convention he received the influential vote of Virginia. But the hostility of the radicals in the New York delegation was implacable. They rallied upon Gov. Marcy as their candidate. The inability of Mr. Dickinson to secure the united vote of his state in the convention was sufficient (had there been no other obstacle) to prevent his nomination. On the election of Mr. Pierce to the presidency, Mr. Dickinson was strongly pressed for the secretaryship of state. His rival, Gov. Marcy, was selected, while he was appointed collector of the port of New York, but he refused the office. For 4 years Marcy wielded the federal patronage of the state against him. This was a heavy blow to his political influence. Still a large band of adherents continued faithful to him. The spirit with which he spurned the collectorship was generally applauded by his friends. He now withdrew to his rural retreat at Binghamton, and devoted himself to the practice of the law; and for the last few years he has indicated only through an occasional letter or speech that he still takes an interest in public affairs. Mr. Dickinson is a ready *nisi prius* lawyer, a strong, dashing speaker, quick to see and seize the point in controversy, apt at repartee, with a strong vein of humor, and well suited to the exigencies of American politics, whether encountered on the "stump," in the convention, or the senate chamber.

DICKINSON, John, an American statesman, born in Maryland, Nov. 13, 1732, died in Wilmington, Delaware, Feb. 14, 1808. He studied law in Philadelphia, and subsequently at the Temple, London, and upon returning to America practised with considerable success at the bar. Upon being elected to the Pennsylvania house of assembly in 1764, he evinced unusual capacities for a legislator, and was on all occasions a ready and energetic debater. At the same time he became known by his publications upon the attempts of the mother country to infringe the liberties of the colonies. In 1765 he was elected a deputy from Pennsylvania to the first colonial congress, the resolutions passed by which were drawn up by him. In 1768 he published his "Farmer's Letters to the Inhabitants of the British Colonies," which were republished in London with a preface by Dr. Franklin, and subsequently in French in Paris. He was a member of the first continental congress in 1774, and of the state papers put forth by that body some of the most important, including the "Declaration to the Armies," the 2 petitions to the king, and the "Address to the States," were the production of his pen. He, however, opposed the adoption of the "Declaration of Independence," believing that the movement was premature, and that compromise was still practicable, and was one of the few members of congress who did not sign that instrument. So unpopular did he become with his constituents for his course on this occasion, that for several years he was absent from the

public councils, although in the interim he signified his devotion to the American cause by serving as a private soldier in Delaware against the British forces. In 1779 he returned to congress as a member from Delaware, and wrote the "Address to the States" of May 26. He was subsequently president of the states of Delaware and Pennsylvania successively, and a member of the federal convention for framing a constitution. In 1788 appeared his "Fabius" letters, advocating the adoption of the new constitution. Another series over the same signature, on the relations of the United States with France, published in 1797, was his last work. His political writings were published in 2 vols. in 1801. He was a man of elegant learning and fine conversational powers.

DICKINSON, Jonathan, an American Presbyterian clergyman, born in Hatfield, Mass., April 22, 1688, died in Elizabethtown, N. J., Oct. 17, 1747. He was graduated at Yale college in 1706, and 2 or 3 years afterward was installed as pastor of the only Presbyterian congregation at that time existing in Elizabethtown, N. J., which relationship continued until his death. His parish comprised not only Elizabethtown, but the adjoining townships of Rahway, Westfield, Union, Springfield, and part of Chatham. After the separation of the New Jersey churches from the synod of Philadelphia in 1741, it was determined to establish a collegiate institution in the former colony, and a charter for the college of New Jersey was obtained from acting Governor Hamilton. The first classes were opened in Elizabethtown, and Dickinson was elected president. His services were acceptable in an eminent degree, but he did not live to confer the scholastic degrees upon his first class. His high reputation among his contemporaries, as a preacher and a controversialist, is well sustained by his published sermons and theological treatises.

DICKINSON COLLEGE. See Carlisle.

DICKSON, a N. N. W. co. of Tenn., bounded N. E. by Cumberland river, and drained by several of its affluents; area, about 650 sq. m.; pop. in 1850, 8,404, of whom 2,118 were slaves. It has a rolling surface and a tolerably fertile soil. Grain, hay, and live stock are the principal staples. In 1850 the productions were 388,731 bushels of Indian corn, 60,985 of oats, and 10,148 lbs. of wool. There were 20 churches, and 1,755 pupils attending public schools. The Cumberland river is navigable by steamboats along the border of the county. Capital, Charlotte.

DICKSON, Samuel Henry, an American physician, born in Charleston, S. C., in Sept. 1798. He was graduated at Yale college in 1814, and immediately after commenced the study of medicine in his native city; during the prevalence of the yellow fever there in 1817, he practised for a time. In 1818–'19 he attended the medical course of lectures of the university of Pennsylvania, and graduating in the latter year, at once entered upon the practice of his profession. He was instrumental in the establishment of a medical college in Charleston, and on its organization in 1824 he was called to the chair of institutes and practice of medicine. In 1832 he retired from this position, but in the following year, on the reorganization of the institution as the medical college of the state of South Carolina, he was reëlected. In 1847 he was called to succeed Dr. Revere in the professorship of the practice of medicine in the university of New York, which he filled during 3 successive years, till in 1850 he was induced, at the earnest solicitation of his former associates in the medical college of the state of South Carolina, to return to his professorship in that institution. In 1858 he was called to the chair of practice of medicine in the Jefferson medical college, Philadelphia, which he now fills. Dr. Dickson has contributed many papers on subjects connected with his profession to various medical journals throughout the United States, and is beside the author of the following books: "Manual of Pathology and Practice of Medicine," published in New York; "Essays on Pathology and Therapeutics" (2 vols. 8vo., New York, 1845); "Essays on Life, Sleep, Pain, &c." (12mo., Philadelphia, 1852); "Elements of Medicine (8vo., Philadelphia, 1835). In addition to these professional labors, he has delivered numerous speeches, lectures, and addresses on various subjects of general utility or interest. It is a fact worthy of note that he delivered the first temperance address ever heard south of Mason and Dixon's line.

DICQUEMARE, Jacques François, a French naturalist and astronomer, born in Havre, March 7, 1733, died March 29, 1789. He was a Catholic priest; became professor of experimental physics at Havre, member of the academy of Rouen and of the royal marine academy, and invented several useful instruments in connection with astronomy and navigation. He is better known, however, by his researches into the natural history of zoophytes, infusoria, and mollusks, and particularly by his interesting discoveries relative to sea anemones, on which he published an essay in French and English (4to., London, 1774). He designed an instrument called the cosmoplane, by means of which he solved problems in nautical astronomy. Beside more than 60 papers in the *Journal de physique*, he left an *Index géographique* (4to., 1769); *Idée générale de l'astronomie* (Paris, 1769); *Connaissance de l'astronomie* (8vo., 1771).

DICTATOR, the chief magistrate in the cities of the ancient Latin confederacy, in Alba, Tusculum, &c. The Romans adopted the word from their Latin neighbors, and applied it in the earliest period of the republic to exceptional magistrates appointed in times of danger, with nearly absolute power over life and property, from which there was no appeal to law or people. The dictator was usually nominated by the senate, and appointed by one of the consuls, for 6 months, during which time the consuls and other regular magistrates continued in their office, though subject to his dictates, and

deprived temporarily of their badges of dignity. The power of the dictator was mostly limited to one object, and particularly to foreign affairs. Being elected, he appointed his lieutenant or master of the horse (*magister equitum*), and surrounded himself with his 24 lictors (twice as many as attended the consuls), armed with fasces and axes, and well adapted to strike terror into the people. He was limited only in regard to the use of the public money, and responsible only after the expiration of his term; he was not allowed to leave Italy, or to appear on horseback within the precincts of the city. Officers bearing the same title were also sometimes appointed for certain civil or religious purposes, as for public solemnities, fixing the nail in the Capitoline temple of Jupiter (*clavi figendi causa*), &c. This office was quite harmless, but in later periods dictators were appointed *reipublicæ constituendæ causa* (to form a new constitution), such as Sylla and Cæsar, whose arbitrary power destroyed the republic. The first Roman dictator, Lartius, was appointed 9 years after the establishment of the republic (501 B. C.), to save the state from the threatening allies of Tarquin, the expelled king, and the more dangerous disturbances within the walls. The young republic, based on aristocratic foundations, was distracted by the greedy and exclusive spirit of the patricians, and the threats of the oppressed but unsubmissive and unruly plebeians. The public lands were in the grasp of the former, the latter were poor and degraded. The danger from the supporters of Tarquin was imminent; the senate commanded new levies, but the people refused to obey, declaring that they had nothing to defend, and that no foreign yoke could bring upon them greater hardships than those they endured. In their disobedience they were protected by the law recently passed through the efforts of Valerius Poplicola, which permitted every citizen, condemned to any severe punishment, to appeal to the people. To evade the force of this popular law, the senate agreed upon the extraordinary measure of electing a single magistrate with almost regal power. The people confirmed the decree, and the success and honesty of Lartius proved worthy of the new dignity. In the following year, another dictator, Aulus Posthumius, destroyed the last hopes of the banished king, in a battle fought near Lake Regillus. This battle, in which the 2 sons of the unhappy Tarquin fell, gave peace to the Romans. Not less remarkable were the services of the dictator L. Quintius Cincinnatus. When he was chosen dictator, the Æqui had surrounded and threatened to destroy a consular army. Cincinnatus routed them, and the vanquished army had to pass under the yoke. Rewarded with a triumph, and with the pardon of his banished son Cæso, he resigned his dignity within 17 days. C. M. Rutilus (356 B. C.) was the first plebeian appointed to the dictatorship, and M. G. Pera (216) was the last dictator, in the original sense of the word; for the same dignity, as bestowed on Sylla (82), and 3 times on Cæsar (47, 45, and 44), meant only unlimited, despotic sway. Mark Antony abolished it altogether.—In modern history, the word dictator, beside being a title of some regular chief magistrates in South America, designates a man appointed in times of danger, legally or illegally, to save a struggling nation, and vested with all its power, without any regard to law or constitution. This power has often been exercised in ancient and modern times, though not always under the same name. In the French revolution it was the dream of Marat, and Robespierre exercised it almost fully, by the influence of terrorism on the people and the convention, but fell before he could achieve his fanatical design of remodelling the world. Poland had an eminent dictator in Kosciuszko (1794). The revolution of 1830 proclaimed (Dec. 5) Gen. Chlopicki *naczelnik;* he was a good general, but proved a wavering and worse than useless dictator; he resigned, and fought as a brave soldier. In the unhappy rising of 1846, Tyssowski was for a few days dictator in Cracow. In the late Hungarian revolution, Kossuth exercised dictatorial influence before and after the declaration of independence, April 14, 1849, but within the strictest limits of constitutionality, voluntarily narrowed by himself. Görgey took the name and burden of dictatorship only for a few days, and for the use of it in the surrender of Világos, Aug. 13, 1849, received the curse of his army and nation. Manino in Venice, and Mazzini in Rome (1848–'9), acted like Kossuth, with the same zeal and activity, and the same result. The establishment of a dictatorship was unsuccessfully attempted in Paris, shortly after the revolution of February (May, 1848).

DICTIONARY (Lat. *dictio*, a word), in its ordinary acceptation, a book containing the words of a language, in alphabetical order, with a definition annexed to each. A complete dictionary would fulfil the same office with respect to language that a universal cyclopædia fulfils with respect to arts, sciences, and literature—giving an account of the origin and applications of the verbal symbols of ideas and facts, as the latter gives an account of the ideas and facts themselves. It would, therefore, state the etymology of words, and note their variations in meaning through the successive periods of a literature. A glossary is a dictionary of obsolete, provincial, or technical words; and the term lexicon, though hardly distinguished by usage from dictionary, is more frequently applied to vocabularies of the ancient and learned languages, with the definitions and explanations in some modern language. The Greeks and Romans appear not to have employed dictionaries in learning foreign languages, but uniformly to have availed themselves of conversation with foreigners. Nor have any early attempts at Greek lexicography been preserved. The oldest extant Greek dictionary is by Apollonius of Alexandria, a contemporary of Augustus

whose "Homeric Lexicon" (Λεξεις Ὁμηρικαι), though much interpolated, has been of value in modern times in interpreting the idioms of the Iliad and Odyssey. Erotianus, a Greek writer in the reign of Nero, made a glossary of all the learned words found in Hippocrates. Subsequent Greek dictionaries were the "Onomasticon" of Julius Pollux (about A. D. 177), containing explanations of the most important words relating to various prominent subjects, the arrangement being topical instead of alphabetical; the dictionary (Ἐκλογη) of Attic words and phrases, by Phrynichus, an Arabian or Bithynian, who lived under Marcus Aurelius; the dictionary of the words that occur in Plato, by Timæus the sophist, probably of the 3d century, which, though brief, contains the best explanations of terms that have come down from the ancient grammarians; a lost universal lexicon by Diogenianus of Heraclea, which is often quoted by Hesychius and Suidas, and which was abridged from an elaborate work by Pamphilus, also lost; the dictionary to the works of 10 Attic orators, by Valerius Harpocration, of unknown date, compiled from works now lost, and of the highest importance for its explanations of legal and political terms, and its accounts of persons and things mentioned in the Attic orations; the comprehensive Greek dictionary of Hesychius, an Alexandrian grammarian of the 4th century, which, though much disfigured and interpolated in its present form, is a vast accumulation of most heterogeneous materials, and has been a principal source of our knowledge of the Greek language and of many ancient customs; the lexicon (Λεξεων Συναγωγη) attributed to Photius, patriarch of Constantinople (died A. D. 891); and the Greek lexicon ascribed to Suidas, of unknown date, first quoted in the 12th century, which contains both common and proper names alphabetically arranged, and is valuable for the literary history of antiquity, and for its citations from ancient authors, as well as for its explanations of words.—The first Roman writer on lexicography was the learned M. Terentius Varro, whose work, *De Lingua Latina*, is however rather a voluminous treatise on the etymology and peculiar uses of words than a dictionary. Fragments only of it have been preserved. The elaborate work of Verrius Flaccus, in the earlier part of the 1st century, entitled *De Significatu Verborum*, is lost; but it was the basis of a valuable compilation by Pompeius Festus, in the 3d or 4th century, entitled *De Significatione Verborum*, which was abridged by Paulus Diaconus in the 8th century. Only one imperfect copy of the work of Festus is preserved. The words are classified alphabetically according to the initial letter of each, but the order of the subsequent letters is not observed. The information which it contains has been of great importance on many obscure points connected with antiquities, mythology, and grammar. Near the middle of the 11th century Papias of Lombardy compiled a Latin dictionary from the glossaries of the 6th and 7th centuries. An indication of progressive learning in Italy in the 13th century was the *Catholicon* of Giovanni Balbi, a Genoese monk, consisting of a Latin grammar followed by a copious dictionary. The work is in Latin, forms a volume of great bulk, was written in 1286, and is now celebrated as a rare typographical curiosity, its first edition having been printed by Gutenberg in 1460. The *Cornucopia* of Perotti, bishop of Siponto, printed in 1489, was a copious commentary on Martial, followed by an alphabetical index of words, and was of much service to subsequent compilers. The first edition of Calepino's Latin dictionary appeared at Reggio in 1502. At first only a Latin lexicon, additions of the corresponding Italian, Greek, German, &c., words were successively made, till it was extended (Basel, 1590–1627) to 11 languages; and it is still the most complete polyglot lexicon for the European languages. The French give the name *calepin* to any voluminous compilation. An epoch in Latin lexicography was made by the publication of Robert Stephens's *Thesaurus Linguæ Latinæ* (1532; 3d enlarged edition, 1543), which attempted to exhibit the proper use of words, not only in all the anomalies of idiom, but in every minute variation of sense. The most noted of subsequent Latin dictionaries is the *Lexicon totius Latinitatis* of Facciolati and Forcellini (Padua, 1771; 3d edition, 1831), in which every word is accompanied by its Italian and its Greek correlative, and which illustrates every meaning by examples from the classical authors. An English edition, edited by James Bailey, was published in London in 1828. Sir Thomas Elyot was the author of the first Latin-English dictionary (London, 1538), beyond the mere vocabularies of school boys. He was a distinguished scholar, and friend of Sir Thomas More, and his work reached the 3d edition in 1545. The largest similar work that had preceded it was the *Orbis Vocabulorum*, printed by Wynkin de Worde in 1500 (5th ed., 1518), which by successive improvements became the popular Latin-English dictionary of Ainsworth (1736). The most eminent Latin lexicographers since Forcellini are the German scholars Scheller, Freund, and Georges. The work of Forcellini was the basis of the Latin-English dictionary of F. P. Leverett (Boston, 1836); and that of Freund, of the Latin-English lexicon of E. A. Andrews (New York, 1856).—The first modern Greek-Latin dictionary was that of Johannes Crastonus of Piacenza (Milan, 1480; printed also by Aldus, 1497), which was for many years the only lexicographic aid for the student of Greek. Robert Constantine published at Basel, in 1562, a thesaurus of the Greek language, in which he had the assistance of Gesner, Turnebus, Camerarius, and other learned contemporaries. It was superseded by the *Thesaurus Linguæ Græcæ* of Henry Stephens (Paris, 1572), the result of 12 years' labor, which has hardly been surpassed in the comprehensive and copious interpretation of words.

Its arrangement is not in the alphabetical order of words but of roots, the derivatives and compounds being collected after each root. It was the basis of the works of Scapula and Schrevelius. The most thorough subsequent Greek lexicons are the German works of Schneider, Passow, Seiler, Rost, and Pape. The work of Passow was the basis of the Greek-English lexicon of Liddell and Scott (Oxford, 1845; New York, edited by Henry Drisler, 1848). The Greek language was long studied through the medium of the Latin, and no Greek-English lexicon was projected until the present century. The first of these that was announced was that of John Pickering (Boston, 1826; many subsequent editions), which was partially executed in 1814. It was preceded in publication only by the similar English work of John Jones (1823).—The first standard dictionaries of modern languages were produced under the patronage of learned academies; the oldest being the Italian *Vocabulario della Crusca*, first published in 1612, which was avowedly founded on Tuscan principles, made the 14th century the Augustan period of the language, and slighted the great writers of the 16th century. In Spain the lexicon of Lebrixa (1492) and the *Tesoro* of Covarrubias (1611) were the only dictionaries of note till the new academy produced its great work (6 vols., Madrid, 1726–'39), an abridgment of which was immediately prepared, the 5th revised edition of which was issued in 1817.—Though German lexicography begins with Hrabanus Maurus, a contemporary of Charlemagne, yet the first noteworthy German lexicon was *Die Teutsch Sprach* of Maaler (Zürich, 1561), and the first learned and critical work of the kind was Frisch's *Deutsch-Lat. Wörterbuch* (Berlin, 1741). All others have been superseded successively by the work of Adelung (Leipsic, 1774), and that of the brothers Grimm (Leipsic, 1852 *et seq.;* the 2d vol., reaching to the letter E, is nearly completed, April, 1859).—The dictionary of the French academy was published in 1694, and adopted the alphabetical order in its 2d edition in 1718. The 6th edition was issued in 1835. The first volume of a new, revised, and greatly enlarged edition appeared in 1859. It reaches only to the word *abusivement*, and the work if continued upon the same scale promises to occupy the academy for many generations. The dictionary of Trévoux, named from the town where it was first published in 1704, is at once a dictionary and a cyclopædia of curious knowledge. It was enlarged in successive editions, till in 1771 it reached its present magnitude, in 8 large folio vols., and it abounds in items of antiquarian and philological information.—The object of the first lexicographical labors in England was to facilitate the study of the Latin language, and bilingual dictionaries had become common while those designed for merely English readers were rare and meagre productions. One of the earliest of the latter was that of Dr. John Bullokar, entitled the "English Expositour" (London, 1616), explaining 5,080 of what were esteemed the "hardest words." It passed through many editions. Subsequent works were the "Glossographia, or Dictionary of Hard Words," by Thomas Blount (London, 1656); the "New World of English Words," by Edward Phillips, the nephew and pupil of Milton (1658); and the "Universal Etymological English Dictionary," by Nathan Bailey (London, 1726), in which the first attempt was made to give a complete collection of the words of the language, and which was long in the highest repute, and passed through at least 27 editions. An interleaved copy of a folio edition of Bailey's dictionary was the repository of the articles collected by Dr. Johnson in preparing his dictionary. The work of Johnson, after 8 years of arduous labor, appeared in 1755, and has exerted an influence superior to any other in fixing the external form of the language and settling the meaning of words. He first introduced into English lexicography the plan of illustrating the various significations of words by examples extracted from the best authors. It was much enlarged by Todd in the editions of 1814 and 1827, and has been the basis of many smaller works. The most important subsequent dictionaries are those of Richardson, Webster, and Worcester. Richardson's "New Dictionary of the English Language" (London, 2 vols. 4to., 1835–'37) is an elaborate work, especially valuable to the student of the history of the language. Its arrangement is in the alphabetical order of the primitives, beneath each of which its derivatives are grouped. Dr. Noah Webster was engaged 36 years on his "American Dictionary of the English Language," the first edition of which was issued in 1828, in New York (2 vols. 4to.), when the author was in his 70th year. A revised edition appeared in 1840 (2 vols. 8vo.), with the addition of several thousand words which in the intervening 12 years had passed from technological science into common language; and a revised appendix was added in 1843. A new edition, revised and enlarged by Prof. C. A. Goodrich, was published in Springfield, Mass., in 1848 (1 vol. 4to., 1400 pages). This work surpasses any that had preceded it in the comprehensiveness of its plan, the copiousness of its vocabulary, the fulness of its etymological department, and the accuracy and completeness of its definitions. Dr. J. E. Worcester's quarto dictionary, which has been preceded by two minor and preparatory works of high authority, is announced to be issued in 1859 in a volume of about 1800 pages.—The title of dictionary is sometimes given to alphabetically arranged cyclopædias, as dictionaries of biography, of the arts and sciences, of medicine, law, manufactures, commerce, and various other departments. (See CYCLOPÆDIA.)

DICTYS OF CRETE, a pseudonyme of the author of a history of the Trojan war, from which some ancient grammarians have imagined that Homer drew materials for the Iliad and Odyssey. The MS. of the work, written in Phœnician characters, is said to have been found in the au-

thor's tomb at Cnossus, in the reign of Nero, who caused it to be translated into Greek. A Latin version of the first 5 books has come down to us, but the work is commonly regarded as a forgery. Dictys is said to have followed Idomeneus, king of Crete, to the siege of Troy.

DIDEROT, Denis, a French writer and philosopher, born in Langres, Oct. 5, 1713, died in Paris, July 30, 1784. He was the son of a cutler, and was first educated for the church, but soon gave up theology to enter an attorney's office in the French metropolis. Law, however, did not occupy his time so much as literature and science, which he studied with enthusiastic diligence. He was then ordered by his father to select a profession, or return home; but neglecting to do either, he was deprived of his monthly allowance and found himself without means. Not discouraged in the least, he tried to make a living by teaching; and though often reduced to the greatest poverty, his devotion to letters and his careless and enthusiastic disposition carried him through all his troubles, not only during his early years, but during the whole of his life. Still penniless and unknown, he was married in 1743, under somewhat romantic circumstances, to Mlle. Champion, who was no better treated by fortune than himself; and then it was that he began to try his pen. He wrote an abridged translation of Stanyan's "History of Greece," and contributed to a "Dictionary of Medicine," accepting at the same time any literary employment that was offered him; thus he wrote for a preacher 6 sermons which brought him 50 crowns apiece, and this he frequently alluded to afterward as one of the best bargains he ever made. His domestic life was far from exemplary, and it was to satisfy the pecuniary demands of a woman, Madame de Puisieux, with whom he had contracted an intimacy, that he wrote his *Essai sur le mérite et la vertu*, in 1745; his *Pensées philosophiques*, in 1746, the boldness of which made a deep sensation, and was punished by a sentence of the parliament; his *Bijoux indiscrets*, a collection of obscene tales, of which he was himself ashamed; and his *Lettres sur les aveugles*, "for the use of those who see," in 1749, which procured him at once an acquaintance with Voltaire and 3 months' imprisonment at Vincennes, where he was often visited by Rousseau. On his liberation, having got rid of his mistress, he breathed a little more freely, and, in conjunction with D'Alembert, framed the plan of the work upon which his reputation is mostly founded, the *Encyclopédie*. Its professed aim was to present in a single work the truths of science, the principles of taste, and the processes of all the arts; but it was in fact a vehicle for the diffusion of new ideas among the reading public. This colossal undertaking, notwithstanding all sorts of troubles and difficulties, was carried through by the unflinching energy of Diderot, who was the soul of it. The prospectus of the work, the philosophical system of human knowledge, nearly all the articles upon ancient philosophy, and all those on the trades and industrial pursuits, are from his fertile pen, while after the withdrawal of D'Alembert he had the exclusive supervision of the whole. While preparing articles on the mechanic arts he often passed entire days in workshops, examining the machines in operation, and receiving explanations from the workmen, not unfrequently taking their place himself. The most eminent liberal thinkers of France ranged themselves under the banner of the *Encyclopédie*, 2 volumes of which appeared in 1751. Its hostility to Christianity had been anticipated, and a religious party was already formed to assail it. Complaints were made to the king, and by a decree of the royal council (Feb. 7, 1752) the 2 volumes were suppressed and the printing of others forbidden during 18 months. This suspension was revoked, 5 new volumes had appeared in 1757, and the work had 4,000 subscribers, when it was again assailed with a tempest of denunciations. Pompignan attacked the *philosophes* in the academy, Fréron in the *Année littéraire*, Palissot satirized them on the stage, Le Chapelain fulminated against them in a sermon before the king, and Le Hayer wrote a work of 21 volumes (1757) in refutation of them. The court, the parliament, the Sorbonne, and the threatre combined against the *Encyclopédie*, which was again suspended (March 8, 1759). D'Alembert, either wearied or frightened, deserted his partner, and Voltaire advised Diderot to flee from his country, and to complete his work enjoying the hospitality of Catharine of Russia. He, however, struggled firmly against all obstacles, replying to no raillery, and managing so well that he interested in his behalf the duke of Choiseul, Malesherbes, and even Madame de Pompadour. Permission was obtained to continue the publication at Paris, without subjecting it to censorship; but on the title-page Neufchâtel was to be printed instead of Paris, and the name of the editor was left blank. The 10 additional volumes were thus produced with no further difficulty, except that the publisher clandestinely mutilated many of the articles in the latter volumes after the final proofs had been received from the editor. While engaged on the *Encyclopédie*, Diderot, whose elastic mind could grasp every subject, wrote books of various kinds in his own name, and greatly contributed to those by his friends. Thus a large portion of Raynal's *Histoire philosophique du commerce des Européens dans les deux Indes* belongs to him, while the most eloquent pages of *De l'esprit*, by Helvetius, and of the *Système de la nature*, by D'Holbach, are attributed to his pen. The artistical part of Grimm's correspondence, known as *Les salons*, was written by him, and several letters on different subjects bear unmistakable marks of his hand. Under the impulse of his generous nature, Diderot was always ready to help the needy, his study being a sort of consulting office, where every one was welcome to good advice or more substantial aid. His personal influence over his time could scarcely be overrated. In 1757 and 1758 he produced 2 domestic dramas,

Le fils naturel and *Le père de famille*, which, though dull performances, paved the way to the change afterward accomplished in the dramatic style in France. His industry brought him in money, but his careless manner of spending it and his dissipated habits frequently involved him in pecuniary difficulties. In 1765 he was constrained to offer his library for sale. Catharine II. of Russia, being apprised of the fact, purchased it for 15,000 francs, but on condition that he would be the keeper of it at a salary of 1,000 francs a year; she moreover ordered 50 years' income to be paid at once. When the *Encyclopédie* was completed, Diderot paid a visit to his protectress, and spent several months at her court, where he was treated with great respect. On his return to Paris he published *Jacques le fataliste* and *La religieuse*, 2 novels which have been very extensively read, and in 1779 his *Essai sur les règnes de Claude et de Néron*, which is nothing else than an encomium of Seneca. His later years were passed in comparative quiet and comfort. He superintended the education of his daughter, and, to the astonishment of his friends, used to read the Bible with the young girl. He had been all his life considered a confirmed atheist, a reputation which his vehement attacks on the religion of the day served to sustain. During the last year of his life, he was frequently visited by the curate of St. Sulpice, with whom he was pleased to talk on religious subjects; and if he did not consent to any recantation of his philosophical opinions, he showed no particular enmity to Christianity. Toward the end of 1783 he had an apoplectic fit, and peacefully breathed his last among a circle of afflicted friends. He left an only daughter, Mme. de Vandeul, who wrote *Mémoires* of his life. His friend Naigeon published an edition of his works, in 15 vols. 8vo., 1798; but a more complete one, in 22 vols., appeard in 1822. To this must be added his *Mémoires et œuvres inédites*, 4 vols. 8vo., printed in 1830.

DIDIUS SALVIUS JULIANUS, Marcus, Roman emperor for a short time under the name of Marcus Didius Commodus Severus Julianus, born about A. D. 133, killed June 2, 193. Having filled successively the offices of quæstor, ædile, and prætor, he was appointed to the command of a legion in Germany, and afterward to the government of Belgica. Here he showed much energy in repressing an insurrection of the Chauci, a tribe living on the banks of the Elbe, and as a recompense for this service he was made consul. He also distinguished himself against the Catti, was governor of Dalmatia, and afterward of Lower Germany, and was then appointed to the charge of the commissariat in Italy. Having been accused of conspiring against the emperor Commodus, he was acquitted of the charge, while his accuser was condemned to death. After this he was governor of Bithynia in Asia Minor, was again consul, A. D. 179, and having filled the office of proconsul of Africa, returned to Rome, where he was made commander of the city guards, and where he lived in an extravagant and licentious manner. After the assassination of Pertinax, the prætorian guards who committed the deed offered the imperial throne to him who would pay the highest price; and after a brisk competition with Sulpicianus, the prefect of the city, Didius succeeded in obtaining it. The senate was obedient to the will of the unruly soldiery, and Didius was acknowledged emperor. But the people were not so cringing, and the new-made ruler, whenever he appeared in public, was received with cries of "Robber and parricide." Moreover, he was not recognized as emperor by Septimius Severus, who held command of 3 legions in Illyria, by Clodius Albinus, nor by Pescennius Niger, who held like commands in Britain and Syria respectively. Severus, having been proclaimed emperor by his troops, marched upon Rome, and was recognized by the senate. Deserted by almost all his former friends and adherents, Didius was murdered in his palace by a common soldier, having reigned a little more than 2 months, and Severus established himself in his place.

DIDO, or Elissa, a Phœnician princess and founder of Carthage, daughter of Mutgo, Belus, or Agenor, king of Tyre. According to Justin, she was the wife of her uncle Acerbas, priest of Hercules, who was murdered for his wealth by Pygmalion, the son and successor of Mutgo. Dido dissembled her sorrow, and with a number of disaffected Tyrian nobles succeeded in escaping from her native country, bearing with her the treasures of her murdered husband. The party first landed at the island of Cyprus, whence they carried off by force 80 maidens, and then pursuing their journey disembarked on the coast of Africa, purchased as much land as might be covered with the hide of a bull, and by cutting the hide into thin strips enclosed a large tract of country, on which the city of Carthage soon began to rise. The colony prospered so well as to excite the jealousy of a neighboring chief, Hiarbas, who demanded the hand of Dido in marriage, and threatened her with war in case of refusal. The queen asked 3 months for consideration, at the end of which time she caused a funeral pile to be prepared, and mounting upon it plunged a sword into her breast. Her story has been told with many variations and embellishments, and Virgil, with a disregard of chronology, which the charm of his narration may well excuse, represents her as killing herself for unrequited love of Æneas. The date of her founding of Carthage is thought to be 878 B. C., though Philistus places it 37 or even 50 years before the taking of Troy (1234 B. C.), and Servius as late as 40 years before the founding of Rome (793 B. C.).

DIDOT, the name of a French family of printers who have greatly contributed to improve the art of printing in their country. The firm, now existing under the name of Firmin Didot frères, was first established in 1713 by François Didot, who made himself known by

several important publications, and gained such popularity as to be appointed syndic of the booksellers' corporation. His two sons, François Ambroise (1730–1804) and Pierre François (1732–'95), increased the business, and paid especial attention to the printing department. While the latter established paper mills at Essonne, near Paris, the former materially improved the casting of types, the best specimens of which ever seen in France were from his type foundery; and his standard editions were admired for their correctness and beauty. The *Collection d'Artois* (64 vols. 18mo.), and the *Collection des classiques Français*, printed at once in 4to., 8vo., and 18mo., by order of Louis XVI., are still highly valued. Among the sons of Pierre, Henri, a type-founder, is known for the microscopical types with which he printed some little volumes which are esteemed as gems of their kind; and St. Léger engaged in the manufacture of paper. The sons of François Ambroise, Pierre (1760–1853) and Firmin (1764–1836), who succeeded their father at the beginning of the revolution, added to the good name of the firm by publishing magnificently executed folio editions of French and Latin writers, such as Racine, Horace, Virgil, &c., known as *Éditions du Louvre*. Firmin also aimed to furnish the general reader with cheap and correct editions. He invented, or more correctly, revived the stereotype process, which he brought at once to comparative perfection, and which has proved so invaluable to the public and the book trade. A man of classical attainments, he translated Virgil's "Bucolics" and Theocritus's "Idyls." He was elected in 1827 to the chamber of deputies. His sons, Ambroise Firmin, born in 1790, and Hyacinthe, born in 1794, have succeeded him in the management of the firm, enhancing its importance by well devised improvements and additions. Their publishing establishment has scarcely a rival in the world. Its head-quarters are in the rue Jacob in Paris, while the various manufactories, offices, and shops connected with it are established in the suburbs or the immediate vicinity of Paris. While the greatest attention is given to perfecting the present system of printing, every new process receives a fair trial. The assortment of type is perhaps the richest to be found in any private establishment, including not only every possible variety of modern, but also Greek and oriental characters. A complete catalogue of their publications would cover hundreds of pages, and include the titles of thousands of works. Among those especially worthy of notice, we mention: *Monuments de l'Égypte et de la Nubie*, by Champollion the younger; *Voyage de Jacquemont dans l'Inde; Expédition scientifique des Français en Morée; Thesaurus Linguæ Græcæ* of Henry Stephens, with annotations and additions by the best French and German scholars; a complete *Bibliothèque des auteurs Grecs*, a very cheap and correct edition of the Greek writers, with copious notes and Latin translations. Their editions of the French classics are as numerous as they are valuable; while their popular publications, such as *L'univers pittoresque*, *L'encyclopédie moderne*, *La nouvelle biographie générale*, &c., leave nothing to be desired in point of cheapness and correct execution. An idea may be formed of the importance of their present transactions by the fact, that on an average they print 140 reams of paper, or about 70,000 sheets, a day. The two heads of the firm are now aided by their sons Paul and Alfred, who have been by special training prepared to conduct the business of the firm and maintain its reputation.

DIDRON, Adolphe Napoléon, a French writer upon Christian art and archæology, born in Hautevillers, department of Marne, March 13, 1806. He travelled on foot through France, examining all the remarkable mediæval monuments, particularly those of Normandy. In 1838 he delivered in the *bibliothèque royale* a course of lectures on Christian iconography, after which he made a journey to Greece to compare the art of the Greek church with that of the West, and to obtain access to certain mediæval manuscripts. On his return to Paris he delivered another course of lectures, and in 1845 founded there an archæological publishing house, and a manufactory of painted glass. He was appointed in 1835 by the minister of public instruction secretary of the historical committee of arts and monuments, and is the author of the elaborate and interesting reports issued by that committee. He is also the editor of the "Archæological Annals," a periodical established by him in 1844, devoted particularly to the archæology of the middle ages, and in preparing which he is assisted by the principal archæologists, architects, designers, and engravers of Europe. His most important publication is his "Christian Iconography," of which an English translation was published in London (12mo. 1851).

DIDYMIUM (Gr. διδυμος, twin), a metal discovered in 1841 by Mosander in the mineral cerite, and named for its resemblance to the metal lanthanum, which occurs in the same mineral, and for the persistence with which its salts remain combined with those of this metal. The rose color of the salts of lanthanium is probably due to the presence of didymium. But neither of the two metals, nor the cerium with which they occur, possesses any special interest.

DIDYMUS, an Alexandrian grammarian and critic, born about 64 B. C. He was remarkable for his industry and the voluminousness of his writings, in consequence of which he received the nicknames of Χαλκεντερος, or brazen-bowelled, and Βιβλιολαθας, or forgetter of his books. The number of his works is stated by Athenæus at 3,500, and by Seneca at 4,000.

DIEBITSCH, Hans Karl Friedrich Anton, count, a general in the Russian service, born at Gross-Leippe, Silesia, May 13, 1785, died at Kleczewo, near Pultusk, in Poland, June 10, 1831. His father, who served under Frederic the Great and Frederic William II. of Prussia, and subsequently under Paul in Russia, sent him

in 1797 to the house of cadets in Berlin, but made him enter the ranks of the Russian imperial guard in 1801. He fought bravely in the battle of Austerlitz in 1805, in those of Eylau and Friedland in 1807, was made captain, devoted himself with zeal to the study of military science during the 5 years of peace which followed the treaty of Tilsit, served with great distinction under Wittgenstein during the invasion of the French in 1812, compelled, or rather persuaded, the Prussian general York to capitulate, was active as chief of Wittgenstein's staff in 1813, distinguished himself at Lützen, and was then attached as quartermaster-general to the corps of Barclay de Tolly in Silesia. Here he contributed to the conclusion of the secret treaty of Reichenbach between Russia, Prussia, Austria, and England, in June, 1813. He fought at Dresden, as well as at Leipsic, where he was made by Alexander lieutenant-general on the battle field. In the French campaign of 1814, when Schwartzenberg, frightened by the bold march of Napoleon, who threw himself between his army and the Rhine, advised the retreat of the allied armies, it was Diebitsch who decided for the march on Paris, which terminated the war. Arrived at Montmartre, the emperor Alexander embraced him, and decorated him with the order of Alexander Nevskoi. In 1815 he was married to a niece of Barclay de Tolly. After the return of Napoleon from Elba he was sent to the first corps, but was soon recalled to serve as adjutant of the emperor. Being made chief of the staff of the army, he accompanied Alexander on his journey through the south of Russia, and was present at his death at Taganrog in 1825. Having been sent with the news of this event to the grand duke Constantine at Warsaw, he returned to St. Petersburg, where he distinguished himself during the revolutionary outbreak of Dec. 25 by intrepidity, prudence, and humanity. The new emperor, Nicholas, rewarded his services with the title of baron, and afterward with that of count. In the war of 1828–'9 against Turkey, he acquired new renown by the taking of Varna, and by the crossing of the Balkan, which forced the Porte to make the peace of Adrianople, and procured him the name of Zabalkanskoi (Transbalkanian). Having spent some time at Berlin, he hastened to St. Petersburg at the news of the outbreak of the revolution in Warsaw, Nov. 29, 1830, and was appointed commander-in-chief of the army which was sent to put it down, as well as governor of the provinces adjoining Poland. Commencing the campaign in the midst of winter, he crossed the Polish frontier, Jan. 25, 1831; but the first engagements at Wisniew and Stoczek, Feb. 11, at Dobre on the 18th, at Grochow and Wawer on the 19th, in which the Poles fought heroically against overwhelming numbers, and still more the battles fought about the end of March in the vicinity of Praga, proved that fortune had left his banners. Without profiting by the favorable issue of the bloody battles of Nur, Lomza, and Ostrolenka (May 15–26), he removed his camp to Kleczewo, where he was suddenly overtaken by death, which was officially attributed to the cholera, but by general rumor to poison. Certain it is, that his deposition was determined upon, and that shortly before Count Orloff had arrived at the camp from St. Petersburg to examine into the condition of the army.

DIEFFENBACH, Johann Friedrich, a German surgeon, born in Königsberg, Prussia, in 1792, died in Berlin, Nov. 11, 1847. He was the son of a professor of theology, and at first devoted himself to that study, but broke off this peaceful pursuit to join in the war against Napoleon, serving as a volunteer in a company of Mecklenburg troops from 1813 to 1815. He afterward resumed his theological studies, which, however, he exchanged for the more congenial pursuit of medicine. Having taken his medical degree at Würzburg in 1822, he established himself at Berlin, where he had great success as a surgeon, and where, in 1830, he was appointed head surgeon of one of the hospitals, 2 years after professor in the university, and in 1840 director of clinical surgery in the same institution. Dieffenbach was especially distinguished for his remarkable dexterity in the use of the scalpel, for the success of his operations in the formation of artificial noses, cheeks, lips, &c., and for the cures which he effected in cases of squinting and stammering. He was, however, not eminent as a lecturer. Among his works may be mentioned the "Operative Surgery," his masterpiece, which has been translated into several different languages; "Surgical Experiences, especially with regard to the Restoration of Portions of the Human Body which have been destroyed;" "The Cure of Stammering by a new Surgical Operation;" and "On the Cutting of the Sinews and Muscles."

DIEL DU PARQUET, Jacques, a French colonial governor, died at St. Pierre, Martinique, Jan. 3, 1658. In 1638 he was appointed governor of Martinique by his uncle, D'Énambuc, the founder of the French colony on that island, and also of that on the island of St. Christopher. This appointment was afterward confirmed by the company which then had control of French affairs in the islands of America, and Du Parquet held the office until his death. He exerted himself vigorously to promote the welfare of the colony, which was in a miserable condition when he assumed the control of its affairs, and his efforts were attended with a gratifying success. He purchased from a Carib chief one of the small islands of the West Indies, and the seller, afterward repenting of his agreement, made war upon the colonists whom Du Parquet had established there. The contest was long and bloody, but at last the French compelled the savages to submit. Du Parquet introduced the cultivation of the sugar cane into Martinique. In 1650 he went to France, where he purchased for a large sum of money and an annual rent the ownership of the islands of Martinique Sainte Alousie, Grenada, and the Grenadines. He ad-

ministered the affairs of the colony with success for a period of nearly 20 years, and after his death, his wife, who was a woman of great energy, governed in his place for a time; but having been struck with paralysis, she embarked for Europe, and died on the passage in Aug. 1659.

DIEPPE, a seaport town of France, in the department of Seine-Inférieure, on the English channel, at the mouth of the Arques, 93 m. N. N. W. from Paris; lat. 49° 56′ N., long. 1° 5′ E.; pop. in 1856, 18,226. It extends a mile along the coast, has wide and regular streets, and its houses, mostly of the same style, are built of brick, 2 stories high, with balconies toward the street. The finest hotels and residences are near the harbor, on the Grand rue, or main street, which runs parallel with the sea the whole length of the town. The most remarkable public edifices are the churches of St. Remy and St. Jacques. The latter is a large structure in the Gothic style, was commenced in 1200, and not completed till after three centuries, and is built entirely of stone brought from England. The former is in the mixed Gothic-Saracenic style. Dieppe is well supplied with water by means of an aqueduct 3 m. in length, cut in the solid rock, which supplies 68 public and numerous private fountains. The port, enclosed by 2 jetties, is spacious and secure, with a basin of sufficient depth for vessels of 600 tons, but the entrance to it is difficult. Dieppe has 2 suburbs, La Barre and Le Pollet, and is the seat of a court of first resort and of a communal college. Its manufactures in ivory are the most famed in Europe. Its present distinction, however, is due mainly to its sea-baths, which, with its pure air and picturesque situation, have made it the chief watering place of France. The principal bathing establishment is an immense hotel, combining reception rooms, ball, concert, and billiard rooms, a theatre, and literary, social, and convivial saloons. In the early part of this century it first became, under the patronage of the gay duchess de Berry, the rendezvous during the summer of the noblest families in France. Dieppe was founded in the 10th century, in so favorable a position that in less than 4 centuries it had become the rival of Rouen. Dieppe mariners discovered Canada in the middle of the 16th century, and formed the first French settlements on the banks of the Senegal. It was bombarded by the English and Dutch in 1694.

DIEREVILLE, ——, a French traveller, born in Pont l'Evêque in the 17th century. He sailed for Acadia in 1699, remained there one year, and on his return published an account of the country, at first in verse, and afterward in prose (Paris, Rouen, and Amsterdam, 1708–'12). He brought back from America several new plants, one of which Tournefort named after him.

DIES IRÆ, the opening words of a celebrated Latin hymn upon the last judgment, which, on account of the sublimity of its ideas, and the fervent sentiment which pervades it, was early received into the liturgy of the Catholic church. The authorship of this terrible and beautiful poem has been variously ascribed to Gregory the Great in the 7th century, to St. Bernard of Clairvaux in the 12th, and to two Dominican monks and devotional poets, Umbertus and Frangipani, in the 13th. It is more probable that the true author was a Franciscan, Thomas de Celano, who was born in Abruzzo in 1221, was appointed guardian of the Minorite convents at Mentz, Worms, and Cologne, and in 1230 returned to Italy, where he died in 1255. When the Catholic church adopted this hymn into its liturgy, and added it to the service for the dead, cannot be precisely known, though it was certainly before the year 1385. At that time the text suffered some modifications; the beginning was omitted, and some verses added, composed by Felix Haemmerlin, who was hence for a long time regarded as the author of the entire hymn. It is as thus modified that it was included in the Roman missal, published in 1567 by order of the council of Trent, which is still used by the Roman Catholic church. The original text, *Dies iræ, dies illa*, is engraved upon a marble tablet in the church of St. Francis, at Mantua.

DIESKAU, Ludwig August, a German general who served in France, Germany, and America, born in 1701, died at Surenne, near Paris, in 1767. He was adjutant of Marshal Saxe, in whose interest he visited St. Petersburg in 1741. He accompanied him in the campaigns against the Netherlands, and became in 1748 brigadier-general of infantry, and commander of Brest. In 1755 he sailed as field marshal to Canada, at the head of French troops, to assist in the campaign against the English. With 600 Indians, as many Canadians, and 200 regular troops, he ascended Lake Champlain with the design of attacking Fort Edward. He defeated a detachment under Col. E. Williams, which had been sent against him, and pursued them to the British camp with the hope of entering it. The savages, however, halted just without the intrenchments, the Canadians became alarmed, and the regulars perished before the fire of New England marksmen. Dieskau, thrice wounded, refused to retire from the field, but, indignant at the conduct of his troops, seated himself on the stump of a tree, exposed to the rattle of the bullets. He was hit by a random shot after the flight of his army, and though wounded incurably, returned to Europe and lived several years, receiving a pension from France.

DIET (Fr. *diète*), a term applied to several political bodies of mediæval and modern Europe, corresponding to the parliament in Great Britain, the cortes in Spain and Portugal, the states-general, national assembly, and chambers in the history of France, and the congress in the United States. The derivation of the term from the Latin *dies*, day, as meaning a day fixed for the national deliberations on public affairs, is proved by the corresponding words in German (*Reichstag*), Dutch (*Rijksdag*), Swedish (*Riksdag*), and Danish (*Rigsdag*), all of which mean day of the empire; by the similar Swiss

term for the Helvetian diet (*Tagsatzung*), and by the verbs *tagen*, to be assembled, in German, and *ajourner*, to adjourn, in French, derived respectively from *Tag* and *jour*, day. It is used by English and French historians of the state assemblies of the German empire and confederation, Poland, Hungary, Sweden, Switzerland, and some other countries, to which the Germans apply the distinctive appellations of *Reichstag*, *Landtag*, *Landstände*, *Bundestag*, *Tagsatzung*, &c. The constitutional organization of the diets still existing in European states is described under the respective heads of the countries, while we add here a few remarks on those which, belonging to the past, are only historically important. The diet of the German empire, which must not be confounded with the popular assemblies of the Germanic nations in the Carlovingian times, or with the assembly (*Bundestag*) of the German confederation as established by the congress of Vienna, had its rise after the dissolution of the Frankish empire, and was slowly developed under the successive German houses, undergoing material changes, particularly in the reigns of the emperors Charles IV. in the 14th century, Frederic III. in the 15th, and Charles V. in the 16th, until it received its ultimate modifications by the treaty of Westphalia in 1648, and the session of Ratisbon in 1663. From this date down to the dissolution of the empire in 1806, Ratisbon became its permanent seat, while in previous times the emperor had the privilege of choosing the place of its sessions. The emperor, who formerly appeared in person, was now represented by a principal commissary, and all members of the empire by plenipotentiaries or agents. The diet consisted of 3 divisions, the so-called colleges of electors, princes, and imperial cities. The elector of Mentz, the archchancellor of the empire, presided in the electoral college, the archbishop of Saltzburg and the archduke of Austria alternately in the college of princes, and the city where the session was held in that of the cities. The electors and cities had individual votes, as well as the chief members of the college of princes, while the imperial counts and imperial prelates, who belonged to the latter, had only collective votes by benches, of which there were 4 of counts and 2 of prelates. Resolutions were passed by majority, except in religious matters and those concerning individual members of the empire alone. But the concurrence of all the 3 colleges and the ratification of the emperor were required to establish a decree of the empire (*Reichsschluss*). Concurrence in case of difference of opinion was obtained by reconsideration and conference. The emperor had the right of rejection, but not of modification. The collection of resolutions passed and sanctioned by a diet was termed imperial recess (*Reichsabschied*). The diet framed the laws of the empire, abolished and explained them, declared war and made peace, received and sent ambassadors, and concluded treaties. Imperial wars were proposed by the emperor, decided upon by majority, and carried on by the contingents of both the majority and the minority. —The Polish diet (*sejm*) dates principally from the reign of Ladislas the Short, who in 1331 assembled all the nobles of his kingdom. Its form was established by law under Casimir IV. In the last period of independent Poland it was convened regularly every 2 years, for a session of no more than 6 weeks, twice successively in Warsaw and the 3d time at Grodno, in Lithuania. It consisted of a senate and a chamber of deputies (*posel*, plur. *poslowie*). The latter were elected in previous municipal or district assemblies (*sejmik*, little diet). After the verification of their powers, the diet elected their president or marshal (*marszalek*). The most remarkable feature of the Polish diet is the so-called *liberum veto*, or the right of each member to prevent the enactment of a law or measure by individual opposition (*nie pozwalam*, I do not allow, or *veto*). This extreme of liberty, unknown in the history of any other nation, was remedied in part by confederations formed by the majority for the execution of its designs, and by timely application of violence, which silenced bribed or treacherous opponents; but it also led to fatal distractions, scenes of bloodshed, the permanence of factions, and finally, with other causes, to the fall of Poland. The diet of election was preceded by a diet of convocation, the archbishop of Gnesen, the primate of the state, having announced in a circular the death of the king, and the vacancy of the throne. Hereupon all nobles appeared personally, assembling on the plain of Wola, near Warsaw, the senate in a shed (*szopa*), the common nobles in the *kolo* (circle). A diet of coronation, and, if that of election had been stormy, another of pacification, followed.—The diet of Hungary (*diéta*, or *országgyülés*), formerly convened at various places, was finally regularly held at Presburg, except in the revolutionary periods, under Rákóczy and Kossuth. It consisted of 2 houses, the upper, or table of magnates, and the lower, or table of deputies. In the latter, previous to the law of 1848, only the representatives of the nobles in the counties had a decisive personal vote.

DIETERICI, Karl Friedrich Wilhelm, a German statistician and economist, born in Berlin, Aug. 23, 1790. He began his university studies in Königsberg, devoting particular attention to mathematics, and continued them in Berlin, where, in 1812, he became tutor in the family of Klewitz, minister of state. He studied history and law under Eichhorn, Rühs, Savigny, and Hoffmann. In 1813 he was appointed engineer in the army of Blücher, and in this position made the campaigns of 1813 and 1814. In 1815 he again served under Blücher, and in 1820 he was employed in the ministry of public instruction under Stein. In 1834 he was appointed professor of political science in the university of Berlin, and in 1844 succeeded Hoffmann in the direction of the statistical bureau. His writings are numerous, principally upon subjects of political econ-

omy. The most valuable of them are his "Statistical Survey of the most important Objects of Traffic and Consumption in the Prussian State and the German Commercial Union," and his "Prosperity of the People in the Prussian State."

DIETETICS. For his complete nutrition man must have presented to him in his food the albumen or fibrine of which his tissues are mainly composed, the iron and the salts contained in those tissues and in the blood and fatty matter, or some substance which can readily be converted into fat, which enters into the composition of his body, and which serves to maintain the animal heat. (See ALIMENT, ANIMAL HEAT, and ABSTINENCE.) But food must not only contain all the principles necessary to nutrition, it must likewise be digestible and assimilable; it must be capable of being disintegrated and dissolved in the alimentary canal, so that it may be absorbed, and finally converted into blood from which the waste of the tissues may be supplied. Digestibility and nutritive value bear no necessary relation to each other; an article of food may be highly nutritious and yet exceedingly indigestible, or it may be easily digestible and yet afford but little nutriment. While certain articles and classes of articles are in general more digestible, there is no rule of invariable application. There are innate differences in kind as well as in degree in the digestive as in the intellectual powers of mankind; and what will offend the stomach of one man, another no stronger or healthier will digest with ease. But aside from individual peculiarities, of which more will be said further on, there are other causes of difference more general in their character. 1. Habit has in this way great influence. What men have been used to, they digest with greater facility. An American or Englishman visiting the continent of Europe is frequently attacked with diarrhœa from an unaccustomed diet, which experience proves is equally wholesome with his own. During the revolutionary war numbers of the troops from the southern states while on duty at the North became ill, and their health was only restored by an allowance of fat bacon. The ill-fed Irishman on enlisting into the British army frequently is affected with what is termed a "meat fever;" his new diet is so much superior to what he was accustomed to, that his organs do not readily adapt themselves to the change. 2. The circumstances of the system have a great influence on the digestibility of food. A diet suited to Canada or Labrador would be oppressive and injurious in the West Indies or on the isthmus of Panama; the season, amount of clothing, exposure, exercise, have an influence on the digestive capacity as well as on the requirements of the system. 3. The digestibility of food is much influenced by our liking for it; within certain limits, what we are fond of agrees with us, and what we dislike is not apt to digest well. The *haut goût* which excites the appetite of the epicure provokes nausea in a less cultivated stomach. Still despite the various sources of diversity, some articles are for the majority of men of comparatively easy digestion, others are assimilated with greater difficulty.—Food is commonly classed in 2 great divisions, according as it is derived from the animal or vegetable kingdom. Animal food again may be subdivided into the flesh of mammals, birds, fishes, reptiles, crustaceans, and mollusks. The flesh of the mammals, and indeed of the birds and fishes used for food, differs very little in chemical composition. The fibrine, albumen, and gelatine of which chiefly they are made up, may be considered as chemically identical, from whatever animal they may be derived. The fats differ in the relative proportions, and sometimes in the character of the fatty acids which enter into their composition. The saline matters, varying in their proportions, are mainly of the same character, while the immense variety of flavors by which they are distinguished depend upon principles existing in exceedingly minute proportions, and for the most part soluble in water. The difference in meats arises from the varying proportions of fibrine, gelatine, and fat, and from variations in mechanical texture, and to these circumstances is due their difference in digestibility. Whatever renders the animal fibre harder, makes the meat less digestible; whatever renders it more delicate and tender, more easily separated and disintegrated, makes it more easily soluble in the juices of the stomach. Provided an animal has reached maturity, the tenderness of its meat is increased by youth, by its not having been worked, by its being in good condition, the muscular fibres interpenetrated and separated by minute proportions of fatty tissue. Keeping tends very much to improve the tenderness of meat. Few animals are fit to be eaten the day they are killed; but when kept, long before the slightest taint can be detected, a change takes place that renders the fibres more easily separated and disintegrated, more readily broken down and comminuted during mastication, and more quickly reduced and assimilated by the stomach. Of the different meats, venison that has been well kept is, in its season, perhaps the most tender and digestible. In Dr. Beaumont's experiments he found that in St. Martin a meal of broiled venison steak was completely digested and removed from the stomach in 1½ hours, a shorter time than was required by any other meat. Wether mutton of a proper age, that has hung for a sufficient length of time, is scarcely inferior in digestibility to venison. Beef ranks next to mutton. The flesh of the lamb and of the calf are less digestible than mutton or beef, and of the two, veal is less readily digested than lamb. Of all the meats in ordinary use, pork is most refractory to the gastric juices; and, contrary to what holds with regard to beef and mutton, the sucking pig is more digestible than pork. The fat of meats generally, and all varieties of fatty matters, are difficult of assimilation; they are particularly offensive to weak stomachs, sometimes appearing to form an oily pellicle,

which, floating on the partially chymified mass, becomes rancid and occasions distressing heart-burn and nausea, or causes eructations of acrid matter which leave a peculiarly disagreeable taste upon the palate. The mode of dressing meat has a great influence upon its digestibility; that which agrees best with the majority of stomachs is broiling. The fire should be brisk, so that the albumen on the surface of the meat may be rapidly coagulated; this preserves the juices of the meat, and it is rendered at once more savory and more tender. The same rule applies to boiling and roasting. When the meat is to be cooked, if boiled, it should be at once plunged into boiling water; the coagulation of the albumen on the surface thus produced, protects the interior from loss; while if soup is to be made, the meat should be put into cold water and the temperature slowly and gradually raised, thus extracting its nutritious fluids to the greatest possible extent. Of all methods of cooking, frying is the most objectionable; not only is the meat rendered harder than when boiled, and thus more indigestible, but it becomes imbued with boiling fat, and is thus rendered still more refractory to the gastric juice. Rich stews are objectionable on the same account; the fat set free by the heat penetrates and is absorbed by the meat, and renders it liable to offend delicate stomachs. By the action of salt on muscular flesh, the juices of the meat are abstracted; in this manner not only is its nutritive value impaired (see ALIMENT), but it is rendered harder and drier and consequently more indigestible; the longer the flesh is exposed to the action of salt, the harder and drier it becomes. Perhaps all fats form an exception to the fact that meat is rendered more indigestible by salting; they have little water to lose, and their texture cannot consequently become consolidated; fat pork is even rendered more digestible by salting. St. Martin, according to Dr. Beaumont's observations, digested recently salted pork when raw or broiled in from 3 hours to 3 hours and 15 minutes; the same article fried occupied him 4 hours 15 minutes for its reduction; while fresh pork, fat and lean, roasted, required 5 hours 15 minutes. On the other hand, boiled fresh beef with a little salt was digested in 2 hours 45 minutes, while old salted beef required 4 hours 15 minutes when dressed in the same manner. All empyreumatic substances impair digestion by interfering with the action of the animal matter, the pepsin, which is the principal solvent agent of the gastric juice. In this manner smoking impairs the digestibility of meat; few things are more difficult of management by a feeble stomach than old and well-smoked beef. Of poultry, the turkey is most digestible. St. Martin found fowls, roasted or boiled, of slower digestion than beef; ducks and geese, as might be supposed from the amount of fat they contain, are assimilated with difficulty. Fish furnishes an abundant and digestible variety of food. The dry, white sorts, cod, haddock, bass, &c., are the most digestible; while the richer kinds, salmon, shad, mackerel, eels, &c., are less apt to agree with the stomach. St. Martin digested boiled or fried salmon trout in 1½ hours, boiled dried cod in 2 hours, fried catfish in 3 hours 20 minutes, and boiled pickled salmon in 4 hours. Milk, the only food during the earlier months of infancy, contains from 12 to 13 per cent. of solid matter, about ⅓ of what is contained in flesh; it is poorer in plastic and richer in respiratory food; its ash furnishes but 0.47 per cent. of iron, while those of flesh and wheat flour yield 1 per cent. It is not digested so quickly as would be supposed, and in this respect boiled has the advantage of unboiled milk; the one took St. Martin 2 hours, the other 2¼, to convert into chyme. Milk disagrees with a great many persons; this is often connected with the readiness with which it undergoes change when exposed to the atmosphere, and this change commences long before it can be recognized by the taste. Milk just drawn from the cow agrees perfectly with many persons who are unable to take it when a few hours old. When cows are kept in an impure and confined atmosphere, it has been conclusively shown that their milk produces disturbance of the digestive organs and diarrhœa in infants who are fed upon it, and there is good reason to believe that constitutional diseases, scrofula and phthisis, may be thus developed. The caseine of milk, coagulated, generally mixed with more or less butter, and pressed so as to free it from the whey, constitutes cheese. Its richness varies with the quantity of butter it contains; some varieties, Stilton for instance, are made from milk to which an additional quantity of cream has been added. Salt is used to preserve it, and some kinds, as Dutch cheese, are very highly salted. When cheese is kept for a length of time, it undergoes a number of changes, partly dependent on the liberation of the volatile fatty acids existing in the butter, partly in the richer varieties, on the commencement of putrefactive fermentation. The firm, close texture of cheese renders it always hard of digestion, and the rich and strong-smelling varieties are particularly to be avoided by delicate stomachs. Fresh sweet butter is, perhaps, the most wholesome and digestible of fatty matters; by heating or rancidity its digestibility is greatly impaired.—Of farinaceous articles, light well-made wheaten bread, from 12 to 24 hours old, is the most generally digestible; warm bread is indigestible, because it forms a tough mass not readily penetrated by the saliva and rebellious to the gastric juices. Unleavened bread, maccaroni, and vermicelli are wholesome, and agree well with the stomach; on the other hand, flour combined with fatty matter, whether in the form of pastry, cake, or pudding, is more or less indigestible, according to its texture and richness. Next to wheat flour, rye affords the best and most wholesome bread. In various countries oatmeal, barley, and maize are used as substitutes for wheat; they form kinds of bread wholesome enough for those habituated

to its use, but apt to disagree with strangers. In tropical countries rice to a great extent takes the place of the other cereals, and perhaps a larger population mainly subsist on it than on any other single article of food. It affords very little of plastic or blood-making material, and hence when taken alone is consumed in enormous quantity; as an adjunct it forms an unstimulating and digestible article of food. The leguminous seeds, peas and beans, afford a nutriment rich in plastic matter, but hard of digestion and predisposing to flatulence. Sugar is used chiefly as an addition to other articles of diet; when refined, it contains no plastic matter, and is simply a heat-producing aliment, in general abundantly wholesome; the popular prejudice that it produces caries of the teeth has no good foundation. Closely allied to sugar are the various forms of fecula, arrow root, tapioca, sago, potato starch, &c. They consist of minute granules enclosed in a membranous envelope; this membrane must be burst by heat or panification before the starch is digestible. It is then an unstimulating food, entirely respiratory in its character, it containing little or no plastic matter. Contrary to general opinion, young infants digest starch with difficulty, and when fed largely upon it, pass it unchanged by stool. Vegetables constitute an important part of our diet. With few exceptions their nutritive value is low; they consist largely of water holding organic salts in solution, of starch granules, of small quantities of albuminous matter, and of cellulose and epidermis. The cellulose, though possessing a chemical constitution identical with that of starch, when at all firm, resists the action of the gastric juice, and passes unchanged through the intestinal canal. They are valuable on account of their large quantities of organic salts, of the bulk which they give to the food, and of their stimulating effect upon the peristaltic action of the intestines. These latter qualities make them disagree where the digestive organs are feeble and irritable. They are digestible in proportion to their tenderness and the readiness with which they can be broken up into a pulp. The potato has about the same nutritive value as rice; it requires to be thoroughly masticated, and is therefore an unsuitable article for young children. St. Martin found potatoes roasted and baked disposed of more readily than when boiled, the one taking 2 hours and 30 minutes to be converted into chyme, the other an hour longer. The same rule applies to fruits as to vegetables; they are digestible just in proportion to the readiness with which they can be completely reduced to a pulp. Ripe strawberries, peaches, oranges, grapes, rarely disagree, while cherries, apples, pears, &c., are more indigestible; roasting improves the digestibility of apples by rupturing the cells in which their juices are imprisoned.

DIETRICH, Christian Wilhelm Ernst, also called Dietrioy, a German painter and engraver, born in Weimar, Oct. 30, 1712, died in Dresden April 24, 1774, excelled principally in the imitation of the great masters, especially Rembrandt, though he copied with great success the styles of other eminent painters.

DIFFERENTIAL CALCULUS, the science called by the English fluxions, is the most valuable of mathematical modes, from the great variety of subjects to which it is applicable, and from the strength of its solvent power. Its discovery is justly assigned to the latter part of the 17th century, although there were doubtless some hints of it among earlier writers. Archimedes had demonstrated the area of a parabola to be $\frac{2}{3}$ of its circumscribing rectangle, and also the truth of his celebrated propositions concerning the sphere and the cylinder. Kepler, seizing the spirit of his method, introduced the words infinite and infinitesimal into geometry. Cavalieri, Roberval, and Fermat enlarged the application of his mode. In the meanwhile Vieta, Cardan, Harriot, and others had improved algebra, and Descartes had applied it to geometry by his invaluable system of variable coördinates. Thus the way was prepared for Leibnitz and Newton, who, independently of each other, invented the differential calculus, although differing in the form in which they conceived of and expressed the same truths. Newton's discovery or invention was made in 1665, and that of Leibnitz several years later. The notation of the latter was so convenient, and his mode of attacking the subject had such a practical superiority for the learner, that Newton's method of fluxions has now gone completely out of use; although in a metaphysical point of view Newton's mode is not open to the objections which may be brought against that of Leibnitz. The discovery of this method originated in the investigation of curved lines, but is extended to the consideration of every species of magnitude. Newton conceived of a curved line as generated by the motion of a point; and the spirit of his method consists in determining the velocity with which the point, at each instant, is moving in a given direction different from that of the line; that is, *e. g.*, if the point be moving in a general southwesterly direction, in determining the velocity with which it souths compared with that with which it wests. The spirit of Leibnitz's method consists in supposing the curve to be composed of infinitely short straight lines, and in determining the direction of each of these little straight arcs. What Newton called the inverse method of fluxions is now called the integral calculus. It consists in finding from the ratio of infinitesimal changes the magnitude and law of connection of the changing quantities. The whole calculus is too difficult and abstruse for any popular exposition. The reader may find general views upon the subject in Davies's "Logic of Mathematics," and Comte's "Philosophy of Mathematics," translated by Prof. Gillespie, or in French in Carnot's *Reflexions*. For gaining a practical acquaintance with the science there are numerous accessible treatises, among which

Church's and Courtenay's are well adapted to ordinary students, but Peirce's conducts much more rapidly into the highest walks. Of English treatises, Price's holds the highest rank. The French have been prolific writers upon the subject; among them Duhamel perhaps holds as high a rank as any.

DIFFRACTION OF LIGHT, the deviation from a straight line which a ray of light undergoes in passing near the edge of an opaque body. In whatever way light be transmitted, the luminous influence may be regarded as propagated in the manner of a succession of hollow spheres, or shells, that spring forth from the surface of the luminary and enlarge with almost inconceivable rapidity on all sides of it through space. In the undulatory theory of light, each of these shells is considered to be a wave, or we may say, a wave-front, advancing in the form of a spherical surface, as ripples about an agitated point upon a pond of water spread outward in concentric circles. But in a homogeneous medium, the line of effect, or that in which the agitation is propagated outward from the centre of disturbance, is a straight line; and thus we say that light advances in rays, and that in a uniform medium these are straight. To this law, however, one important general exception has been found. Grimaldi, an Italian Jesuit, about the middle of the 17th century, observed that when through 2 small orifices near together 2 pencils of the sun's light—diverging, of course, in consequence of the size of the sun's disk—were admitted to fall on a screen at several feet distance in an otherwise dark room, the overlapping parts of the 2 disks of light thus obtained were brightly illuminated, while on either side of this central bright band there were alternating curved bands of less and greater illumination and showing the prismatic colors. The effect is still better seen when the pencils are made more divergent by being each brought by a convex lens to form a minute focus, beyond which the rays must again separate. These bands are known as "Grimaldi's fringes." If 2 narrow slits in the shutter are employed, the result is a bright band running longitudinally through the middle of the space occupied by their light on the screen, with alternating fringes on the 2 sides. So, if in the centre of a single divergent beam a small opaque body be held, the actual complete shadow of it on the screen is less in size than the geometrical shadow; but it is surrounded by alternating light and dark bands to a distance which again causes the shadow in part to encroach on the surrounding space. The same result, in a degree, really happens with a single small pencil; and in fact, all shadows are in this way to some extent encroached on by surrounding light, and all edges of light by shadows. Here, then, is a set of cases in which the rays of light deviate from straight lines; and it may be stated that, generally, rays of light grazing upon the edges of orifices or of bodies are bent more or less out of a straight line, being turned apparently both within and without their previous direction. This action is the diffraction of light. Newton attempted to explain this action of the edges of bodies in accordance with the theory of emission, by supposing that the edges exerted some influence of attraction or repulsion, according to the condition in which the imagined luminous particles met them. But it was found that when the light employed in these experiments was monochromatic, as red only, or yellow, the bands produced in any case were simply light and dark, *i. e.*, of the given color and absolutely black. And Dr. Young discovered in 1803 that in order to obliterate all the special fringes obtained in the case of 2 orifices, it was only necessary to cover up one of them; portions of the spot obtained from the other which were before crossed by dark bands immediately became light. It thus became evident that light can be added to light in such a way as to produce darkness. In water waves, a crest and a trough of equal depth, that is, 2 equal waves in opposite phases, coming together, neutralize each other, and give still water over the space thus occupied; and 2 sound waves may also so blend as to produce silence. Fresnel in 1815–'16 read before the French academy of sciences the results of his investigations of this set of phenomena, which he, as well as Dr. Young before him, judged could not be explained by the theory of emission, but which he found perfectly in harmony with consequences flowing from Huyghens's undulatory theory of light. By varying the material and shape of the orifices, he found no effect whatever upon the appearance of the fringes, except that when razor-edges were employed the rays were bent about these more than about rounded edges, an effect which has been termed inflection of the light. But he wholly disproved the Newtonian view, by throwing a diverging pencil from the focus of a lens on 2 mirrors slightly inclined to each other, so as to make the reflected rays cross in their course: here were no edges; yet, when the 2 sets of rays were received on a screen, the light and dark bands were perfectly formed; and by covering one mirror, the bands disappeared, the other giving light only. This phenomenon then, in all its forms, is due to interference, and, according to the undulatory theory, that of 2 waves or sets of waves, so managed, in the case of the mirrors, that they shall intersect each other at points along their course; where, in homogeneous light, crests conspire with crests, or troughs with troughs, producing increased brightness, but where crest and trough combine at the same point, producing rest of the vibrating medium, that is, darkness. In compound or solar light, however, the effect of the interference is to separate the ray into its elementary colors. In the case of rays grazing the edges of orifices or bodies, the points at which the rays thus touch become points of origin of new agitations or waves, which spread out from these points as centres beyond the body, and by so doing intersect each other and produce light

and dark bands. Mathematically, it is easily proved that those surfaces of intersection along which crests will conspire to give increased light, and also those along which crests and troughs will combine to give darkness, must form along the middle line one continued plane surface, and on both sides of this, receding hyperboloid surfaces; and experiment, as in placing the screen successively at various distances, marks out exactly these curves about a middle bright band, as those actually formed. The bands thus formed are broadest in the least refrangible (red) rays, and narrowest and most crowded in the most refrangible (violet) light. The accurate measurement with a micrometer of the distances of the successive bands from the central line, together with the other known distances in the case, becomes a ready means of determining the wave lengths of the different colored rays composing white light; and it is by observing that when either of 2 pencils forming them is retarded, the fringes must shift to that side, and finding that when one of the pencils passes through a thin film of mica, or a tube of water, the fringes do actually move to the side occupied by this pencil, that it has lately been proved, in different ways severally by Arago, Foucault, and Fizeau, that light moves less rapidly in the denser of 2 media, a fact which has given to the emission theory of light its final overthrow. As consequences of this view of the production of the fringes, it follows also that the centre of the shadow of a small opaque body held in a diverging pencil of light should be a minute bright spot, while the centre of the light of the pencil without the opaque body should be a small dark spot; both these results are found to hold true. By varying the shape of the orifice, the form of the dark or light space will be changed. Shadows, as formed, do not correspond accurately with the geometrical shadows of the bodies projecting them; but in the case of large bodies or apertures the fringes are less sensible. In order to witness the effect of diffraction by a simple experiment, make a smooth pin-hole in a piece of card paper, or a clean cut down into one of its sides: by looking through this, in a room otherwise dark, at a minute crevice admitting light by the shutter or door, or at the flame of a candle, either of these will present numerous light and dark bands, the candle flame being multiplied apparently into a number of flames, lessening out on either side, and showing the prismatic colors. Bring a bright star or the light of a lamp at a distance just over the edge of an intervening body, as the hand or a bar in the shutter, and a good eye will detect that in a position just preceding that of the disappearance of the light it is decomposed, showing the prismatic colors, the red and green very distinctly. Many cases of diffraction occur in nature. Among these are the colored fringes seen by looking in certain directions at or along the course of fine fibres of any kind, as the spider's web, fine wires, and the fibres upon black fabrics, when illuminated by the sun; the fringes sometimes bordering the shadows of such bodies; the colors seen by looking through a fine dew or mist between 2 plates of glass, or upon a mirror on which lycopodium has been dusted, held in the sun; the changeable colors of the plumage of birds, and those of mother-of-pearl and other grooved or striated surfaces, the origin of the colors in the latter cases being proved by taking casts of such surfaces in black wax, which immediately become iridescent, like the natural objects, and by grooving metallic surfaces with 5,000 to 10,000 lines to the inch, as in Barton's iris buttons, in which the same result appears.

DIFFUSION OF GASES, a term applied by Priestley (who first observed the phenomenon, and published an account of it in the 4th volume of the "Transactions of the American Philosophical Society") to the property possessed by gaseous bodies of intermingling with each other, whatever may be their differences of specific gravity, or whatever their repugnance to enter into chemical combinations. Priestley found the new force so strong that the gases would in time penetrate animal membrane that separated them and that was regarded air-tight, and be found constituting similar mixtures on each side of it. To this principle he correctly attributed the uniformity of the composition of the atmosphere. Dalton, who afterward investigated the subject, explained the phenomenon on the assumption that the particles of one gas are highly repulsive to each other, but do not repel those of another gas. So, when a jar of hydrogen is inverted over another filled with carbonic acid, the light gas finds its way between the particles of the heavy gas, and this works upward into the other, till they are at last equally diffused. Thus he supposed one gas to act as a vacuum to another, with which it does not enter into chemical combination; with this difference, however, that the particles of one present a mechanical impediment to the diffusion, so that a longer time is required for it to take place. This explanation accounts also for the uniform diffusion of vapors through gases and through each other. Prof. Graham of Glasgow made some further interesting investigations as to the relative rate of diffusion of different gases. Gas contained in a glass jar slightly cracked was found to escape into the air, and the air at the same time to pass through and mingle with the gas, and the relative quantities that passed each way were found to depend upon the comparative densities of the two elastic fluids; the lightest gases passing through most rapidly, the rate of diffusion being inversely as the square root of the density of the gas. This law would seem to confirm the hypothesis that gases act as vacuums to one another; for it is found that the velocities of gases flowing into a vacuum maintain the same ratio, being inversely as the square root of the densities of the gases.

DIGAMMA (double gamma), so called from its form (F) resembling 2 gammas (Γ), the 6th

letter in the ancient alphabet of the Greeks, corresponding to the Hebrew ו and the Latin *f*, and probably equivalent in sound to the English *w*. It continued latest in the Æolic dialect, but early became obsolete in the Attic alphabet, and subsequently in the Greek language; though its original existence is indicated by the fact that the 5th letter (ε) is the numerical symbol for 5, but the next letter (ζ) for 7. It does not appear in the Homeric poems, though they were composed when it was in use; but its force remained in the metre after its form had disappeared, and its latent existence at the beginning of many words and syllables apparently commencing with a vowel made preceding short syllables, if ending with a consonant, long by position, or, if ending with a vowel, prevented a hiatus. In passing into the Latin language it was written *v*, thus: *ἑσπερος* (ΓΕΣΠΕΡΟΣ), *vesperus*; *ὠον* (ΩϜΟΝ), *ovum*.

DIGBY, a S. W. co. of Nova Scotia, bordering on the Atlantic; pop. in 1851, 12,252. It has a highly diversified surface, and comprises within its limits several small lakes, which give rise to numerous rivers. The underlying rock is sandstone of various colors. Copper and silver mines have been worked with some profit. In the N. W. part is a deep and narrow bay of the Atlantic called St. Mary's bay, enclosed on the N. by Brial's island and a narrow headland known as Digby neck. Capital, Digby.

DIGBY, Sir Kenelm, an English philosopher and chemist, born in Gothurst, Buckinghamshire, in 1603, died in London in 1665. He was the son of Sir Everard Digby, who was executed for complicity in the gunpowder plot, when the subject of this sketch was about 3 years old. He was educated in the Protestant faith, and showed early tokens of remarkable talent. In 1621, having finished his education at Oxford, he visited the continent, where he travelled for about 2 years. On his return he was made gentleman of the bedchamber by Charles I., and received other marks of the royal favor. In 1628 he sailed with a squadron fitted out at his own expense, to fight the Algerines and the Venetians, with whom the English had quarrelled, and gained much credit by his courage and success on this expedition. In 1636, while in France, he became a convert to the Roman Catholic religion; and, having afterward returned to England, and taken part with the king in the civil war, was imprisoned by order of parliament. During his confinement he employed himself with literary labors, was released in 1643 in consequence of the intercession of the queen of France, and retired to that country, where he was received with great honor, and enjoyed the friendship of Descartes and other eminent Frenchmen. From this time till 1661 he lived mostly on the continent, and especially in France, employing himself with literary and scientific labors. Having returned to England, he enjoyed the favor of Charles II., and continued his philosophical studies until his death. His principal works are: "A Conference with a Lady about the choice of a Religion;" "Observations on Religio Medici;" a "Treatise on the Nature of Bodies;" a "Treatise on the Soul, proving its Immortality;" a "Treatise of adhering to God;" "Of the Cure of Wounds by the Powder of Sympathy;" "Private Memoirs of Sir Kenelm Digby, &c., written by Himself," first published in 1827.

DIGESTION, a function peculiar to the animal kingdom, by which organic alimentary substances, introduced into the stomach and intestines, are converted into the nutritive fluid, chyle, and mixed indirectly with the blood, the excrementitious and useless matters being rejected and cast out of the body. The organs by which this function is performed in the higher animals are the mouth, pharynx, œsophagus, stomach, and intestines, with their accessory salivary glands, pancreas, liver, and mucous follicles. The first act to which food is subjected is the mechanical division by the teeth; so important is this in order that it may be influenced by the salivary secretion, that it may be said as an axiom that "food well chewed is half digested." As a people the Americans are singularly guilty of life-long and constant infraction of this rule, paying, however, the penalty of dyspepsia with its numerous train of evils and premature decay. The action of the gastric juice and of the pancreatic and biliary secretions has been described in the articles Chyme and Chyle. While some of the nutritive matters are dissolved in and absorbed directly from the stomach, others require further preparation, and are taken up by the vessels and absorbents of the intestines; by the time that the residue arrives in the cæcum, almost all the alimentary matter has been extracted, and the insoluble portions with the excess of biliary and mucous secretions are voided at the anal termination of the canal. The digestive process, upon the proper performance of which the health of all the organs must depend, can hardly be separated from absorption, which takes up the nutritive materials, and assimilation, which converts them into a fluid resembling blood, poured into the circulation near the heart. Though inorganic substances are necessary for the support of the body, the organic alone are generally considered as food and as subjects for the digestive process. Organic substances used as food may be conveniently arranged under 4 heads: 1, the saccharine group, embracing substances composed of oxygen, hydrogen, and carbon, resembling sugar in composition, and readily convertible into it; such are starch, gum, woody fibre, and the cellulose of plants; 2, the oleaginous group, with a great preponderance of hydrogen and carbon, small proportion of oxygen, and absence of nitrogen, including vegetable oils and animal fats; 3, the albuminous group, containing a large proportion of nitrogen, comprising animal and vegetable substances allied in chemical composition to albumen and animal tissues; 4, the gelatinous group, including animal substances closely allied

to gelatine; also containing nitrogen. The saccharine substances cannot form part of any animal tissue, but, when converted in the body into those of the oleaginous group, may like these last go to nourish the adipose and nervous tissues; but by far their greater portion is used in the maintenance of the animal heat. Starch seems to be converted into sugar, and sugar into lactic acid, in which form it is oxidized and burned off; oleaginous matters appear to undergo oxidation without any preliminary change; these non-nitrogenized compounds cannot minister to the plastic growth of the body, as is proved by the death from inanition of animals fed exclusively upon them. The articles of the albuminous group serve not only for nutrition, but for the maintenance of heat, if required, by their decomposition; the proportion of their 4 elements is the same in all, and they are all capable of reduction to a like condition by the digestive process, so that, as far as nutrition goes, the fibrine of animals, the albumen of eggs, the caseine of milk, and the gluten of wheat are equally acceptable to the organism. No one of these, however, is alone sufficient to support life; it is very remarkable, as Dr. Prout has observed, that the only single article of food naturally provided for the continued growth of animals, milk, contains albuminous caseine in its curd, a good deal of oily matter, and considerable sugar.—Supposing mastication to have been thoroughly performed, the food is first acted upon by the salivary fluid, which is secreted by the parotid, sublingual, and submaxillary glands, and the follicles of the mucous membrane of the mouth. Saliva is but little heavier than water, contains minute corpuscles and epithelial scales, and in health has an alkaline reaction greatest during and after meals. It consists of about 995 parts of water in 1,000, and 5 parts of solid matters; of the latter the most remarkable is ptyalin, to which the peculiar properties of the fluid are due; it closely resembles, but is not identical with, albumen and caseine; it acts the part of a ferment, and, according to Mialhe, 1 part is sufficient to convert 2,000 parts of starch into sugar; it also contains a compound of sulpho-cyanogen, not known to occur in any other animal product, and interesting in a medico-legal point of view; its salts are nearly those of the blood, and its alkaline reaction seems to be due to the basic phosphate of soda; the "tartar" of the teeth and salivary concretions consist principally of earthy phosphates and animal matter. The limpid secretion of the parotid and sublingual glands saturates the food during proper mastication, while the viscid submaxillary fluid facilitates swallowing when the tongue carries the mass back toward the pharynx. The amount of saliva secreted daily by man will average, according to Bidder and Schmidt, 3½ lbs., though it varies with the character and frequency of the meals. Beside its mechanical action, it is believed that the saliva, by its peculiar ferment, acts chemically upon the farinaceous elements of the food, leading to the conversion of the starch into sugar, the action continuing even in presence of the acid of the stomach; there is no satisfactory evidence that saliva exerts any other than a physical action upon nitrogenized substances. When the food reaches the stomach the digestion is continued by the gastric juice, secreted by the numerous follicles of the mucous membrane, lined with lobular cells and glandular epithelium. Bernard's experiments show that the secretion is mainly poured out toward the pyloric extremity of the organ. The nature of the digestive process has been the subject of much speculation in past times. It was at first supposed that the aliments underwent a coction similar to that which they would experience in a vessel with hot water; to this succeeded the theory of acid fermentation, then of putrefaction, of trituration, and of maceration, till the present belief in the solvent action of the gastric juice was established. The gastric juice is transparent, nearly colorless, and with very slight viscidity. Its most characteristic feature is acidity, which is even perceptible to the taste. Many eminent chemists maintain that the real agent in the solvent process is free lactic acid, while others are in favor of free hydrochloric acid; the latter seems to be true of man, and the former of dogs and pigs, which have been the most frequent subjects of experiment. The peculiar organic ferment of the gastric juice is pepsin, which disposes albuminous matters to undergo solution by the contained hydrochloric acid, which they would otherwise only partially do unless exposed to a high temperature. The secretion of the empty stomach is neutral or alkaline, but it becomes acid on the introduction and during the digestion of food, resuming its neutral character when this process is finished. From the experiments of Dr. Dalton, it appears that an ounce of gastric juice will dissolve a little over 30 grains of fresh lean meat; at this rate the full digestion of a pound of raw meat would require 2 gallons of gastric juice; and this apparently enormous quantity will not be considered incredible, if it be recollected that this fluid after it has done its work of solution is at once reabsorbed into the circulation, so that even this quantity might be secreted during the 3 or 4 hours of the digestive process, at an expense to the blood of not more than 2 or 3 oz. of fluid at any one time; the fluid does not accumulate in the stomach, but its watery portions are in continual process of secretion and reabsorption as long as any food remains undigested, within reasonable limits as to quantity ingested. Many of the most important phenomena of gastric digestion have been rendered familiar and visible by the experiments of Dr. Beaumont and others within a few years on Alexis St. Martin, through an opening in whose stomach the effect of food, stimulants, and sedatives could be seen. The color of the membrane was pale pink, its appearance velvet-like, and its surface lined with a transparent viscid mucus; the irritation of food caused the innumer-

able follicles to become prominent, and to pour out the acid gastric juice; small quantities of very cold water, or ice, after the primary sedative effect, caused turgidity of the membrane and copious secretion, while ice in large amount and long continued retarded the process. The amount of gastric juice secreted depends on the requirements of the system, and not on the quantity of food taken into the stomach; this is most important to be remembered, since, after the fluid secreted has dissolved all it can, any excess of food must remain undigested, pass into the intestines in a crude state, and become a source of pain and irritation until it is expelled. When the system is diseased, there is no craving for food, which if taken would not cause the secretion of the gastric juice, but would remain undigested for 24 or 48 hours, adding its irritation to the general diseased state. Excess in eating or drinking causes erythematic inflammation of the stomach, and acridity of the secreted fluid, which if long continued disorders digestion, and betrays itself to the physician by aphthous ulcerations and other morbid appearances of the mouth and tongue. The secretion of gastric juice is influenced by, though not dependent on, nervous agency; it is well known that mental emotion will put a stop to the digestive process, and section of the pneumogastric nerves arrests for a time the elaboration of the gastric fluid. There can be no doubt that the process of gastric digestion is essentially one of chemical solution, the solvent fluid being prepared by the follicles of the stomach, and its action assisted by the peristaltic muscular movements of the organ; the experiments on St. Martin fully prove these facts, both in natural and artificial digestion. Rapidity of digestion depends so much on the quantity and quality of the food, the state of health, the condition of the mind, and the habits of exercise, that it is difficult to determine the relative digestibility of different articles of diet; it appears from Dr. Beaumont's researches that, other things being equal, the flesh of wild animals is more easily digested than that of the allied domesticated races; in this respect venison stands first, then turkey, then beef, mutton, and veal, in the order mentioned. A certain bulk of food is necessary for healthy digestion, as has long been practically known by uncivilized nations; soups and fluid aliment are not more readily chymified than solid substances, and cannot alone support the system in vigor. Moderate exercise before a meal facilitates digestion. A temperature of 98° to 100° F. is requisite for the perfect action of the gastric juice; hence the ingestion of cold and iced substances, so generally used at the present day, must be very prejudicial to digestion. The most recent experiments go to show that the action of the gastric juice is confined to nitrogenized substances, and that it exerts no influence on starchy, saccharine, or oily matters. Starch is acted upon by the salivary fluid, sugar is dissolved, and oily substances are reduced to a state of fine division without the agency of the gastric juice. Its action on albuminous matters is to reduce them to a complete solution, alter their chemical properties, and convert them into albuminose (a kind of imperfect albumen), in which form they are readily assimilated. In this condition they form definite combinations with the solvent liquid, which have been called peptones; these are not mere solutions of the respective substances in acidulated fluids, for a converting power is exerted by the pepsin, the solvent power being due to the acid of the gastric juice. The process of digestion is far from being completed in the stomach; the action of the biliary and pancreatic fluids has been noticed under Bile and Chyle, and the end of the digestive act under Cæcum. As mental depression will retard digestion, so a mind at ease and a joyful spirit will promote it. The merry laugh not only indicates a mental condition favorable for the natural secretion of the gastric juice, but by shaking the sides favors the movements of the stomach so essential to perfect digestion; so that the saying, "Laugh and grow fat," is founded upon physiological principles. Until digestion has been partially completed, both orifices of the stomach are closed, a beautiful provision of nature keeping the pylorus shut, and allowing no undigested matter to pass out, unless its faithful fibres are overpowered by too much or improper food. Indeed, the digestive system affords some of the most admirable proofs of creative design, whether we consider the mechanism of chewing and swallowing, the reduction of different alimentary articles to a homogeneous chyme, the absorption of some parts by the stomach itself and of others by the special lacteals, the changes effected by the secretions of the liver and pancreas, or the removal of superfluous and injurious substances. When it is remembered what control, for good or for evil, the human race has over these processes, it must be admitted that a knowledge of the physiology of digestion is of the first importance to health and happiness.—For further details on the subject of digestion, the reader is referred to Todd and Bowman's "Physiological Anatomy," Carpenter's works on physiology, and the work of Dr. Beaumont on "Digestion," edited by Dr. Andrew Combe; and for fuller information on articles of food to the titles Aliment and Dietetics.

DIGGES, Leonard, an English mathematician, born in the parish of Barham, Kent, died about 1574. He was educated at Oxford, was possessed of an ample fortune, and devoted himself to mathematical studies. He wrote "Tectonicum, briefly showing the exact Measuring and speedy Reckoning of all manner of Lands, Squares, Timber, Stones, Steeples, &c." (1556); *Pantometria*, a practical geometrical treatise (1591); and "Prognostication Everlasting of right good effect, or Choice Rules to judge the Weather by the Sun, Moon, and Stars" (1555).—Thomas, only son of the preceding, died in 1595. He was graduated at Oxford, adopted the profession of a soldier, and was appointed muster-mas-

ter general of the forces sent out by Elizabeth to assist the Netherlands. He wrote several mathematical treatises and other works, among which may be mentioned *Alæ, seu Scalæ Mathematicæ* (1573); "A Letter on Parallax" (1573); "A Geometrical Treatise named Stratioticos, requisite for the Perfection of Soldiers" (1590); "A Perfect Description of the Celestial Orbs according to the most ancient Doctrine of the Pythagoreans" (1592), and some others.

DIGIT (Lat. *digitus*, finger), in arithmetic, one of the 10 figures or symbols by means of which all numbers are expressed. In astronomy, it designates a 12th part of the diameter of the sun or moon. Thus, an eclipse is said to be of 9 digits when three-fourths of the diameter of its disk are concealed.

DIGITALIS, a genus of exogenous plants belonging to the natural order *scrophulariaceæ*. *Digitalis purpurea* (Linn.), purple foxglove, is a small shrub found in pastures and about hedges on banks of streams, in a gravelly or sandy soil. Calyx 5-parted, unequal; corolla campanulate, the limbs obliquely 4-lobed; stamens 4; stigma simple; capsule ovate-acuminate; root of numerous long slender fibres, biennial; stem erect, 3 or 4 feet high, commonly simple roundish with slight angles, downy; leaves alternate, ovate-lanceolate or elliptic-oblong, crenate, downy, rugged, and veiny, of a dull green color, tapering at the base into winged footstalks, lower ones largest; raceme terminal, long, simple, of numerous large, pendulous, odorless flowers. Fuchsius is regarded as the earliest botanist who mentions this plant, which he named *digitalis* (Germ. *Fingerhut*, finger stall), on account of the blossoms resembling the finger of a glove. The term foxe-glove occurs in a MS. *Glossarium Ælfricæ*, written before the Norman conquest, and in a MS. Saxon translation of Apuleius, both of which are among the Cotton MSS. in the British museum; but no Latin or Greek name was given to this plant previous to Fuchsius in 1542. This beautiful shrub derives its chief interest from its medicinal properties, which reside in the leaves and seeds, the latter being small, roundish, and of a grayish-brown color. The effect of foxglove has been tried on dogs, horses, rabbits, turkeys, the domestic fowl, and frogs, and on all it has been found to act as a poison. According to Orfila, the first symptom of poisoning in carnivorous animals is vomiting. The cerebro-spinal symptoms observed in animals are diminished muscular power, convulsive movements, tremors, and insensibility. When given in small doses to man, it is found to exercise a remarkable influence over the circulation, frequently reducing the pulse from 70 or 80 to 40 or 50 beats in the minute. Dr. Baildon found that his own pulse was reduced by the use of digitalis from 110 to 40 beats per minute while he occupied a recumbent position, but upon rising it increased to 70 beats. This action, however, is far from being uniform. Dr. Sanders indeed asserts that its use is invariably attended by an increased action of the pulse. The effects of digitalis more closely resemble those of tobacco than any other agent. It possesses in common with green tea the property of preventing sleep. In medicine it is usually employed: 1, to reduce the heart's action; 2, to promote the action of the absorbents; 3, as a diuretic; and 4, on account of its influence over the cerebro-spinal system. Large quantities of digitalis are exported from Germany to Cuba, where it is mixed with tobacco in the manufacture of cigars.

DIGITIGRADES, the tribe of the typical carnivora, so called because they walk on the ends of the toes, as distinguished from the plantigrades, which, like the bear, place the whole foot upon the ground. This tribe includes the *mustelidæ* or weasels, the *canidæ* or dogs, and the *felidæ* or cats. All have the cheek teeth with cutting edges, the lower shutting within the upper, dividing the flesh of their prey like the blades of scissors. As their food would indicate, they have a simple stomach and a short intestine. Their carnivorous propensity may be measured by the tubercle or heel on the lower carnivorous tooth, and the number of false molars in front and of tuberculous teeth behind it; those having the simplest carnivorous teeth, and the fewest molars in front and behind, like the cats and the weasels, are the most sanguinary. The characteristic marks in the skeleton are the long metacarpus and metatarsus, the elevation of the os calcis, and the shortness of the phalanges which alone rest upon the ground; and in the cats, the retractile claws. The extremities are formed for leaping and springing; from the pelvis as the fixed point, the 3 portions of the limbs are movable in alternately opposite directions; by the simultaneous flexion of these joints, and their sudden extension by means of powerful muscles, the greatest force is given to the spring, the elevated and elongated heel affording the principal mechanical advantage in the digitigrade foot.

DII, the Latin generic name for all the gods. The instinctive tendency of man, prompted also by every thing in the external world, is to believe in a divine agency and government. Amid the grand movements of the universe, and with consciousness of noble passions and faculties, he demands the origin, the law, and the destiny of himself and the objects by which he is surrounded; he asks what absolute masters govern the phenomena of nature, impel the streams, unchain the tempests, illumine and move the skies, guide the procession of the seasons, and start the germs of life. Asia, the birthplace of man, and the theatre of the earliest human societies, gave the first answers to these inquiries, sometimes deifying the elements, the heavenly bodies, and eminent men; sometimes marking the constant antagonisms of nature—how the shore confronts the sea, the wind and ocean wrestle together, and conscience and passion strive for the mastery of the human will—and therefore deifying two opposite principles of good and evil,

either of which would be supreme but for the other; and sometimes attaining the conception of one supreme deity whose spirit pervades all things. The Greek and Roman mythology, though it received some elements from the creations of the East, was mainly the work of the poets and legislators of Greece. Created and professed by the most artistic people of the past, it was submitted to by the triumphant Romans; during many centuries morality found support in it, and misfortune a refuge; philosophy adopted it, and poetry rendered it immortal. The principal divisions of nature were personified into great divinities, and forms, attributes, and a name were given to the smallest objects in the universe. Fable too and tradition become transfigured into mythology, and many of the gods and demigods were but the kings, heroes, and sages who preceded the historical times. Of divinities of various ranks, Hesiod says there were no fewer than 30,000 who inhabited the earth, and to this immense number many more were afterward added. The Romans generally made 3 classes of the gods. The first of these, the *dii majores*, were 12 in number, 6 males and 6 females, and their names are thus combined by Ennius in 2 hexameters:

> Juno, Vesta, Minerva, Ceres, Diana, Venus, Mars,
> Mercurius, Jovi, Neptunus, Vulcanus, Apollo.

These deities corresponded with the 12 Olympian gods of the Greeks, and constituted the divine council which presided over the course of human affairs. The Greeks added to these 12, Alexander the Great as the god of conquests, but he was not recognized as such by the Romans. The second class were the 8 *dii selecti*, Janus, Saturn, Genius, Sol, Bacchus, Tellus, Pluto, Luna, who were sometimes classed with the superior gods. The third class were the *dii minores*, comprehending a crowd of beings to whom limited divine honors were paid, and who were regarded as possessing a species of divine nature. Among these were the indigenous gods, attached to certain places of which they were the guardians, as the *penates* and *lares*, the protectors of home and family. The woods, rivers, fields, mountains, forests, and solitudes were all peopled with fauns, sylvans, satyrs, nymphs, dryads, and hamadryads. The agitation of the air came from the flight of the Zephyrs; the rainbow was the scarf of Iris; sound reverberating through the rocks was the nymph Echo; and all nature under the charm of this mythology became endowed with life and intelligence. There were the implacable Parcæ in collision with the sharply-cut Greek personality; and the avenging Furies, side by side with the more heroic than moral Greek instincts. Some theologians have considered mythology founded upon religious ideas once revealed to man, but, in consequence of length of time and the action of an exuberant imagination, at length overgrown with fable. It was never so native to the Romans as to the Greeks, and before the era of Augustus the faith in it had ceased to be either a strong religious or æsthetic feeling. It was degraded by the apotheosis of impious and monstrous Roman emperors, and passed away as Christianity gradually advanced.

DIJON (anc. *Dibio* or *Divio*), a town of France, former capital of the duchy of Burgundy, now the chief town in the department of Côte d'Or, seat of a bishopric, of a royal court, of tribunals of the first resort, and of a university with faculties of law, the sciences, and belles-lettres; pop. in 1856, 29,766. It is of an oval form, with several suburbs, and lies at the foot of a chain of mountains in a fertile vale, at the confluence of the rivers Ouche and Suzon, on the railway from Paris to Lyons, 160 miles S. E. of Paris. It is generally well built, and has numerous handsome public places and elegant houses. It is enclosed by ramparts, and its environs furnish delightful promenades. Dijon contains many remarkable buildings, the principal of which are the cathedral, formerly the Cistercian abbey of St. Benigne, a massive Gothic edifice founded in 535 and rebuilt in 1271, which contains the magnificent mausoleums of Philip the Bold and of John the Fearless; the church of Notre Dame, built in the 13th and 14th centuries; the church of St. Michael, which dates from the 15th century, remarkable for its front and its castle-like solidity; an ancient castle, the work of Louis XI., which served for a time in the 18th century as the prison of the duchesse de Maine, Mirabeau, and the chevalier d'Eon; the state palace, which contains archives and monuments of the middle ages of great value; and a palace of the princes of Condé, built by Louis XI. and XII. It has also a school of the fine arts, 8 colleges, and 2 libraries, one of which contains 40,000 volumes. Its industry is active and varied, employed in the manufacture of linens, hosiery, vinegar, and candles, in distilleries and bleacheries, and in commerce in grain and wines. The origin of Dijon is traced back to times preceding the Roman dominion. Under Marcus Aurelius it was surrounded by walls flanked with towers, and was embellished and enlarged by Aurelian. It was burned by the Saracens in the 8th century, and sacked by the Normans in the 9th. It was again ravaged by fire in 1127, and was for 3 centuries the residence of the dukes of Burgundy and the seat of their brilliant court. By them its present fortifications were constructed. In 1513 it was besieged by the Swiss, and saved itself only by a humiliating treaty. It is the birthplace of some of the most eminent men of France, of Bossuet, Crébillon the elder, Piron, Rameau, Longepierre, Lamonnoye, Cazotte, Guyton-Morveau, and the duke of Bassano.

DIKE, in geology, a wall of trap or other igneous rock, which traverses other rocks, and appears to have been produced by the flowing of melted matter into a deep rent or fissure. Dikes are distinguished from veins by the greater uniformity of their contents, by the parallelism of their sides, by their not ramifying into smaller veins, and by their usually larger di-

mensions. The name was given them from their frequently projecting above the surface like a wall, owing to the degradation of the softer rock around them, dike being in the north of England and in Scotland a provincial name for wall. They are met with from a few inches to more than a mile in thickness. In volcanic eruptions they are seen in process of formation, as deep rents open and are filled with liquid lava. In the English coal mines trap dikes are occasionally met with in underground operations. They there form a wall across the line of the coal beds, cutting them off, and causing them at times to be thrown out of place. In the United States they occur likewise in the gold mines of North Carolina and in other metalliferous districts.—The term is also used to denote a ditch, and is probably derived from the word to dig; but as applied to a sea wall or embankment, it comes no doubt from the Dutch word *dijk*, of the same signification. Such earth works were in former times a common means of defence, and were built around castles and fortresses. In Holland are the most remarkable dikes in the world, constructed to prevent the overflow of the lands reclaimed from the sea. Their immense importance may be appreciated from the fact that a single inundation from the sea in the year 1277 caused the destruction of 44 villages; and in 1287, only 10 years afterward, 80,000 persons were destroyed by another, and its present extent and shape were given to the Zuyder Zee. In the 15th century about 100,000 persons were again destroyed through the imperfection of the dikes, when their construction was undertaken in the most thorough manner, and a law was enacted enforcing their being kept in order. At present this work is conducted on a systematic plan and at great cost. Embankments are made toward the sea with heavy timbers filled in with stone, and the surface is covered with bundles of flags and reeds fastened down by stakes. Piles also are driven into the sand, and protected by planking as well as by earth, turf, and stones. These artificial dikes are often 40 feet above ordinary high water, and wide enough at top for a common roadway. Frequently the slopes are covered with wicker work made of willow twigs, and the willow tree is extensively cultivated to furnish these supplies, which require frequent renewal, as also to bind together by its roots the loose sands. Walls of masonry are built in some of the most exposed situations, and rows of piles outside protect the dikes from the action of the waves. It is estimated that the annual expense of keeping up the dike of Helder and that of West Cappel, at the western extremity of the island of Walcheren, is about $30,000 each. The whole expenditure in Holland for maintaining its dikes and regulating the water levels is annually from $2,000,000 to $2,500,000. Engineers are constantly employed, and every provision is made of materials that may be required for immediate repairs. Watchmen are employed during the winter months to patrol the dikes by day and night, and give alarm whenever the danger appears imminent and the tide threatens to overflow. The people then hasten to the point, and by mats of straw and rushes and large sheets of sail-cloth buried in the sand they raise a temporary bulwark, to be more securely built before the approach of the next tide.—Dikes are often constructed as barriers for reservoirs of water, and for this purpose they are built on several well established plans. The loose materials excavated for the channel or basin are piled up in a firm bank and consolidated by rolling with heavy rollers. Sometimes they are rendered more secure by building within them along their central line a puddle bank of selected clayey earth, mixed with sufficient sand to give it tenacity, so as not to crack in drying. This should be carried down to a solid foundation, and may be advantageously bedded upon a layer of concrete. It is built up a little later than the bank on each side of it, and both are rolled on the addition of every layer of 6 inches with a heavily ribbed roller of cast iron. The use of any material of the nature of quicksand is to be carefully avoided in any part of the embankment. Next the water it is well to face the work with a layer of broken stone that will pass through a 2 inch ring, and over this should be laid a sloping wall of flat stone at an inclination of 1 base to 1 vertical, or from that to one of 3 base to 1 vertical. The broken stone within is a guard against the embankment being penetrated by any small water animals. The dike around the great reservoir of 106 acres in the central park, New York, is made on the plan given above, which is approved by the engineers of France and England. It is 16 feet 8 inches wide at top, with an inner and outer slope of 1½ base to 1 vertical. The puddle bank of clay in the centre, which reaches to within a few feet of the top, is 16 feet thick. The depth of water around the margin is 34 feet. At the surface of the water the thickness of the embankment is 24 feet 9 inches, and at 30 feet below it is 114 feet 9 inches. The French engineers give the preference to this mode of construction to that of a wall of masonry alone or of an embankment within a wall. Stone work by settling is liable to injury that can be repaired only at great cost, especially if the structure be concealed within an embankment. Where room is an object, as in the streets of a city, the outer sides of the dike are conveniently held up by steep walls of stone, the object of which is neither to add to the strength nor to the impermeability of the work.

DILETTANTE (pl. *dilettanti*), an Italian term, naturalized in France, England, and Germany, signifying an amateur, and applied to a person who especially interests himself in any art, without knowing its fundamental principles, and without making it an object of thorough study. The term dilettante designated originally a lover of Italian vocal music, and was at one time the name of a party which maintained the

superiority of that music. In England, a society called the "Dilettanti Society" was originated in 1760, by gentlemen who had travelled in Italy, at first for social purposes; but it afterward acquired celebrity by devoting its funds to the encouragement of the study of classical art, by sending out travellers, and by publishing books on antiquarian subjects.

DILKE, Charles Wentworth, an English journalist, born Dec. 8, 1789. He was graduated at Cambridge, and became employed in the navy pay office, where he remained 20 years. During this time he had contributed largely to the "Westminster Review," the "Retrospective Review," and other periodicals of note. In 1830 Mr. Dilke became editor of the "Athenæum," which, from having been but very partially successful under its original proprietors, Mr. James Silk Buckingham and Mr. Stirling, speedily rose to the rank it now holds in English periodical literature. He not only improved its quality, but diminished its cost to the public; it had formerly been sold for 1*s.*, but Mr. Dilke reduced the price to 4*d.* In 1846, having intrusted the editorship of the "Athenæum" to Mr. Thomas Kibble Hervey, Mr. Dilke undertook the editorship of the "Daily News," a large newspaper which had recently appeared under the auspices of Mr. Charles Dickens. With the coöperation of Mr. Dilke, and the application by him of the principle of reduction in price, the success of the "Daily News" was very remarkable. In the second year of its existence more than 12,000 copies were printed. This prosperity speedily and permanently declined, however, on the surrender of the editorship by Mr. Dilke in 1849—a decline accelerated also by a mistaken resolution on the part of the new director to increase the price. The consequence was a reduction of the issue to 4,000, which it has not since exceeded. —Charles Wentworth, son of the preceding, born in London, Feb. 18, 1810. He was graduated and studied law at Cambridge, but did not during that time contribute, as he is reputed to have done, to the columns of the "Athenæum." He manifested early that bias for the conduct of industrial and artistic organization, the development of which in subsequent enterprises has proved a source of public benefit, and of honor to himself. In 1844 he submitted to the society of arts, of which he was a member, and is now the vice-president, a plan for the exhibition of English industrial products, which contained the germ of the idea more fully realized in the universal exhibition of 1851. A commission of inquiry was instituted to ascertain the measure of assent and coöperation that might be expected for the project from various quarters, but met with little encouragement. Mr. Dilke persisted in his endeavors, and, in conjunction with Mr. Henry Cole and Mr. Scott Russell, presented his original plan to Prince Albert, president of the society of arts; and after combating various obstacles, he had the gratification of seeing it realized in the exhibition which took place in the apartments of the society in 1846, and which was renewed in the following year. Among many tokens in recognition of his labors received by Mr. Dilke, was his appointment by Prince Albert as a member of the royal commission, in which capacity until his resignation he rendered important service. For this it was desired to bestow upon him some special acknowledgment, but as he constantly refused proffers either of honor or emolument, the queen forwarded to his wife a bracelet of diamonds. In 1853 he was a British commissioner to the industrial exhibition in New York.

DILIGENCE, a kind of stage coach drawn by from 3 to 6 horses, which was the principal public conveyance in France before the introduction of railways, and which is still in use in many parts of Europe. The French 4-wheeled diligence is composed of 3 compartments. The front division (*coupé*) is the most expensive, and holds 3 persons. The middle division (*intérieur*) accommodates 6 persons at a lower rate. Behind the inside is the *rotonde*, a much less comfortable place, which affords the same number of seats at a still lower rate. There is also room for 4 persons including the conductor on the roof over the *coupé* (*banquette* or *impériale*), which is the cheapest place. With a full number of persons the diligence weighs about 5 tons, exclusive of baggage. The Spanish and Italian diligences are superior to the French. The German diligences (*Postwagen*, *Eilwagen*) are attached to the post office; so are those of Switzerland. In Russia diligences are built with a succession of *coupés*, each capable of containing 2 or 3 passengers; others have 2 or 3 *coupés*, and then a *rotonde* holding 4 persons. The conductor's seat is in front, and beside him sits the *yamtchik* (post boy); the number of horses is generally 4, harnessed abreast, but to these 2 leaders are frequently added, and on the off horse sits another post boy.

DILL, the common name of the *anethum graveolens* (Linn.), an annual plant of the natural order of the *umbelliferæ*, a native of Spain, but naturalized in the south of France and Germany. It has an upright smooth stem, much dissected leaves, yellow flowers, and small oblong seeds, with sharp, filiform dorsal ridges. It is cultivated for the carminative and stimulant properties of its seeds. They are imported in large quantities from the south of France into England, where, beside their medicinal use, they are employed in the manufacture of British gin. In Germany they are used in pickling cucumbers and in the manufacture of sour crout.

DILLENIUS, Johann Jakob, a German botanist, born in Darmstadt in 1687, died in Oxford, April 2, 1747. Following a not uncommon German custom of the time, each generation of his family added some letters to their name, his grandfather being called Dill, his father Dillen, and himself Dillenius. He studied at the university of Giessen, and was received a member of the society of "Inquirers into Nature," under the auspices of which he published a "Disser-

tation upon the Plants of America naturalized in Europe;" a "Treatise upon Coffee," with an account of the seeds which might displace it, giving the preference to burnt rice; and a volume of "Observations upon the Mode of Development of Ferns and Mosses," in which he confirmed the theory of different sexes in plants. He first obtained a reputation among naturalists by his "Catalogue of the Flora of Giessen," published in 1719. The great merit of Dillenius as a botanist consists in a constant attention to the discrimination of the genera by the parts of the flower and fruit, a principle of classification first proposed by Gesner and which became the foundation of the system of Linnæus. William Sherard, a scientific English traveller, succeeded in persuading Dillenius to leave Germany for England. He arrived in London in 1721, and had a rich garden at Eltham placed at his disposition by James Sherard, a brother of William. He edited an enlarged edition of Ray's "Synopsis of British Plants," which he enriched with engravings of his own. In 1728 William Sherard died, and founded by his will a chair of botany at Oxford, to which Dillenius was appointed, who in 1732 published his *Hortus Elthamensis*, containing not only descriptions of plants arranged in alphabetical order, but also 324 plates engraved by himself on pewter. This work was enthusiastically received by his contemporaries, among others by Linnæus, then commencing his labors. In 1741 he published his "History of Mosses," his greatest work, which places him in the first rank of the botanists of the last century. He was more than 20 years in collecting the materials of this work, which is a noble monument of acute discrimination and minute research. The plates, numbering 85, and the descriptions were all by his own hand. He published no subsequent work, but many of his drawings and collections are preserved in the Sherardian museum at Oxford. The isolation which the labors of Dillenius required affected his social qualities. He thought only of his own knowledge and opinions, and believed himself the prince of botanists. Linnæus visited him in 1736, and implicitly adopted some of his faulty views in opposition to his own better judgment; and the subsequent correspondence between these two naturalists shows a polite condescension on the part of the Swede to the pretensions of the Oxford professor. Linnæus dedicated to Dillenius a magnificent genus of plants of tropical India, which is the type of the family of the *Dilleniaceæ*.

DILUVIUM, Drift, Bowlder Formation, the deposits of clay, sand, gravel, and bowlders spread over the surface of the polar regions and adjacent portions of the temperate zones. For a time these deposits were confounded with those called alluvial, and when it was seen that they could not have been produced by the action of existing currents, their origin was commonly referred to the Noachian deluge. As the extent, depth, and nature of the materials constituting the formation came to be better understood, this opinion, too, was necessarily abandoned; for it was apparent that no transient deluge could have produced effects so vast as those exhibited in this formation. In the northern hemisphere the drift is found in Europe, Asia, and America, extending from the polar regions toward the equator, and disappearing on the continent of North America about lat. 38°. In Europe, all trace of it is lost in the countries bordering the Mediterranean. Its distribution southward on the two continents appears to accord with the deflections of the present lines of equal winter temperature. In South America it is recognized in Patagonia, and traced from Cape Horn to lat. 41° S. Throughout these regions the features of the formation are the same. The surface is irregularly covered with the deposits above named. Sometimes they are so arranged in strata as to indicate that a long time has been occupied in their deposition; while occasional marine shells, nearly all of recent species, testify to tranquil action in the localities where they are met with, and to an epoch of production closely approximating to the recent period. The superficial strata of sand and gravel are found at times 300 feet or more in thickness. They rest upon geological formations of all ages up to the beds of older pliocene, such as the mussel and clam beds found at Augusta and Gardiner in Maine, 60 feet beneath the sand and gravel, and filled with shells scarcely distinguishable from those in our harbors. The drift is met with upon the summits of high mountains; it is seen 3,000 feet above the level of the Baltic, and upon the highest points of the Grampian hills, 4,000 feet above the sea. Everywhere the formation is characterized by loose masses of rock scattered over the surface, more or less rounded in form, and differing from the solid ledges beneath them. As already described in the article Bowlder, they are often of great dimensions, and their sizes increase as they are traced toward the pole to their parent beds. In Russia they have thus been identified with ledges more than 800 m. distant toward the north. Bowlders of the same kind of granite, easily recognized, traced from Moscow to St. Petersburg, vary from 2 to 3 feet in diameter at the former to as many yards at the latter point. Instances of these phenomena are everywhere to be seen in the northern United States. In southern Wisconsin pieces of native copper were often found in the superficial deposits long before the mines of this metal were discovered on the S. shore of Lake Superior, 300 m. to the north. The N. shores of Long island are strewn with bowlders of red sandstone, and of granite and other primary rocks, arranged in groups which correspond with the position of the ledges of the same rocks in Connecticut, across the sound to the north. So on the European continent, the stratified rocks of which the whole region on the S. side of the gulf of Finland is composed, are covered with granitic bowlders from the primary region of Scandinavia on the other side of the gulf. The surface

of the bowlders is often found to be striated and grooved, as if worn by hard rubbing over rough surfaces; but sometimes it is smooth and almost polished. The solid ledges of rock when exposed to view very frequently display a similar grooved and worn surface. The furrowed lines, called diluvial scratches, are sometimes seen in 2 sets, one much fainter than the other, the 2 crossing each other at a sharp angle. Their general direction is that in which the bowlders are traced to their parent ledges. In the northern states this is usually from S. S. E. to N. N. W. Upon the slopes of high lands greater abrasion and grooving are observed on the N. than on the S. sides; but if these elevated tracts were opposed to a great current, they do not appear to have had the effect of diverting this from its course, except it may have been in the great valleys of drainage, where the striæ have been observed in some instances to coincide with their direction. The bowlders in an open country are usually scattered about without regularity, but in some localities they are traced in long, narrow, and well defined belts, which cross the summits of ridges in lines oblique to the direction of these. That all parts of the region covered with drift did not occupy their present elevation at the time its deposition took place, is proved by the deposits of clay containing marine shells found in many localities in New England and New York, reaching at a maximum about 500 feet above the present level of the sea, and overlaid by the sand and gravel of the drift. The valleys of the St. Lawrence and of Lake Champlain were thus depressed, and the waters of the ocean must at that time have reached the basin of Lake Ontario. Some regard this as evidence that all the neighboring territories now covered with drift were similarly submerged, but such beds of shells are only met with in the valleys named and in certain localities not far removed from the present margin of the sea. Sir Charles Lyell observes of the drift fossils of Canada found near Montreal and Quebec, and of those of Scotland, that they are of species indicating a colder climate than now belongs to the regions in which they are found. He also noticed near Upsal in Sweden, in a ridge of stratified diluvial sand and gravel, a bed of marl 100 feet above the present level of the gulf of Bothnia, containing myriads of the peculiar forms of shells still common to the brackish waters of the Baltic, and which must have originally formed the bottom of the sea before the distribution of the bowlders; for upon the top of the ridge are several huge blocks belonging to the drift. He hence infers that the transport of the bowlders continued after the sea was inhabited by existing testacea, and after the continent had assumed its peculiar configuration, by which the Baltic is separated from the salt waters of the North sea, and the gulf of Bothnia is made to have only ¼ the saltness of the ocean. The shells found in the drift refer the period of its production to a time subsequent to the pliocene epoch. It preceded the extinction of the *mastodon giganteus*, for the bones of this animal are exhumed in New Jersey and New York from bogs in the surface of the drift, where they have lain undisturbed, not separated even from the decayed contents of the stomach of the animal, since life departed from them. With the remains of the mastodon occur several species of fluviatile shells, such as now live in fresh water. The deposit containing these and also well preserved mastodon bones is identified on both sides of the great chasm of the Niagara valley, in situations where it could only have been formed before this chasm was in existence. Thus, according to the calculations of Sir Charles Lyell, the period of production of the drift formation cannot approach within some 30,000 years the time commonly assigned for the introduction of the human race upon the earth.—Various theories have been devised to explain the phenomena of the drift. Under date of Nov. 21, 1825, Mr. Peter Dobson, of Vernon, Conn., addressed a short communication to Prof. Silliman, making a page of the 10th vol. of the "American Journal of Science" (1826), which, as remarked by Sir R. I. Murchison in his address before the geological society of London in 1842, contains the essence of the modified glacial theory since arrived at after much debate, and a previous acquaintance with which might have saved volumes of disputation on both sides of the Atlantic. Mr. Dobson describes the appearance of the bowlders abraded and scratched, "as if done by their having been dragged over rocks and gravelly earth in one steady position," and adds: "I think we cannot account for these appearances, unless we call in the aid of ice as well as water, and that they have been worn by being suspended and carried in ice over rocks and earth under water." The transportation of masses of rock by icebergs as they drift along the currents which set from the polar regions, and the distribution of their loads over the bottom of the ocean as the bergs melt away, present, in the view of many, a repetition of the process by which in remote times the surfaces of the present continents were covered with the drift materials. Lyell supposes that the lands, with their present irregularities of surface already defined, were slowly submerged, while islands of floating ice passed along in the polar currents, grounding on the coast and on shoals, and pushing forward the loose sand and gravel spread over the bottom. Thus abraded down to the solid rock, and the surface of this grooved and striated, the shoals by continued subsidence passed down to great depths, where the loose materials gathering upon them were no longer disturbed. Finally he supposes the direction of the movement to have been reversed, and the bottom of the ocean to have been again raised to form dry land; and that during its reëmergence the arrangement of the materials which cover it was modified by exposure to the distributing and stratifying action of the waves, tides, and currents. The dearth of fossil shells in the clays of

the drift would be accounted for under this hypothesis by the unfavorable influence of the icebergs on the growth of the testacea in the shallow waters frequented by them, while in other parts of the ocean the depth would be too great for their existence to be possible. The extent and immense number of modern icebergs seem to prove their capacity to reproduce upon the shoals and over the bottom of the Atlantic nearly all the phenomena of the drift formation. Measured as they are by miles in length, and rising at times more than 300 feet in height, with only $\frac{1}{5}$ of their bulk then visible above the water, they may well float off and distribute along their track the largest bowlders which they have abstracted from the rocky cliffs down which they moved as glaciers into the sea. So extensive are these floating ice islands that they have been mistaken by those travelling upon their surface for the solid continent; and one has been known to be aground where the soundings gave a depth of 1,500 feet of water. Urged on by the broad current in which they float, such masses must exert an enormous power upon obstacles presented to their progress. Where they rub upon the bottom, this must be worn and grooved in parallel furrows on the line of the straight course of the berg, and other sets of scratches would be produced by succeeding bergs, which might deviate slightly by a different slant of the current, or possibly by the effect of a strong wind upon the floating mass, from the exact bearing of the former set. The chief objection to the theory of the distribution of the drift by icebergs is, that no evidence is furnished of the great body of lands covered with this formation having been submerged immediately before or at the time of its deposition. The beds of clay containing marine shells, found on the borders of the St. Lawrence and Lake Champlain, and in other localities near the coast, are not traced into the hills of the interior, nor to elevations exceeding 500 feet above the level of the sea. In the strata of other formations, even of the most ancient periods, the occurrence of marine fossil shells affords unmistakable evidence of the locality having been covered by the ocean; but in this instance this familiar proof is wanting over areas of vast extent, large portions of which have been carefully explored by the most critical observers. It is disputed that icebergs could produce the parallel scratches on the rocks; and it is contended that if the northern part of the continent were beneath the sea, the effect would be to mitigate the coldness of the climate, and render this unfavorable for the required production of icebergs. It is also objected that the extent to which the bowlders are commonly traced from their parent ledges upon the North American continent is usually limited to from 20 to 200 m., while the bergs which now drift from northern seas bring the stones with which they are charged from 1,000 to 2,000 m.; and that, moreover, they travel a very circuitous route, the currents changing their course with the irregularities of the coast line, and counter currents giving diverse directions to the modern drift, while the distribution of that of ancient times was remarkably uniform in its direction. It is, however, impossible to show that the contour of the ancient continents was incompatible with the existence of more uniform currents than those of modern seas; and in the diluvium of Scandinavia and Russia the transportation of the bowlders appears to have been over nearly as many degrees of latitude as are traversed by modern icebergs.—Another class of natural agents are observed to be in operation, producing effects similar to those witnessed in the drift. These are the glaciers, vast accumulations of ice, which gather in elevated regions, and are slowly and irresistibly pushed down to lower levels. In their progress they score and groove the surface over which they pass, and rend masses of rock from the cliffs, moving the fragments forward, and finally leaving them rolled in the shapes of bowlders, and grooved by the rubbing to which they were subjected when fixed in the ice. In the Alpine regions of Europe the effects thus produced are so remarkable, and spread over such extensive districts, that eminent geologists who have made them their study have been disposed to refer all the phenomena of the drift to the action of glaciers; and in this disposition they have been confirmed by finding unmistakable evidence of the extent of the glacial action from the Alps having in former periods reached full 50 m. beyond their present limits. The researches of the late Dr. Kane have made us acquainted with a field in which these operations are now going on upon the grandest scale. Nearly the whole interior of Greenland, a continent in itself, appears to be covered with one broad glacier. From its edges, extending many hundred miles along the northern seas, its fringe is ever falling in vast masses of ice and rock into the deep waters to be floated off as icebergs, while from the interior the great field itself is slowly urged on in portions following the same unvarying directions. Such phenomena furnish an explanation for several examples of diluvium, which do not admit of reference to the drifting of icebergs in a polar current. In the extreme northern part of Lapland, for instance, the distribution of the bowlders appears to have been from the interior toward the White sea and the Arctic ocean. But geologists are far from generally admitting the probability that the large portions of the earth's surface now covered with the drift formation were ever in a condition to have been under the action of glaciers moving in one general direction; nor does it appear necessary to have recourse to them, when icebergs are now producing analogous effects, and upon a scale commensurate with the ancient distribution of the drift.—Beside these explanations to account for the phenomena, drawn from operations now going on, the extent of which we can investigate, and in some measure appreciate, a third hypothe-

sis has been advanced by the Professors Rogers, which also appears to have been adopted by Murchison. Rejecting the supposition "that the cutting fragments and particles were ever pressed upon by ice, it appeals to the enormous erosive power which a thick and ponderous sheet of angular fragmentary rock would possess if driven forward at a high velocity under the waters of a deep and general inundation, excited and kept in motion by an energetic upheaval and undulation of the earth's crust during an era of earthquake commotion." By the uplifting of the floor of an arctic sea, accompanied, it may be, by an equal subsidence of the country south, a mass of water is conceived to be converted by earthquake pulsations into a series of stupendous and rapidly moving waves of translation. These, helped on by the still more rapid flexures of the floor over which they move, are considered to be agents adequate to produce the results exhibited in the phenomena of the drift formation. Dr. Whewell, recognizing the wave of translation as a mechanical agent, cautions against its being regarded as a current which flows continuously. Its effect must be to carry a single mass along with it at its own velocity, or to give a transient motion to a series of masses in succession as it passes over each, moving each but a small distance. A series of waves, each produced by some paroxysmal action, would mathematically account for any amount of result. He presents some simple numerical calculations, in which the quantities, it is true, are hypothetical, and which as they are modified would proportionately modify the result by which he arrives at the conclusion that a sea bottom 450 m. long, 100 m. broad, and 500 feet below the surface of the water, raised either at once or by paroxysmal lifts, would produce waves of translation with an effect equivalent to the dispersion of the whole body of northern drift.

DIME (Fr. *dîme*, contraction of *dixième*), a silver coin of the United States, of the value of 10 cents, or $\frac{1}{10}$ of a dollar. It was first coined in 1796 in pursuance of the act of April 2, 1792, though pattern pieces were struck in 1792. Its legal standards have been as follows: by act of April 2, 1792, fineness 892.4 thousandths, weight 41.6 grains; by act of Jan. 18, 1837, fineness 900 thousandths, weight 41¼ grains; by act of Feb. 21, 1853, fineness 900 thousandths, weight 38.4 grains. (See Coins.)

DIMSDALE, Thomas, baron, an English physician, born in Theydon-Garnon, co. of Essex, in 1712, died in Hertford, Dec. 30, 1800. He was especially noted for his zeal in promoting inoculation for the small pox, his success in which caused him to be invited to Russia by the empress Catharine II. in 1768, for the purpose of inoculating herself and her son. Catharine rewarded him with the title of baron and large presents. He afterward visited Frederic II. of Prussia, at Sans-Souci, and then returned to England, where, in 1776, he published a treatise on inoculation, which was translated into all the European languages. In 1780 he was elected to the house of commons, and in 1781 made a second professional visit to Russia. Beside the treatise above mentioned, he published several pamphlets on the same subject.

DINAGEPOOR, or Dinajpore, a district of British India, under the lieut. gov. of Bengal, bounded N. E. by Bootan, between lat. 24° 53′ and 26° 38′ N., long. 88° 2′ and 89° 16′ E.; length from N. to S., 130 m.; breadth, 75 m.; area, 3,820 sq. m.; pop. 1,200,000. It is a level country, watered by the Teesta and a vast number of other streams, and fertile in rice, pulse, oil seeds, pepper, ginger, turmeric, coriander, capsicum, potatoes, plantains, many other esculent vegetables, and the sugar cane. Small quantities of wheat, barley, tobacco, and a poor kind of cotton, are also produced. Silkworms are extensively reared.—Dinagepoor, the capital of the district, is a clean but ill-built town, on the river Purnabada, 261 m. N. from Calcutta, and the residence of the British authorities; pop. about 25,000.

DINAPORE, a town of British India, in the district of Patna, lieut. governorship of Bengal, on the right bank of the Ganges, 10 m. W. from Patna and 411 N. W. from Calcutta; pop. about 16,000. It is an important military station, noted for its handsome and extensive cantonments. On July 25, 1857, a mutiny occurred here which, though attended with little immediate bloodshed, was one of the most mortifying and serious disasters which befell the British during that year. The garrison consisted of 3 full native infantry regiments, beside a European field battery and parts of the 10th and 37th European foot, commanded by Gen. Lloyd. When symptoms of revolt became unmistakable, this officer took the weak precaution of removing the percussion caps from the armory to the officers' mess-room, and then requiring the sepoys to give up the caps already issued. The latter order was resisted, and when the British troops were called out to enforce it, the rebels were seen running at full speed across the fields with their arms and accoutrements. They laid siege to Arrah, attached themselves to the notorious Koer Singh, and gave great trouble throughout the revolt. No pursuit of them was made until the 27th, when an effort to relieve Arrah terminated with great loss to the British. Gen. Lloyd, who had served with distinction, but was now far advanced in age, fell into disgrace on this occasion, and was superseded by Sir James Outram.

DINDORF, Wilhelm, a German philologist, born in Leipsic in 1802. In 1819, at the age of 17, he published a continuation of the commentaries on Aristophanes begun by Beck. In 1828 he was appointed professor of the history of literature in the university of Leipsic, but resigned this office in 1833. He has edited Demosthenes, Æschylus, Sophocles, Euripides, Aristophanes, &c., for the university of Oxford; also many works published at Paris and Leipsic.

DINGELSTEDT, Franz, a German poet, born in the Hessian village of Halsdorf in 1814. He

made himself first known in literature by a publication of poems in 1838, which was followed by a series of novels, without, however, winning much reputation until 1840, when his *Lieder eines kosmopolitischen Nachtwächters* appeared. Since then he has published a great variety of poems, tales, books of travel, &c., among which his *Gedichte* (Stuttgart, 1845) are the most successful. In 1850 he was appointed director of the royal theatre at Munich on account of the success of his tragedy *Das Haus des Barneveldt*. His attention was probably drawn to the stage by Jenny Lutzer, the Viennese prima donna, who became his wife in 1844.

DINKA, Denka, or Donka, a district of eastern Soodan, Africa, between lat. 9° and 12° N., extending along the right bank of the Bahr-el-Abiad, or White Nile, which separates it from the territory of the Shillooks, S. W. of Sennaar and N. of the river Sobat, which separates it from the land of the Nuehrs; the eastern boundary is unknown. It consists of a low and marshy plain, subject to frequent inundations, and containing but few isolated mountains, among which is the Jebel Niemati, or mountain of the Dinkas. A number of long swampy islands covered with reeds and a dense growth of creeping plants, which extend along the right bank of the Bahr-el-Abiad, are described as forming a barrier against invasion from that quarter on the W. boundary. The shores present magnificent scenery, being lined with tamarinds, creepers of a large species, and the lotus shining in great numbers like double white lilies. The inhabitants, called Dinkas, are a savage and ugly race of negroes. They are said to worship the moon, and never to commence warfare when that luminary is above the horizon. They are ruled by chiefs and a king, and have a city on the Bahr-el-Abiad.

DINORNIS (Gr. δεινος, terrible, and ορνις, bird), a gigantic extinct bird, whose bones have been found in New Zealand. The history of this genus, established by Prof. Owen, is one of the most remarkable examples of the correctness of the great laws of the correlation of parts so beautifully elaborated by Cuvier. In vol. iii. of the "Transactions of the Zoological Society of London," p. 29, is the first paper by Owen on this subject. He had received from New Zealand a fragment of a femur, 6 inches long, and with both the extremities broken; from its texture and size he concluded that it belonged to a bird of the struthious order, but heavier and more sluggish than the ostrich; the bone was not mineralized, and retained much of its animal matter, though it had evidently remained in the ground for some time; this was in 1839. In a 2d memoir (p. 235), communicated in 1843, he gives descriptions of portions of the skeletons of 6 species of a struthious bird, which he called *dinornis*, which appeared to have become extinct within the historical period in the north island of New Zealand, as the dodo had in Mauritius; these specimens, 47 in number, had been sent to Dr. Buckland by the Rev. Mr. Williams, a missionary long resident in New Zealand, whose letter states that they were taken from the banks and bed of fresh-water rivers, buried only slightly in the mud, and probably quite recently; that the birds formerly existed in considerable numbers, and must have attained during a very long life a height of 14 or 16 feet. The bird to which these bones belonged was called *moa* by the natives. The names given by Owen were *dinornis giganteus*, height at least 10 feet; *D. ingens*, 9 feet; *D. struthoides*, 7 feet; *D. dromioides*, 5 feet; *D. didiformis*, 4 feet; and *D. otidiformis*, of the size of the great bustard. From these specimens he inferred that the wings were quite rudimentary; that the large cervical vertebræ supported a powerful beak; and that its strong legs were used in scratching up the soil to obtain the nutritious roots of the ferns which are so characteristic of those islands. He draws a portrait of this gigantic bird, the highest living form in that part of the globe, with no terrestrial mammal to contest its possession of the soil before the arrival of the first Polynesian colony. Such large and probably stupid birds, without the instinct or perhaps the ability to escape or defend themselves, would soon become extinct under the persecution of man, whose sole aim would be to obtain a supply of animal food from such easy prey; the diminutive *apteryx* would escape for a longer period, but even this is almost on the point of extinction. In a 3d memoir (p. 307), read in 1846, an examination of a larger number of specimens confirmed the deduction as to the rudimentary condition of the wings by the discovery of a keelless sternum; showed that the species of this essentially terrestrial genus were heavier and more bulky in proportion to their height, more powerful scratchers, and less swift of foot than the ostrich, but in different degrees according to the species; and indicated an affinity to the dodo in the shape of the skull, with a lower cerebral development, and consequently greater stupidity. He formed a new genus, *palapteryx*, of the species *ingens* and *dromioides*, characterized by a posterior or 4th toe, the 3 of the *dinornis* all being anterior toes; he added the 3 new species, *D. crassus*, *D. casuarinus*, and *D. curtus*, all of small size. In a 4th paper (p. 345), read in 1848, he establishes a new genus, *aptornis*, in which he places what he formerly called *D. otidiformis;* this has a large surface for the hind toe, a strong perforated calcaneal process, and a more posterior position of the condyle for the inner toe; it resembles the *apteryx* in the comparative shortness of the metatarsus. In this he describes perfect skulls and beaks of these birds, from which he concludes that the *dinornis*, though resembling the *struthionidæ* in the extraordinary development of the legs and the rudimentary condition of the wings, does not come very close to any existing struthious birds in its adze-like beak, crocodilian cranium, form of the pelvis, and proportions of the metatarsus. The genus *palapteryx* belongs to the *struthionidæ*, being in

some respects intermediate between *apteryx* and *dromaius*. The law of the geographical localization of animals, so remarkably illustrated in the recent progress of geology, receives an additional confirmation by this occurrence in the river banks of New Zealand of remains of gigantic birds allied to the small species still existing only in the same islands. In vol. iv. of the "Transactions" (p. 1), in 1850, the feet and the sternum are described, and 2 new species are alluded to, viz.: *D. rheides*, and *P. robustus;* further descriptions of the skull, beak, and legs are given on pp. 59, 141, of the same volume. Some years before the discovery of these bones in New Zealand, attention had been drawn to remarkable impressions in the new red sandstone of the Connecticut river valley, in Massachusetts, which were believed to be footprints of birds, the largest of which must have exceeded the ostrich in size. Geologists were unwilling to admit the existence of birds at this remote epoch on the simple ground of these tracks, and did not dare to construct even in imagination a bird of such stupendous size as would be required for the largest footprints. But the subsequent discovery of *D. giganteus* demonstrated the existence of birds, at a comparatively recent period, whose tracks would have been larger than the fossil impressions; these recent birds would have made tracks 22 inches long and 6 wide, considerably larger than those of the Connecticut valley. The occurrence of these gigantic birds in New Zealand, with their wingless bodies, and reptile-like condition of the respiratory apparatus (from the non-permeability of their bones to air), adds much to the evidence that similar apterous and low-organized birds existed in America during the red sandstone epoch, "the age of reptiles," when the cold-blooded and slow-breathing *ovipara* exhibited such various forms and so great a number of species. It has been suggested by Prof. Owen that New Zealand may be the remnant of a large tract over which the struthious family formerly ranged; he says: "One might almost be disposed to regard New Zealand as one end of a mighty wave of the unstable and ever-shifting crust of the earth, of which the opposite end, after having been long submerged, has again risen with its accumulated deposits in North America, showing us in the Connecticut sandstones of the permian period the footprints of the gigantic birds which trod its surface before it sank; and to surmise that the intermediate body of the land-wave, along which the *dinornis* may have travelled to New Zealand, has progressively subsided, and now lies beneath the Pacific ocean." (*Op. cit.* vol. iii. p. 328.) Though many of these bones are apparently of recent date, and though it is not impossible, in the opinion of some, that the *dinornis*, like the *apteryx*, may still exist in the interior of these islands, they belong to a certain extent to the class of extinct genera. Dr. Mantell thinks they belong to a period as remote, in relation to the surface of New Zealand, as the diluvium containing the bones of the Irish elk, mammoth, &c., to that of England; and that the last of the moas was destroyed by the earliest inhabitants of New Zealand, as the dodo was extirpated by the Dutch colonists of Mauritius, and the Irish elk by the early British and Celtic tribes. In a more recent paper in the "Proceedings of the Zoological Society," for April 8, 1856, Prof. Owen describes the *D. elephantopus*, the most extraordinary of all for the massive strength of the limbs, and the general proportions of the breadth and bulk to the height; he states it to be the opinion of Mr. Mantell that this species existed in the middle island with the first Maori natives. From a consideration of these species, it appears that those of the north island were distinct from those of the south; Cook's straits proved an insurmountable barrier to birds which could not fly, and could hardly, if at all, swim.

DINOTHERIUM (Gr. δεινος, terrible, and θηριον, animal), an extinct pachyderm of immense size, whose bones have been found in the middle tertiary or miocene deposits of Europe, Asia, and Australia. A few teeth were found in France during the last century, and the early part of the present. In 1829 Prof. Kaup discovered in the sands of Eppelsheim a sufficient number of bones to lead him to form a new genus for this, the largest of terrestrial quadrupeds. Cuvier thought it allied to the tapir from the character of its premolar teeth, and many writers, and among them Pictet, classed it with the manati and herbivorous cetaceans. Prof. Kaup considered it a pachyderm, intermediate between the mastodon and the tapir. In 1836 the discovery of a cranium by Dr. Klipstein seemed to settle the position of the dinotherium among the pachyderms; in 1837, this head was exhibited at Paris, where several casts were taken. It is nearly 4 feet long, 2 feet broad, and $1\frac{1}{2}$ feet high, its summit divided into 2 parts by a well-marked ridge, and its occipital surface wide and oblique, with a globular occipital condyle; the nasal aperture is very large, as in the elephant and mastodon, with the large suborbital foramina indicating the possession of a proboscis. The lower jaw is remarkable for its curve downward, and its 2 tusks pointing in the same direction, forming a hook about 3 feet in length and describing $\frac{1}{4}$ of a circle. The primary teeth appear to have been 12, 3 on each side of each jaw, and the permanent teeth 20, 5 on each side of each jaw; the front 2 on each side, making 8, are premolars, and resemble those of the tapir; the upper 12 teeth, the true molars, resemble those of the mastodon in their transverse ridges, but differ from them in their square form; they are developed vertically, as in man and most mammals, while those of the elephant family are developed horizontally. If the bones of the trunk and extremities attributed to this animal really belong to it, which is exceedingly doubtful, it would have a length of 18 feet and a height of 14, 2 feet longer and higher than the largest mastodon discovered. The shoulder blade is de-

scribed as like that of the mole, indicating that the fore feet were adapted for digging in the earth. It is not very easy to decide whether this animal was most terrestrial or aquatic in its habits. Pictet, in his *Traité de paléontologie* (1853, vol. i. p. 371), expresses the opinion that it was a herbivorous cetacean, from the long and hanging tusks which a terrestrial animal could hardly use, the depression of the occipital bone (this being nearly vertical in the pachyderms), the wide opening of the nasal fossæ, the form of the intermaxillaries and of the ocular and temporal fossæ; he would make it an aquatic animal, though coming nearer the proboscidians than does the existing manati; living near the mouths of rivers, it fed upon the fleshy portions of plants which it rooted up with its tusks. On the contrary, Owen, Kaup, and De Blainville consider it a terrestrial proboscidian, intermediate between the mastodon and tapir. These two opinions are really not very different from each other, since it is now generally agreed that the manati and dugong, or the herbivorous cetacea, must be removed from the order of cetacea and placed among the pachydermata, of which last they are the embryonic type. (For details on this subject see the "Proceedings of the American Association for the Advancement of Science," 3d meeting, in Charleston, S. C., March, 1850, p. 42.) Considering then the dinotherium to be a true pachyderm, its favorite element, air or water, may be a matter of question. It has no incisor teeth; its inferior tusks seem admirably adapted to drawing its heavy body out of water upon the banks of rivers; they would also serve for rooting up aquatic plants, assisted by the mole-shaped fore feet. Dr. Buckland suggests that the tusks served to anchor the animal to the shore, while it slept in the water. It cannot be far from the truth to call it an aquatic pachyderm, similar in habits to the hippopotamus, living in lakes and marshes. The best known species (*D. giganteum*, Kaup) was found at Eppelsheim, a few leagues south of Mentz, in clayey marl about 18 feet below the surface, in connection with bones of other pachyderms; their remains have been found only in the miocene strata. Other smaller species are described, as the *D. Cuvieri* (Kaup), *D. minutum* (H. de Meyer), and *D. proavum* (Eichwald), in Europe; *D. Indicum* (Cautley and Falconer), from the Sivalik hills; and the *D. australe* (Owen), of Australia.

DINWIDDIE, a S. E. county of Va., bounded N. by the Appomattox river, and S. W. by the Nottoway; area, 540 sq. m.; pop. in 1850, 25,118, of whom 10,880 were slaves. It has a rolling surface and a soil well adapted to grain and tobacco. In 1850 it produced 304,556 bushels of Indian corn, 60,275 of wheat, and 1,782,521 lbs. of tobacco. There were 3 cotton factories, 25 flour and grist mills, 3 newspaper offices, 36 churches, and 1,092 pupils attending schools and academies. Value of real estate in 1856, $2,537,279. It is intersected by the railroad from Richmond to Weldon, N. C. The county was organized in 1752, and named in honor of Gov. Dinwiddie. Capital, Dinwiddie Court House.

DINWIDDIE, Robert, lieutenant-governor of Virginia, born in Scotland about 1690, died in England, Aug. 1, 1770. While acting as clerk to a collector of the customs in one of the British West India islands, he was instrumental in detecting and exposing the frauds practised by his principal, and as a reward for his services he was soon after appointed lieutenant-governor of Virginia. He arrived in the colony in 1752, and remained until Jan. 1758, when he returned to England. His administration covered a stirring period in colonial history, and he proved himself a zealous and active officer, although totally ignorant of military affairs. He had, however, the sagacity to discern the capacity of Washington, whom in 1753 he appointed adjutant-general of one of the 4 military districts of Virginia, and sent as a commissioner to expostulate with the French commander on the Ohio for his aggressions upon British territory. At the outbreak of hostilities with the French and Indians, he called upon the governors of the other provinces to make common cause against them, and convened the house of burgesses of Virginia to devise measures for the public security. Entertaining peculiar notions of the royal prerogative and of his own importance, he was highly incensed at the tardiness of the latter body in voting money for the public defence, and at their refusal to put it under his absolute disposal. In 1754 he suggested to the British board of trade the propriety of taxing the colonies for the purpose of raising funds to carry on the war, and in the succeeding year he was one of the 5 colonial governors who at an interview with Gen. Braddock, at Alexandria, Va., memorialized the ministry to the same effect. After the defeat of Braddock, he continued to busy himself with the military operations on the frontiers, displaying great incapacity, and wearying Washington, then in command of the colonial troops, by frequent exhibitions of ill temper, folly, or caprice. He enjoyed little popularity in Virginia, where his arrogance brought him into collision with the legislature, while his avarice led him to exact illegal or obsolete fees, such as a pistole for every patent granted, a perquisite which no governor had claimed for many years. At the time of his departure he was also charged with having appropriated to his own use the sum of £20,000 which had been sent by the British government as a compensation to Virginia for moneys expended by her beyond her proportion, and which he never satisfactorily accounted for.

DIOCESE (Gr. διοικησις, administration), an ecclesiastical division of a state, the circuit of a bishop's jurisdiction. In Roman antiquity, the term *diocæsis* designated one of the 4 prefectures or civil divisions into which the empire was partitioned by Constantine the Great; and at a later period the empire became divided into 14 dioceses or prefectures, which comprehended 120 provinces. The civil constitution was fol-

lowed in the government of the church, and the diocese was originally a great ecclesiastical district, embracing several bishoprics, and under the primacy of the bishop of the principal city, who bore the title either of metropolitan, archbishop, exarch, or patriarch. The diocese is now in the Roman Catholic church the district subject in ecclesiastical affairs to the authority of an archbishop or bishop; in the episcopal Protestant churches, the district ruled by a bishop; and in the Evangelical church of Germany, the combination of parishes under the care of a superintendent. In England, every diocese is divided into archdeaconries; each archdeaconry at least nominally into rural deaneries; and every deanery into parishes.

DIOCLETIAN, Valerius, a Roman emperor, born at Doclea or Dioclea, a small village near Salona in Dalmatia, A. D. 245, died in Salona in 313. He was of obscure parentage, but by his abilities rose rapidly in the army. On the death of Numerian in 284, he was named emperor by the troops, then returning from the Persian expedition which they had commenced under Carus, but had abandoned on the sudden death of the latter. They retreated under his son Numerian, who died on the march, not improbably at the instigation, if not by the hand, of Arrius Aper, his father-in-law. The death of Numerian was concealed for a time, but the soldiers, having discovered it, chose Diocletian emperor, and the latter immediately plunged his sword into the bosom of Aper, thus avenging the death of Numerian, and at the same time happily fulfilling an old prophecy which he had received from a druidess in Gaul, to the effect that he would reign when he should have slain the wild boar (Lat. *aper*). But Diocletian was not without a rival; Carinus, brother of Numerian, was recognized as emperor in Europe. The armies of the hostile sovereigns met near the small city of Margus, not far from the Danube in Mœsia, where victory declared itself in favor of the veteran legions of the West; but Carinus, eagerly following the flying enemy, was killed by one of his own officers, and his army readily acknowledged Diocletian as his successor. The latter soon, however, thought it necessary to associate with himself a colleague in the supreme dominion, and fixed his choice on Maximian, his old companion in arms, a rough barbarian, whom he invested with the imperial dignity in 286, and in whom he found a useful assistant and a constant friend. The Roman empire was beset with enemies and torn by factions. The peasants of Gaul rose in arms; Mauritania was in rebellion; Egypt was disturbed by external enemies and internal convulsions; while all along the frontier, from the Euphrates to the Rhine, the barbarians were threatening to destroy the empire by the invasions of their countless hordes. Maximian subdued the Gallic peasants, Bagaudæ, as they were styled, but Diocletian was compelled to strengthen the empire by raising two more Roman soldiers to the purple, Galerius, son of a Dacian shepherd, and Constantius, surnamed Chlorus, son of a noble Mœsian, and father of Constantine the Great. These two princes received the title of Cæsars, and having repudiated their wives, Galerius married the daughter of Diocletian, and Constantius the stepdaughter of Maximian. Britain, Gaul, and Spain were assigned to Constantius; Galerius received the Illyrian and Danubian provinces; Italy, Africa, with Sicily, and the islands of the Tyrrhenian sea, were held by Maximian; while Diocletian, the head of all, retained under his own dominion Thrace, Egypt, and the provinces of Asia. By this arrangement, on the death of either of the Augusti, as Maximian and Diocletian were styled, the Cæsar who had been associated with him was to be his successor, and another Cæsar was to be appointed. These four princes, it was thought, would hold one another in check, so that no one of them would be able to attain to uncontrolled power. The plan was for a time successful. Maximian subdued the rebellious provinces of western Africa; Diocletian reduced and secured Egypt; Galerius not only, under the superintendence of his father-in-law, compelled the haughty Persians to make a treaty which secured the frontiers of that part of the empire for 40 years, but also vigilantly guarded the Danubian frontier; while Constantius invaded Britain, which for several years had been detached from the rest of the empire under the rule of the usurper Carausius, and restored that island to the control of the Roman emperors. But the evils of this system of division, though not immediate, were certain; and the permanent splitting of the empire into 2 distinct governments was its legitimate result. After a prosperous reign of about 21 years, Diocletian, moved by his infirm health, or, as is said, by the persuasions or menaces of his son-in-law Galerius, voluntarily resigned the throne (305), and retired to Salona in his native country of Dalmatia, where he passed the remaining 8 years of his life in retirement. Maximian, according to a previous agreement, abdicated at the same time, but was not so contented in a private station as Diocletian, and, a few years later, wrote to his former colleague, proposing to him to resume the reins of government. The reply of Diocletian has become celebrated. "Would you could see," he says, "the cabbages planted by my hand at Salona; you would then never think of urging such an attempt." Diocletian introduced great changes in the Roman state. He struck a severe blow at the waning influence of the senate by the removal of his court from Rome to Nicomedia, reduced the numbers and the importance of the prætorian guards, divided the provinces so as to lessen the power of the provincial governors, and increased the dignity and ceremony with which the emperor was surrounded. He is deservedly censured for persecuting the Christians; but it is supposed, as he himself seemed to be favorably disposed to them during the greater part of his reign, and as he was much under the influence of Galerius, a superstitious savage,

that he may have been induced to pursue this course by the artful persuasions of the latter. It must be remembered also, that the greater part of these persecutions took place after. Diocletian had resigned his authority.

DIODATI, Domenico, an Italian archæologist and theologian, born in Naples in 1736, died there in 1801. He wrote several works on ecclesiastical history, and one on the coins of the Italian states; but the work by which he became widely known, and which will remain one of the most curious monuments of ingenious speculation, is entitled *De Christo Græce loquente Exercitatio, qua ostenditur Græcam sive Hellenisticam Linguam cum Judæis omnibus, tum ipsi adeo Christo Domino et Apostolis, nativam ac vernaculam fuisse* (Naples, 1767). The strange theory that Greek was the native language of the Jewish people in the time of Christ, not only familiar to the cultivated classes, but the dialect of the common people, is advocated in this work with remarkable subtlety, nice comparison of passages, and a great variety of proofs, both external and internal. The Della Cruscan academy made him at once one of its associate members, and the delighted empress of Russia, patron of the Greek church, sent a gold medal to the man who had done such service to the language of the sacred records.

DIODATI, Giovanni, a Swiss theologian, born in Geneva in 1576, died in 1649. His parents, refugees from persecution, had found that home in Geneva which was denied them in their native city of Lucca. At 21 years he became, on the nomination of Beza, a professor of Hebrew. In 1608 he was made parish minister in the Reformed church, and in 1609 became professor of theology. On a visit to Venice he had several interviews with Fulgentius and Fra Paolo Sarpi, the famous historian of the council of Trent, at the time that they were resisting the secular influence of the papacy. In 1618–'19 Diodati, already noted as a preacher both in France and Switzerland, attended the synod of Dort, where, with Theodore Tronchin, he represented the church of Geneva, and was one of the 6 ministers appointed to draw up the articles of faith. In this synod he showed himself a zealous Calvinist, and offended many by his bitterness against the Remonstrant party. In 1633 he drew up, along with Le Clerc, a preface to the confession of faith of Cyril Lucar, patriarch of the Greek church at Constantinople. This remarkable and unfortunate prelate had been for many years the associate, correspondent, and admirer of the leading reformers, and was indefatigable in his efforts to engraft Lutheran and even Calvinistic ideas upon the creed of the eastern church. In 1645 Diodati relinquished his office as professor, and passed the remaining years of his life in retirement. He was considered by many to be the most learned biblical scholar of his day. Among his works are an Italian version of the Bible (1607); a free Italian translation of the New Testament (1608); *Mortis Meditatio Theologica* (Geneva, 1619); the "Papal Fiction of Purgatory" (1619); a French translation of Job, Ecclesiastes, and Canticles (1638), of the Psalms (1640), and of the whole Hebrew Bible (1644); *Glossæ in Sancta Biblia* (fol. Geneva, 1641), in Italian; and a great number of other theological and controversial writings.

DIODORUS, commonly called Diodorus Siculus, a Sicilian historian of the time of Cæsar and Augustus, was born in Agyrium, but the precise epochs both of his birth and of his death are unknown. He spent 30 years in composing a universal history, and in the preparation of this work he traversed a large portion of Europe and Asia. The first 6 books treated of the times anterior to the Trojan war; the 11 following extended to the death of Alexander the Great; while in the 26 remaining, the history was brought down to the time of Julius Cæsar. Of this extensive work, which was styled Βιβλιοθηκη, or Βιβλιοθηκη Ἱστορικη (library, or historical library), we have now only 15 books entire, and a few fragments of the rest. The first 5 books, containing the ancient history of the eastern nations, the Ethiopians, Egyptians, and Greeks, and the 10 from the 11th to the 20th inclusive, comprising the history of events from the second Persian war, 480 B. C., down to 302 B. C., remain entire. Many fragments of the other books are preserved in the works of Photius, and in the *Eclogæ*, or selections, made by order of the emperor Constantine Porphyrogenitus. The Bibliotheca is the only work of Diodorus of which we have any knowledge, the collection of letters attributed to him being probably a forgery. It is written in the style of annals, and the events are narrated in a confused and discordant manner; but the work is valuable as giving us, if not always information of facts, at least of the opinions of men, with regard to a period in history concerning which our information is so exceedingly meagre, that the slightest addition to it is of great value. The first 5 books are especially prized on this account. Most of the events treated in the other ten are better told by Thucydides and Xenophon, who are silent, however, upon the Carthaginian wars in Sicily related by Diodorus. The best modern editions of his works are those of L. Dindorf (6 vols. 8vo., Leipsic, 1828), and Müller (Paris, 1842–'4). That portion of his history which relates to the successors of Alexander was translated into English by Thomas Stocker (4to., London, 1569). His whole work was translated by Thomas Cogan (fol., London, 1653), and by G. Booth (fol., London, 1700 or 1721; republished, 2 vols. royal 8vo., London, 1814).

DIOGENES, a Cynic philosopher, born in Sinope, in Pontus, Asia Minor, about 412, died near Corinth, 323 B. C. His father was a banker, and was condemned for having adulterated the coinage; and whether his son was involved in the same condemnation or not, it is certain that the latter left his native country and took refuge in Athens. Here he became a disciple of Antisthenes, the founder of the Cynic school of

philosophy. The latter was at first unwilling to receive him, driving him rudely from his door, and threatening him with his staff. "Strike," said Diogenes; "you cannot find a stick so hard as to compel me to go away, while you speak that which I wish to hear." Diogenes soon gained a reputation superior to that of his master for rough and caustic wit. The anecdotes related of him, whether they are all true or not, will help us to form a judgment of the character of the man. One day at Athens the citizens saw him with a lantern in his hand, although it was broad day, apparently searching for something. On being asked what he was seeking, he replied: "A man." He had found children, he said, in Sparta, and women in Athens, but men he had never seen. At another time he called out: "Approach, all men;" and when the citizens drew near, beat them back with a stick, saying: "I called for men, but ye are excrements." He used to carry a small drinking vessel with him, but broke it on seeing a boy drink from the hollow of his hand. He slept either under the portico of some building, or in a tub, which was his ordinary dwelling, and which he carried about with him. The truth of this popular statement, however, has been much disputed both by ancient and modern critics. He taught in the streets and public places, speaking with the utmost plainness, often with rudeness, and was altogether insensible to reproaches and insults. His wit was ready and severe. Plato defined man as a two-legged animal without feathers; whereupon Diogenes, having stripped a fowl of its plumage, threw it among the scholars of the great academician, bidding them behold one of Plato's men. Being asked which is the most dangerous animal, he answered: "Of wild animals, the slanderer; of tame, the flatterer." On a voyage to the island of Ægina, he was captured by pirates, and afterward sold as a slave. While in the market place, waiting for a purchaser, being asked what he could do, he answered that he knew how to govern men, and bade the crier to ask: "Who wants to buy a master?" He was purchased by Xeniades, a Corinthian, who carried him home, and afterward set him at liberty, intrusting to him the education of his children. The rest of his days Diogenes divided between Athens and Corinth, and it was at the latter place that his celebrated but apocryphal interview with Alexander the Great is said to have taken place. The king of Macedon, surprised at the indifference with which he was regarded by the ragged philosopher, who was comfortably basking in the sun before his tub, said to him: "I am Alexander." "And I," was the reply, "am Diogenes." Alexander desired him to ask a favor; but all that the Cynic wished was, that Alexander would not stand between him and the sun. Struck with this extraordinary insensibility to the usual weaknesses of humanity, the Macedonian remarked: "Were I not Alexander, I would be Diogenes." He loved to display his contempt of the common courtesies of life. Plato was giving a magnificent dinner to some friends, and Diogenes entered unbidden, and, stamping with his dirty feet on the carpets, exclaimed: "Thus I trample on the pride of Plato." "But with greater pride, O Diogenes," replied Plato. Surly, independent, constantly grumbling at the vices of mankind, a voluntary outcast among his fellow-men, he lived on to a great age, and died in his 90th year. According to Diogenes Laërtius, he wrote several works, but nothing has come down to us with the exception of some sayings preserved by the above-mentioned author, and it is even doubted by some whether he ever wrote any thing. He did not teach by lectures, but uttered his philosophy in short, pithy sentences, as occasion offered.

DIOGENES OF APOLLONIA, a Greek philosopher, born at Apollonia in Crete, flourished in the 5th century B. C. Very little is known of his life. He was at Athens probably about 460, and became involved in some trouble there, perhaps in consequence of his philosophical speculations. These latter were developed in his work Περι Φυσεως, "On Nature," which was still extant in the 6th century, but of which we have at present only a few fragments, preserved in the works of Aristotle, Diogenes Laërtius, and Simplicius. His great object was to find the first principle of the world, out of which all things were evolved. Like his master Anaximenes, he came to the conclusion that this great first principle was air. Air of various degrees of condensation formed the atmosphere, fire, water, and earth, and out of these every thing else was evolved. But he went beyond his master in endowing this subtle first principle with a certain intelligence, presiding over the arrangement of the universe, the marks of which are visible in the order and beauty of creation. The brutes, he says, are inferior to man, because they inhale an air less pure, holding their heads near the ground. The world, too, he supposed to be animated, and he imagined the stars to be its organs of respiration. The fragments of Diogenes which have come down to us were published by Panzerbeiter (Leipsic, 1830).

DIOGENES LAËRTIUS, an ancient historian of philosophy, who probably lived toward the end of the 2d century, though the dates of his birth and of his death are alike unknown, and his life has been placed as early as the time of Augustus, and as late as that of Constantine the Great. He is supposed to have been born in Laërte, in Cilicia, but of his life we know absolutely nothing. He wrote a history of philosophy in Greek, divided into 10 books, and giving an account of the philosophers, anecdotes of their lives, and illustrations of their teachings. He considers Grecian philosophy not to have been derived from without, but to have been indigenous, and he divides it into two schools: the Ionic, commencing with Anaximander and ending with Clitomachus, Chrysippus, and Theophrastus, and of which the Socratic school forms a part; and the Italian, whose founder is

Pythagoras, and whose last master is Epicurus, and which includes in its comprehensive embrace Heraclitus, the Eleatics, and the Sceptics. The account of these two schools comprises the whole of the work, with the exception of the first book, which contains the history of the 7 wise men of Greece, whom he considers rather as precursors to Grecian philosophy than as properly belonging to it. The work of Diogenes is valuable for information which we could obtain from no other source; but it is ill-digested, written without critical judgment, and often inaccurate. Diogenes is supposed to have written some other works, among which was a volume of epigrams, but, judging from the specimens of his talent in this sort of composition which are found interwoven with his philosophical history, we have no cause to regret their loss. A good edition of his history is that of H. G. Hübner (2 vols. 8vo., Leipsic, 1828–'31). A translation into English was published (2 vols. 8vo., London, 1688). There is another translation by C. D. Yonge in Bohn's "Classical Library."

DIOMEDES. I. One of the most famous of the Grecian heroes at the siege of Troy, and, after Achilles, considered the bravest of all the Greeks. According to Homer, his father Tydeus was one of the leaders in the memorable expedition of the seven against Thebes, and was killed before the walls of that city, while Diomedes was still a boy. The latter, however, having arrived at the age of manhood, joined the second expedition against Thebes, and avenged his father's death. With 80 ships he sailed in the great Grecian armament to the siege of Troy, where, beside a multitude of victories over heroes of less note, he engaged and put to flight Hector and Æneas, and also wounded both Venus and Mars, the divine defenders of the city. He was also famed for his wisdom in council, and when Agamemnon, dispirited by adversity, proposed to abandon the siege, Diomedes declared that he with his friend Sthenelus would remain, at all events, until Troy should fall. According to later legends, he carried off with Ulysses the palladium from Troy. Of his history after the fall of Troy Homer gives us no account, but later writers tell us that, having returned to Argos and found his wife unfaithful, he abandoned his native country, and sought a home elsewhere. Traditions differ with regard to his after life. According to some accounts, he went to Ætolia, and afterward returned and gained possession of Argos. Another relates that, in attempting to return to Argos, he was driven by a storm upon the coast of Italy, where he was kindly received by King Daunus, whom he assisted in a war against a neighboring tribe, and whose daughter Euippe he received in marriage. II. A king of the Bistones in Thrace, son of Mars and Cyrene, celebrated for his mares, which he fed upon human flesh. To obtain possession of these mares was one of the 12 labors of Hercules. The hero slew Diomedes, whose body he gave to the mares, and they, though previously savage, became tame after eating their master's flesh.

DION OF SYRACUSE, a disciple of Plato, celebrated for having overthrown the power of Dionysius the Younger, tyrant of that city, born toward the close of the 5th century B. C., killed in 353. Under Dionysius the Elder, who was married to his sister Aristomache, he enjoyed the favor of the court, and amassed great wealth; but when the younger Dionysius succeeded to the throne, Dion, whose austere manners were a constant rebuke of the royal debaucheries, fell into disgrace, and at last was banished from Sicily. He found refuge and a friendly reception in Greece, where he lived for a while in affluence, his income being still allowed to reach him. Soon, however, this was cut off, and to complete his disgrace, his wife Arete was compelled to marry another man. Dion knew that the Syracusans hated their tyrannical ruler, and he now resolved to avenge himself and his country at the same time. Having assembled a body of about 800 troops, he sailed from Zacynthus, landed in Sicily, and easily obtained possession of Syracuse in the absence of Dionysius. The troops of the tyrant, however, still held the citadel on the neighboring island of Ortygia, whence they made a sally soon after the arrival of Dion, and were repulsed only after a fierce combat, during which Dion himself displayed great courage. He was at first received by the citizens with enthusiasm, and on his entry into the city he proclaimed liberty to Syracuse. But irritated by his harsh manners, suspecting his designs, and incited by the demagogue Heraclides, the people afterward expelled him and his troops. The Syracusans soon had reason to repent of their conduct, for the soldiers of Dionysius, aware of their dissensions, made a sally, regained part of the city, set fire to the houses, and began a fearful massacre. The banished philosopher was entreated to return, and marching immediately, he succeeded after a hard contest in obtaining full control of Syracuse. It is not improbable that he intended to establish an oligarchical government, though he has been suspected of an intention to retain the supreme power in his own hands. He caused his opponent Heraclides to be put to death. This act greatly injured his popularity, already damaged by his repellant and austere manners; a conspiracy was formed against him, and he was not long after assassinated.

DION CASSIUS COCCEIANUS, an ancient historian of Rome, born in Nice in Bithynia about A. D. 155, went to Rome about 180, where he was made senator. He was afterward appointed to many offices of trust by different emperors, and was twice raised to the consulship. Having become odious to the prætorian guards, because, it is said, of the severe discipline which he had imposed, he obtained permission from the emperor Alexander Severus, in 229, to retire to his native city of Nice, where he spent the remainder of his days. His great work was a history of Rome (Ῥωμαϊκὴ

Ἱστορια), written in Greek, divided into 80 books, and containing an account of the rise and progress of the state from the landing of Æneas in Italy until A. D. 229, giving only a slight sketch of events down to the time of Julius Cæsar, but dwelling with more minuteness on the history of later times, and especially on that of the author's own age. Of this work, which is written with clearness, diligence, and general accuracy, but in a faulty style, 20 books (from the 36th to the 54th) remain entire. Fragments of the first 35 have been collected, and there are abridgments of the last 25 and of the entire work. One of the best editions of Dion Cassius is that of Sturz (9 vols. 8vo., Leipsic, 1824–'25–'43). An English translation of Xiphilin's abridgment was published in London (2 vols. 8vo., 1704).

DION CHRYSOSTOMUS (*i. e.*, Dion the golden-mouthed), a Greek rhetorician, born in Prusa (now Broussa), in Bithynia, about the middle of the 1st century, died in Rome about A. D. 117. In the practice of his art at Rome, he incurred the hostility of the emperor Domitian, and in consequence of a decree of the senate he was obliged to flee from Italy. In the habit of a beggar, with Plato's "Phædon" and Demosthenes's "Oration on the Embassy" in his pocket, he wandered through Thrace and the countries bordering on the lower Danube, and on receiving intelligence of the death of Domitian (96) used his influence and his oratorical powers with the army stationed on that frontier in favor of Nerva. It is probable that he returned to Rome on the accession of this emperor, from whom as well as from his successor Trajan he received tokens of marked kindness. About A. D. 100 he returned to Prusa, but remained but a short time, and then went back to Rome. He was an essayist rather than an orator, and his writings are distinguished for elegance of style. Of his orations 80 have come down to us. There is a very good critical edition of them by Reiske (2 vols. 8vo., Leipsic, 1784).

DIONÆA (*D. muscipula*, Ellis), Venus's fly trap, a plant inhabiting the savannas around Wilmington, N. C., and extending N. as far as Newbern, N. C. Elliott, on the authority of Gen. Pinckney, says that it grows along the lower branches of the Santee in South Carolina. Mr. Audubon informed Mr. Curtis, with the plant before him, that he had seen it in Florida of enormous size. Specific characters: calyx herbaceous; petals 5, hypogynous on the margin of the dilated receptacle, alternate with the sepals; stamens 10 to 20, hypogynous within the petals, shorter than they; filaments filiform; anthers oblong, of 2 parallel cells without connection; pollen of pretty large grains, composed of 4 united; ovary depressed, ovoid, one-celled, 5 lobes, the lobes alternate with the petals; style columnar, pretty large, undivided; stigmas 5, corresponding with the lobes of the ovary; ovules indefinite, erect, sessile on and uniformly covering the nearly flat basilar placenta, which occupies the whole bottom of the cell; herb acaulescent, smooth, with fibrous roots, and a cluster of spreading yellowish green leaves, traversed by a strong midrib bearing on its apex an orbicular herbaceo-coriaceous lamina, emarginate at both ends, fringed with a row of bristles, the 2 sides conduplicate, the upper surface dotted with minute glands, in which the sensitiveness of the leaf chiefly resides. The lobes or sides of the lamina are folded at night, but spread during the day, when if the glands be roughly touched, or an insect alights upon them, the sides suddenly close on the intruder. After remaining contracted for some time, the trap again opens, ready to enclose a new intruder; but by repeated irritation at short intervals its movements become languid, and its sensibility is for the time entirely exhausted. The best popular description of this singular plant is given by Curtis in his enumeration of plants growing spontaneously around Wilmington, N. C., communicated to the Boston society of natural history in 1834, and published in the proceedings of that society. "The leaf," remarks Mr. Curtis, "which is the only curious part, springs from the root, spreading upon the ground or at a little elevation above it. It is composed of a petiole or stem with broad margins like the leaf of the orange tree, 2 to 4 inches long, which at the end suddenly expands into a thick and somewhat rigid leaf, the 2 sides of which are semi-circular, about $\frac{2}{3}$ of an inch across, and fringed around the edge with somewhat rigid ciliæ or long hairs like eyelashes. It is very aptly compared to 2 upper eyelids joined at their bases. Each side of the leaf is a little concave on the inner side, where are placed 3 delicate hair-like organs in such an order that an insect can hardly traverse it without interfering with one of them, when the 2 sides suddenly collapse and enclose the prey with a force surpassing an insect's efforts to escape. The fringe or hairs of the opposite sides of the leaf interlace, like the fingers of the 2 hands clasped together. The sensitiveness resides only in these hair-like processes on the inside, as the leaf may be touched or pressed in any other part without sensible effects. The little prisoner is not crushed and suddenly destroyed, as is sometimes supposed, for I have often liberated captive flies or spiders, which sped away as fast as fear or joy could hasten them. At other times I have found them enveloped in a fluid of a mucilaginous consistence, which seems to act as a solvent, the insects being more or less consumed by it. This circumstance has suggested the possibility of their being made subservient to the nourishment of the plant, through an apparatus of absorbent vessels in the leaves." The discovery of this plant has led naturalists to make experiments upon plants with the view of ascertaining the possibility of their appropriating animal matter to their own nourishment, with such success as to lead to the belief that the form and organization of the *dionæa muscipula* is really intended to entrap its insect prey, for the purpose of furnishing a kind of food to the plant, which, although not essential to its

existence, performs an important part in its economy.

DIONYSIUS OF ALEXANDRIA, saint and bishop of the church, born in Alexandria, in Egypt, in the last years of the 2d century, died in that city, A. D. 265. He was of a noble and wealthy family. His parents were pagans; but in the course of his early philosophical studies his attention was turned to the Christian sacred writings, especially the epistles of Paul, and he became a convert. He left the heathen schools, became a pupil of Origen, was ordained priest, and in 232 was chosen to succeed Heraclas as chief of the Alexandrian school of theology. In 248 he was raised to the office of bishop, made vacant by the death of Heraclas. Shortly after this, violent persecutions broke out against the Christians. The populace of Alexandria had been stirred up against them by a certain heathen false prophet, and the edict of Decius, which reached that city A. D. 250, put arms in the hands of the enraged enemies of the Christian name. Dionysius, who had taken an active part in preparing the Christians for the coming trial, was marked for a victim, was arrested, sent to be put to death, rescued by a band of peasants, and he remained concealed more than a year in the Libyan desert, sending continual messages meanwhile to his brethren in the city. In the persecution under Valerian in the year 257, Dionysius was again exiled from his see. After his restoration (A. D. 260), he was more than once called to mediate on occasions of public strife.—The writings of Dionysius were numerous, but most of them have been lost. They were mainly controversial. In opposition to Nepos, bishop of Arsinoë, who preached the millennial earthly reign of the Saviour at his second coming, Dionysius wrote 2 books refuting the theory. In opposition to Sabellius, who denied the distinct personality of the members of the Trinity, he wrote several books and epistles, caused the heresy to be condemned by a council, and insisted upon the distinction between the Son and the Father so strongly, that it brought upon him the charge of denying the divinity of Christ, against which he defended himself. According to Basil, he also defended the doctrine of the divinity of the Holy Spirit. In opposition to Paul of Samosata, Dionysius maintained the consubstantial nature of the Son and the Father. The fragments of his writings were collected by Simon de Magistris (Rome, 1796) in a folio, and are also contained in the 3d volume of the *Bibliotheca Patrum*.

DIONYSIUS THE AREOPAGITE, an Athenian, styled by Suidas a master of Greek erudition, and who was one of the council of the Areopagus when St. Paul preached to the Athenians. He is said to have studied first at Athens, and afterward at Heliopolis, in Egypt. There is a legend that when he observed in Egypt the darkening of the sun which occurred during the crucifixion of Jesus Christ, he exclaimed: "Either God himself is suffering, or is sympathizing with some one who is suffering." He was converted by the preaching of Paul, about A. D. 50; is mentioned in the Acts of the Apostles (xvii. 34), and was the first bishop of Athens, having been appointed to that office, it is said, by St. Paul himself. It is probable that he suffered death by martyrdom, but in what year is not known. It is not certain that Dionysius the Areopagite ever wrote any thing, but his name has been given to several theological treatises, imbued with the mystical doctrines of the Alexandrian Platonism. These works, 4 in number, are first mentioned in the 6th century, contain allusions to facts and quotations from authors subsequent to the apostolic age, and were probably written by some Neo-Platonic Christian of the 4th or 5th century. They exercised a great influence upon the development of Christian doctrine in the middle ages, were translated into Latin by Scotus Erigena, and gave the first impulse to that theology which the combined efforts of mystics and schoolmen maintained for centuries. The fact that this Dionysius became confounded with the patron saint of France perhaps invested these writings with an importance which they would not have acquired from their intrinsic merits.

DIONYSIUS THE ELDER, tyrant of Syracuse, son of Hermocrates, born in 430 B. C., died in 367. While a clerk in a public office, he came forward in the popular assembly as the accuser of the unsuccessful Syracusan commanders, who had suffered Agrigentum and other foremost cities of Sicily to be taken by the Carthaginians. He displayed so much vigor of character, and the condition of Syracuse was so critical, that even men like the historian Philistus saw in him the only safety for the country. He succeeded in obtaining a decree for deposing the obnoxious generals, and for appointing others in their stead, and was himself elected among the new officers. He then brought false accusations against his associates, and the people determined to depose them, and appointed him, 405 B. C., sole general, with full powers, and allowed him to protect himself by a body guard. He now began those measures which made him proverbial in antiquity as a tyrant; and concerning himself no longer for the deliverance of Sicily from the Carthaginians, aimed only to subdue his native city. He induced the Syracusans to double the pay of the soldiers, appointed officers who were in his own interest, and, by marrying the daughter of the patriot Hermocrates, secured the support of the partisans of that leader. He was received as commander-in-chief of the Sicilians, who had concentrated their forces at Gela, and he offered battle to the Carthaginians in so unskilful a manner as to make it probable that he did not regret the defeat in which it resulted. He withdrew the inhabitants of Gela and Camarina to Leontini, and left the whole of the western coast to the Carthaginians. This reverse gave a shock to his popularity, and enabled his enemies to raise a revolt in Syracuse, where he was now looked

upon as a manifest traitor. They gained possession of the city, but their plans being disconcerted by the sudden return of Dionysius, they were driven out, though not until his wife had fallen a victim to their cruelty. The Carthaginian generals now besieged Syracuse, but the plague having broken out in their camp, they were satisfied with the immense advantages offered them by Dionysius without storming the place. He was recognized as ruler of Syracuse, and of a district of land around the city, but was to resign all claim to dominion over the island. He availed himself of the peace to establish his tyranny on firmer foundations; and having fortified the isle of Ortygia, and excluded from it all but his immediate dependants, he built upon it a citadel which might serve as an impregnable asylum. The Carthaginians lost the advantages of the peace through negligence. Syracuse had in 6 years recovered her strength, and Dionysius undertook the recapture of the cities which he had surrendered. The immense preparations which he made form an epoch in ancient military history. His machinists invented engines for throwing missiles, and especially devised the catapult, which may be termed the artillery of the ancients. He also constructed ships having 4 or 5 banks of rowers, instead of the old triremes. He gained at first great success in the war, and conquered Motya, the ancient seat of the Carthaginian dominion. His fleet, however, was defeated by that of the Carthaginians, which then ravaged the northern coast of the island, overpowered Messana and Catana, and laid siege to Syracuse. But the plague, or some malady resembling it, breaking out in the camp of the enemy, proved the safety of the city. Nearly the whole Carthaginian army was lost by the fearful pestilence, and the remainder purchased from Dionysius the privilege of a free departure. In the treaty which followed, the restrictions which had been imposed by the last treaty upon the government of Syracuse were removed. Dionysius carried on also a 3d and 4th war with Carthage, the results of which seem to have been only to reëstablish the terms of the former peace. The intervals between these wars were harassed by the revolts of his subjects, which he avenged with cruelties; and the frequent attempts upon his life made him suspicious. He dared not trust even his relatives, and his body guard was formed of foreigners. No one was admitted to his presence till after being searched, and often an innocent pleasantry of conversation was punished as a menace. His palace was surrounded by a ditch, which was crossed by a drawbridge, and when he harangued the people it was from the top of a lofty tower. He built the terrible prison of the *lautumiæ*, cut deep into the solid rock, and another of his prisons was so arranged that every word spoken within it was reëchoed into his chamber; and he is said to have passed entire days listening to the complaints of his victims. Tradition, in making of Dionysius the type of cruelty, has doubtless transmitted some unauthenticated stories concerning him; but even a legend like that of Damocles and the sword shows his mind always alarmed, and his hand always raised to defend his imperilled life. Dionysius was long engaged in ambitious projects against the Greek cities of southern Italy. He formed an alliance with the Locrians, and after suffering some reverses besieged and conquered Rhegium. Italy was now open to him, and he sought by establishing colonies upon the Adriatic to secure for himself a way into Greece. Already his name was known in the Peloponnesus, where he had contracted an alliance with the Lacedæmonians. He was now the recognized master of southern Italy, interfered in the affairs of the Illyrians, sent an army into Epirus, and received an offer of friendship from the Gauls, who had burned Rome. His settlements upon the Adriatic increased his wealth and strengthened his power, but they were his last great undertakings, and henceforth he disappears from history. He was so detested in Greece, that the auxiliaries which he sent to his allies the Spartans only drew upon the latter the hatred of all their countrymen. His reign lasted 38 years, and became milder toward its latter part. He left an immense military force and a powerful empire, and though he had governed as a tyrant, the old republican forms remained. Niebuhr affirms that a republic was as great an impossibility at Syracuse under Dionysius as at Rome under Cæsar, and blames him therefore for not having given to his countrymen institutions suited to them, instead of allowing the old democratic forms to exist in all their impotent absurdity, merely for the purpose of enabling him to carry out his will. Dionysius had a singular passion for literature, wrote lyrics and tragedies, and it was necessary for every one who sat at his table to praise not less the poet than the warrior. It is said, probably as a sarcastic jest, that Philoxenus, one of his guests, chose the penalty of being sent to work in the quarries rather than listen complacently to some of the tyrant's verses.

DIONYSIUS EXIGUUS (the Little), so named from his small stature, a Roman monk in the early part of the 6th century. He was originally from Scythia, but became abbot of a monastery in Rome, where he died in A. D. 540, during the reign of Justinian. He is praised by Cassiodorus, the best authority of the time, for his great erudition, writing in Greek or Latin with equal facility, and having profoundly studied theology. He gave to the western church the first regular collection of ecclesiastical laws, comprising the canons of the apostles and of several councils, and the decrees of some of the popes. But his chronological labors have given him greater celebrity. He is reputed the founder of the era which for more than 10 centuries has been observed by Christian nations. Before him the Christian era had been calculated from the death of Christ; he first fixed the year of the incarnation in the 753d year of Rome, and this,

at least after the 8th century, was universally adopted as the commencement of the era.

DIONYSIUS OF HALICARNASSUS, a Greek historian and rhetorician, born in Halicarnassus, in Caria. He removed to Rome early in the reign of Augustus, and 22 years later, shortly before his death, published his work, entitled Ῥωμαϊκη Αρχαιολογια, or "Roman Antiquities." It was in 20 books, and contained the history of Rome from the earliest mythical times to the era of the Punic wars, where the history of Polybius begins. There remain only the first 11 books, which stop with the year 441 B. C., a few years after the expulsion of the decemvirs. Several fragments and extracts from the last 9 books have been preserved in the collections made by command of the emperor Constantine Porphyrogenitus in the 10th century. The best editions of his works are those of Hudson (Oxford, 1704) and Reiske (Leipsic, 1774–'6). His rhetorical compositions have been published separately by Gross and by Westermann. There is an English translation of the "Roman Antiquities," by Edward Spelman (4 vols. 4to., London, 1758).

DIONYSIUS THE YOUNGER succeeded his father Dionysius the Elder, as tyrant of Syracuse, 367 B. C. At that time he was a reckless young man, educated in luxury, and unused to public affairs. He hastened to conclude a peace with the Carthaginians, abandoned his father's projects of foreign settlements and power, and devoted himself to pleasure. The philosopher Dion was his uncle, and undertook to excite him to a noble career. He conversed with him of the doctrines of Plato, and through his influence that philosopher was invited to visit the court of Syracuse. On coming, Plato proposed an amendment to the constitution, changing the government from nominal democracy and real despotism to a confederate authority, in which the sovereignty should reside in all the members of the ruling family, who should form together a college of princes. The monarch rejected this proposal, and soon after took up his residence in Locri, and gained some advantages against the Lucanians; but the wild orgies to which he surrendered himself drew upon him the contempt both of his subjects and of foreigners. With a small band of exiles, and with two vessels laden with arms, Dion landed in Sicily (359 B. C.), and was joined by thousands as he marched toward Syracuse. Dionysius had instantly returned from Locri, but his troops were defeated, and he was obliged to retreat to the citadel; and finding it impossible to retain his power, he collected his most valuable property, and sailed away to Italy, while his friends still kept possession of the stronghold. In 346 he availed himself of internal dissensions to recover his power in the city, and continued to reign there during the next 3 years. But the former Syracusan empire was now in fragments; and even the garrison which defended the tyrant in the citadel was rebellious. Timoleon now appeared upon the stage, marched against Syracuse in 343, and Dionysius consented to an arrangement, by which he was allowed to depart in safety to Corinth. He passed the remainder of his life in a private condition, with low associates, performing, according to various traditions, the parts of schoolmaster, actor, and mendicant priest of Cybele.

DIONYSUS. See BACCHUS.

DIOPHANTUS OF ALEXANDRIA, the only Greek writer on algebra, first mentioned by John, patriarch of Jerusalem, in the 8th century, unless he be identical with the astronomer Diophantus, on whose work Hypatia is said by Suidas to have written a commentary. There are no more definite indications of his era. When his MSS. came to light in the 16th century, 13 books of his Αριθμετικα were announced, only 6 of which have been produced. Another treatise by him, Περι των Αριθμων Πολυγωνων ("On Polygonal Numbers"), is extant. These books contain a system of reasoning on numbers with the use of general symbols, and are therefore algebraical treatises, though the demonstrations are written out at length in common language. The term Diophantine was applied by some modern mathematicians, as Gauss and Legendre, to the peculiar analysis employed in investigating the theory of numbers. The similarity of the Diophantine and Hindoo algebra renders it probable that both had a common origin, or that one was derived from the other. The best edition of his works is that of Fermat, in Greek and Latin, published posthumously (Toulouse, 1670). They were translated into German by Schulz (Berlin, 1821). The 6 books of the "Arithmetic" were translated into French by Stévin and Girard (Paris, 1625). A complete translation of his works into English was made by the late Miss Abigail Lousada, but has not been published.

DIOPTRICS, that part of optics which treats of refracted light. See OPTICS.

DIOSCORIDES, PEDACIUS or PEDANIUS, a medical and botanical writer of the 1st or 2d century A. D., probably a native of Anazarbus in Cilicia. He made collections of plants in Italy, Gaul, Greece, and Asia Minor, and wrote a treatise in 5 books on materia medica (Περι Ὑλης Ιατρικης), a work which enjoyed the highest reputation until the 17th century. It is now chiefly valuable as illustrating the opinions of physicians in ancient times, and as giving us some idea of their attainments in natural history. It has been translated into the Arabic, Italian, Spanish, French, and German languages, and many editions of it have been published in Latin and Greek.

DIP, in geology, the inclination of a stratum of rock from a horizontal line. The angle of inclination is measured by an instrument called a clinometer, and the magnetic needle which is commonly with it gives the point of the compass toward which the rock slopes or dips.—In terrestrial magnetism, it is the inclination which a needle makes from a horizontal line after it has been magnetized, when before this it was

perfectly balanced in a horizontal position. In the northern hemisphere the north pole of the needle dips toward the north pole of the earth, and in the southern hemisphere the south pole is depressed toward the south pole of the earth. The line called the magnetic equator, upon which a needle continues in the same horizontal plane before and after it is magnetized, is a curved line, not varying from the geographical equator. From this toward either pole the dip increases in intensity, and by means of a needle constructed with great delicacy, and furnished with a graduated vertical arc, called a dipping needle, the angle is measured and determined for different places upon the surface of the earth. It is found, however, not to be constant in any place, but to follow the motion of the magnetic poles, which appear to move westward at an annual rate of about 11′ 4″. The position of these poles is ascertained by comparison of the angles given by the dipping needle in different latitudes. In 1831 Commander Ross succeeded in reaching the spot in the northern hemisphere calculated to be the N. magnetic pole, lat. 70° 5′ 17″ N., long. 96° 46′ 45″ W., where he found the dipping needle to take a position within 1′ of the vertical, and the compass needles to be as perfectly indifferent to polarity as if they possessed no magnetic properties. For compasses intended to be used over a wide range of latitude, provision has to be made to counteract the effect of dip, in order that the needle may retain a horizontal position. This is effected by a small weight, so adjusted as to be slid along the bar as may be required. In passing from the northern to the southern hemisphere, it must be taken off the south pole of the needle and placed upon the north end. Dipping needles require to be made with the nicest accuracy, and to be free as possible from friction and every other impediment to their motion. By means of a universal joint, or by reference to a variation compass, the needle is made to move always in a vertical plane coinciding with the magnetic meridian of the place. —The dip of the horizon is the angle which a line to the visible horizon makes with a horizontal plane; its magnitude depends upon the height to which the observer's eye is elevated.

DIPHTHERIA (Gr. *διφθερα*, skin), the most recent name of a disease of the mucous membranes first described by Bretonneau as diphtherite, characterized by the exudation of a thick leathery membrane in the throat; it may occupy also any portion of the air passages even to the bronchi, the gastro-intestinal surfaces, the points of junction of the skin and mucous membrane, and the skin itself where it is delicate or deprived of its epidermis. It is allied to some forms of scarlatinous inflammation, to croup, and to quinsy, with which it is often confounded. It is probably, as it has occurred during the last few years in France and England, only an intense epidemic form of an old disease, manifesting itself in various forms of throat disease. In the formation of firm concretions and in its tendency to spread when epidemic, it resembles in some respects the disease of infants known as *muguet*. Various causes have been assigned for it, and it is generally admitted to be a specific disease. Dr. Laycock and others regard it as due to the *oidium albicans*, a parasitic fungus, whose sporules and mycelium have been found on the mucous membrane of the mouth, fauces, and alimentary canal; its irritation induces in the enfeebled membranes an increased secretion of epithelial scales and exudation corpuscles, which with the fungus constitute the membrane or pellicle; it seems to act upon the capillaries of the subjacent tissue, which is red and bleeding. Syphilitic, scarlatinic, or rubeolic inflammation may take on the diphtheritic form during an epidemic, and the fungus may excite an irritation without forming a pellicle; it is not vesicular nor ulcerative like aphthæ, and the redness is deeper. These microscopic parasitic organisms doubtless cause more diseased conditions than physicians are as yet aware of, and the question naturally arises whether the fungous growth is the primary process, or whether it is secondary, requiring the nidus of a previously diseased membrane for its development. From the occurrence of similar growths in a variety of diseases, they would seem a consequence rather than a cause, springing up wherever they find a suitable nidus, complicating and often masking the original disease; the fungus of diphtheria, however, is said to be peculiar, and different from other similar parasites. The sporules may and do pass from one person to another, and the disease is consequently contagious, rendering necessary the isolation of the sick. It is most common in the foul districts of the large cities of France and England, and is attributed to the action of putrid effluvia on the fauces, especially the foul air of sewers and cess-pools; according to the report of the registrar-general, in March, 1858, 2,000,000 of the people of London live over such subterranean structures, so imperfectly secured that any variation in the pressure of the atmosphere forces up the foul air and sends it along every street and into every house, as if it were an apparatus specially contrived for passing currents of poisonous vapor steadily over the people. The same authority states that in 1857 15,000 deaths in London were attributed to the aggregate effects of impure air and other sanitary defects, and recommends the conducting off of the effluvia of these receptacles through pipes running as high as the chimneys. It is altogether probable that many epidemics in this country have had a similar origin, and from the account of the symptoms and successful treatment of the recent epidemic of singular throat disease in Albany, it would seem that it was diphtheria; it was found in all parts of the city, and in almost every block, and raged for several months with a mortality of about 5 per cent.—As diphtheria most severely attacks debilitated constitutions, in addition to hygienic and sanitary measures, the general treatment should be by

antiseptic tonics and stimulants. To destroy the fungous growth, the best local applications seem to be a saturated solution of borax, and alkalies; the chlorate of potash; the liniment of acetate of copper; corrosive sublimate gargles; solutions of the sulphates of zinc, iron, and copper; alkaline, and even common salt gargles. Nitrate of silver, though the most popular, has not proved the most successful application. Wounds affected with the fungus should be treated on similar principles.

DIPLOMACY (Gr. *διπλωμα*, from *διπλοω*, to double or fold), the science or art of conducting the official intercourse of independent states, and particularly of negotiating treaties. The term is of very recent origin, having first come into general use in the courts of Europe since the end of the 18th century. It is not to be found in Johnson's dictionary, and a French writer on the subject states that it is not in any dictionary anterior to 1819. The art itself, however, is as ancient as the division of mankind into peoples and nations. In the earliest periods of history heralds and ambassadors make their appearance, bearing messages from king to king or from state to state. The Romans had a college of heralds, 20 in number, supposed to have been instituted by Numa, whose functions embraced every thing connected with the declaration of war and the making of treaties. But regular and permanent embassies at foreign courts do not seem to have been maintained by any nation until the 16th century A. D. Ambassadors were sent for special occasions, and returned home when they had accomplished the particular object of their mission, or had found its accomplishment impracticable. They were clothed with a sacred, and to some extent a priestly character, and their personal privileges were seldom disregarded even by the rudest barbarians. The heralds whom Darius the Persian king sent to the Grecian cities to demand the symbols of submission, earth and water, some of whom were put to death at Sparta and at Athens, were looked upon less as ambassadors than as bearers of a hostile and insulting message; yet both the Spartans and Athenians afterward expressed their regret for the act, and attributed some of the misfortunes which subsequently befell them to divine judgments for the crime. The peculiar and complicated relations of the Grecian states with each other gave rise to a very active diplomatic intercourse between them, carried on generally by means of formal deputations of envoys, at the head of whom was sometimes placed a man of distinguished eminence. Throughout antiquity, indeed, embassies of importance do not appear to have been confided to the discretion of a single person, but rather to a commission of 2 or 3 or even more of equal rank. Ancient diplomacy appears to have been guided by no other rules than those of apparent self-interest, though to some extent a kind of international law was recognized among the Grecian republics. Engagements and treaties were observed only so long as it seemed profitable to observe or not dangerous to disregard them. To oppress the weak, to deceive the strong, to employ by turns force or artifice as policy seemed to require—such was the aim and such was the art of ancient diplomacy. The Romans professedly regarded all foreign nations as barbarians, to be subdued and made tributary whenever opportunities occurred. They made treaties and formed alliances, but renounced both without scruple when it became convenient to do so. Christianity first elevated diplomacy to a nobler position by teaching the brotherhood of man and of nations, within the pale of the church at least, and by giving them the supreme law of the gospel, and finally, during the middle ages, by recognizing the pope as the supreme head and arbiter of the Christian commonwealth. The most ancient specimens of diplomatic correspondence which have come down to us are those contained in the *Excerpta Legationum*, vol. i. of the Byzantine historians, or the 53d book of the great historical compilation made by order of the emperor Constantine Porphyrogenitus. Among them is a curious account of the embassy of Maximin, a high officer of the Byzantine court, who was sent by the emperor Theodosius, about the middle of the 5th century, on a mission to Attila, the king of the Huns, who received him in his capital on the banks of the Danube, at or near the place where the city of Buda now stands. The details of this mission are highly interesting, and it would seem to have been conducted very much in the manner of an embassy of modern times.—In the middle ages diplomacy partook of the general rudeness, and was comparatively crude and simple. The relations of states were not complicated, and little forethought for any thing beyond immediate emergencies seems to have been exercised by the statesmen of the period, except by the popes, who had almost constantly in view a well-defined policy for extending and strengthening their ecclesiastical dominion. It is to the Italian republics that we owe the first marked development of the science of diplomacy, the characteristic of which is that as far as possible it substitutes reason and intellect for brute force, and teaches respect for justice and the rights of others, and is therefore peculiarly favorable, when not perverted, to weak, unwarlike, and commercial states. The Italian republics, exposed to the attacks of great military monarchies, cultivated diplomacy with peculiar care. Their politicians, conspicuous among whom was Macchiavelli, whose diplomatic correspondence has been pronounced the finest in existence, became celebrated for their unrivalled skill in the science, and it was long the practice of the greater states of Europe to employ Italians in negotiation, on account of their supposed peculiar aptitude for the subtleties of the profession. The ambassadors of Venice were especially famous, and the relations of their missions which they regularly made to the senate have a high reputation among historians, for the deep and accurate insight which

they give into the policy and manners and characters of the courts to which they were accredited. Italian plomacy was in general profound, cautious, and unscrupulous. It occupied itself much in forming combinations and alliances, and did not disdain to buy or bribe ministers, confessors, and mistresses, to corrupt generals, steal or forge documents, and sometimes even to employ poisoning and other forms of assassination to accomplish or promote its objects. These malpractices, however, were not confined to Italy, but characterized the diplomacy of all Europe to as late a period as the 16th century.—A great impulse was given to diplomacy by the fall of the Byzantine empire, the invention of printing and of gunpowder, the discovery of America, and the general intellectual development and political fermentation of Europe in the 15th century. Henry III. of France created the office of minister of foreign affairs in the last year of his reign, and the first minister appointed to it was Louis de Révol, who held the post from Jan. 1, 1589, to Sept. 17, 1594. But it is to the reign of Henry IV. of France (1589–1610) that the origin of the modern system of diplomacy has been traced by writers on the subject. That monarch was served by distinguished statesmen and negotiators, preëminent among them the famous Sully, by whom the forms and usages of diplomacy were brought to a degree of perfection before unknown. Diplomacy, indeed, was a favorite instrument with Henry IV., who was all his life surrounded by singularly delicate and difficult complications of a mixed political and religious character. He was the inventor of the system of mediations, which has often since been found so convenient a mode of averting war without wounding the pride of nations. He had great and comprehensive plans of federation and for the preservation of perpetual peace among the states of Europe, to effect which he relied chiefly upon diplomacy. The despatches of his ambassadors and ministers are remarkable for their ability, sagacity, and elevation of sentiment. Cardinal Richelieu (1624–'42) continued in the foreign policy of France the method of Henry IV., and directed his diplomacy chiefly against the house of Austria. He is generally considered the founder of the present system of maintaining permanent legations at foreign courts, instead of sending special and transient embassies, though long before his time resident embassies were kept by the Venetians at several courts. It was during his administration that French began to supersede Latin as the language of diplomacy in Europe, for which it is peculiarly well adapted by its clearness and precision. Diplomacy greatly enlarged its field of action in the 17th century. Embassies were sent from western Europe to countries that had been hitherto out of the pale of civilized intercourse—to Russia, to Persia, to Siam, and to other remote and barbarous regions. The ambitious and warlike policy of Louis XIV. exercised a marked influence upon the character of the diplomacy of his times. Statesmen occupied themselves incessantly with projects of aggression or defence, and with forming or dissolving leagues and combinations. Aspirations after universal empire were entertained on the one hand, and apprehended on the other. Artifices unknown to primitive diplomacy were freely resorted to, such as secret articles and separate articles in treaties; and it has been suspected that even sham treaties were promulgated to mislead or blind the general public. This period is also remarkable for the number of its treaties for the regulation of commerce and navigation.—During the period between the treaty of Utrecht (1713) and the beginning of the French revolution (1789) the diplomacy of Europe assumed an aspect very different from that of the preceding century. Exhausted by foreign and civil wars, the nations longed for repose. France and Austria saw themselves counterbalanced, and their dreams of universal dominion dissipated, by the appearance of new powers on the stage. Russia and Prussia took their place in the front rank of European nations, while Great Britain acquired the mastery of the seas, and developed prodigiously her commerce, industry, and internal resources. This was an age of intellectual and moral revolutions, which preceded and prepared the stupendous political revolutions that marked the latter part of the century. New ideas, new opinions, new motives, gained admission, and acquired predominant influence in the minds of the ruling classes of Europe, especially in France, Germany, and England. The extension of commerce and the growth of colonies in America, Africa, and the East Indies, led to the remodelling of a branch of diplomatic service, the consular system, and to its restriction within nearly its present limits. —The French revolution and the long wars that sprung from it wrought a great change in the materials and tendencies of diplomacy, by sweeping from the map of Europe a number of effete states, by raising up gigantic combinations against Napoleon and against the revolutionary spirit, and by converting the current of events in Europe from a mere contest for supremacy between monarchs into a conflict of antagonistic principles, and a desperate struggle for existence on the part of the royal and privileged families against the increasing intelligence and aspirations of the people. In 1815 the diplomacy of the great continental powers sought to strengthen itself against revolution by assuming the cloak of sanctity, by forming the holy alliance, the object of which was to maintain what was called legitimacy, to keep things as they were, to regulate as one family the Christian states of Europe, and especially to check the tendencies of the smaller kingdoms toward constitutional government. The diplomatists of this period were remarkable for ability and for the world-wide celebrity that some of them attained, as the Frenchman Talleyrand, the Austrian Metternich, and the Russian Nesselrode. Several very memorable congresses of diplomatists also

distinguished this period, such as that at Vienna (1814), at Aix la Chapelle (1818), at Troppau (1820), at Laybach (1821), and at Verona (1822). The rapid decay of the Turkish empire, and the changes made in it by the separation of Greece and the long revolt of the pasha of Egypt, together with the ambitious designs of Russia, have opened a new and wide field to European diplomacy since 1820, which has been still further enlarged by the renewal of revolutionary outbreaks in 1848, and the revival of the French empire in the person of Louis Napoleon in 1852. The prodigious growth of the United States of America during the same period has also introduced a new and peculiar element into diplomacy, by raising to the position of a power of the first rank a republic which does not acquiesce in all the principles of international law established by the monarchies of Europe, and holds itself entirely aloof from the sphere of their traditional policy. In practice, the diplomacy of the United States, inaugurated by Franklin, Adams, Jay, and Jefferson, has maintained an honorable reputation for directness, intelligence, and success, though, unlike all other civilized governments, the republic does not maintain a regularly trained corps of diplomatic agents especially educated for and devoted to the profession. Among the most striking instances of the success of American diplomacy may be mentioned the negotiations conducted by Commodore Perry and Mr. Townsend Harris, which have resulted in opening Japan to the commerce of the world. More recently the chief exertions of American diplomacy have been directed to the condition and destiny of the island of Cuba and of the Spanish American republics. A line of policy in these quarters, marked by novel and decided features, was shaped out under the administration of President Pierce, and continued by President Buchanan, of which the fullest expositions are contained in the document commonly called the Ostend manifesto, though it was actually issued from Aix la Chapelle (1854), and the annual message of President Buchanan in 1858.—The superintendence of the diplomatic relations of a country is in modern times, and among civilized nations, generally intrusted to a particular officer of state, who, on the continent of Europe, is usually styled minister of foreign affairs (in some instances the prime minister is at the same time minister of foreign affairs); in England, the secretary of state for foreign affairs; in the United States, simply the secretary of state. The appointment of diplomatic agents belongs to the executive, though in the United States the appointment must be confirmed by the senate. The highest grade of diplomatic agent is that of ambassador. In the diplomacy of the Roman Catholic states of Europe the legates and nuncios of the pope take rank with the highest class. The second grade of diplomatic agents includes envoys, ordinary and extraordinary, ministers plenipotentiary, the internuncios of the pope, and all agents accredited directly to sovereigns. The third order of diplomatic agents, chargés d'affaires, are, with few exceptions, accredited not to the sovereign of the country to which they are sent, but to the department of foreign affairs. The diplomatic agents of the United States are classed, by act of congress, 1856, as ambassadors, envoys extraordinary and ministers plenipotentiary, ministers resident, commissioners, and chargés d'affaires. Consuls-general and consuls are also sometimes invested with diplomatic powers in countries where the United States have no other authorized representatives. —See Marten, *Précis du droit des gens modernes de l'Europe* (new edition, Paris, 1857).

DIPLOMATICS, the science of the knowledge of ancient documents, and especially of their age and authenticity. The charters of grants from sovereigns to individuals and corporations were formerly called diplomas, and the word is applied to all letters, documents, and pieces of writing of a public nature that have come down to us from the middle ages and the subsequent centuries. The public documents of the ancients, that is to say, of the Greeks and Romans, have perished, except such as were inscribed on stone or metal. But a vast mass of MSS. of the middle ages exists in Europe, whose dates and authenticity can only be settled by careful and skilful investigation. The quality of the parchment or paper, and of the ink, and the style of the handwriting, afford the means which are relied upon by those versed in the science of diplomatics to determine the age of the document. Formerly ink was made of soot, and red ink made of vermilion was sometimes used. Those who apply themselves to the study of diplomatics can easily distinguish the ink and the parchment and paper of one epoch from those of another. The variations in handwriting are also so great that by the character alone it is possible to pronounce within 40 or 50 years when any diploma was written. In Europe the study of diplomatics has been much cultivated. The standard book of reference on the subject is the *Nouveau traité de diplomatique, par deux Bénédictins* (6 vols. 4to., Paris, 1750).

DIPTERA (Gr. δις, twice, and πτερον, wing), an order of insects, containing the fly, mosquito, &c., characterized by 2 wings, 2 knobbed threads (*halteres*, balancers or poisers) behind the wings, and a horny or fleshy proboscis. They undergo a complete transformation; the larvæ, usually called maggots, have no feet, and have the breathing holes generally in the posterior part of the body; the pupæ or nymphs are either incased in the dried skin of the larvæ, or naked, showing the wings and legs free and unconfined. The head is large, globular, connected with the body by a very slender neck, and is capable of a considerable pivot-like motion; the greater part, especially in the males, is occupied by the brilliant compound eyes, the single ocelli, when they exist, being on the top of the head. Under the head is the proboscis

or sucker, which in some kinds can be drawn up and concealed in the mouth; it consists of a long channel, ending in 2 fleshy lips, and enclosing on its upper side from 2 to 6 fine bristles, sharp as needles, and making the punctures so familiarly known in the case of mosquito bites; as this apparatus takes the place of the jaws of other insects, these wounds may properly be called bites. The saliva which flows into the wounds causes the well-known swelling and itching, the irritation in some skins amounting to inflammation. The sheath serves to maintain the lancets in position, and the latter having made their punctures form a groove along which the vegetable or animal fluids rise by the suctorial power of the insect and the force of capillary attraction. In the flies which only lap their food the proboscis is large and fleshy. The antennæ in the gnats are long and many-jointed, in the flies short and thick, at the base of the proboscis. The wings are generally horizontal, delicate, with many simple veins in them; the posterior wings are metamorphosed into the balancers or poisers. Some entomologists, as Latreille, think the poisers do not correspond to posterior wings, but are vesicular appendages connected with the posterior respiratory tracheæ of the chest. Just behind the wing joints, and in front of the poisers, are 2 small convex scales, opening and shutting with the wings, and called winglets. The thorax is often the hardest part of the insect, composed principally of the intermediate mesothorax. The abdomen is not always united to the thorax by the whole of its posterior diameter, and in many females ends in a retractile jointed ovipositor by which the eggs are deposited. The legs, 6 in number, are usually long and slender, with 5 articulate tarsi and 2 claws at the end, beside 2 or 3 little cushion-like expansions, by means of which they are able to ascend the smoothest surfaces and to walk with the back downward with perfect security. According to Marcel de Serres, the dorsal vessel (the heart) in diptera is narrow and its pulsations frequent. Respiration in the adult is carried on by vesicular and tubular tracheæ. The nervous system consists of an aggregate of cerebral ganglia, and in some of 9 other ganglia, 3 in the thorax and 6 in the abdomen, connected by longitudinal simple commissures or cords; the larvæ have usually one more pair of ganglia than the adults, and have the commissures often double. The proboscis being the transformed under lip, often geniculate, the perforating bristles may be regarded as maxillæ, mandibles, and tongue. In those larvæ which have a distinct head, as in the mosquito, the jaws are arranged for mastication, though some of the pieces are wanting; but in the acephalous maggots the mouth is suctorial. Communicating with the gullet is a thin-walled vesicle, the sucking stomach, in which the fluids swallowed are temporarily deposited; the stomach proper is long and narrow, and makes many convolutions in the abdomen. The end of the intestine is short, muscular, and pyriform. The uriniferous vessels are long, and generally 4 in number, opening into the lower extremity of the stomach; the ovaries consist usually of numerous short 3 or 4-chambered tubes, terminating in a short or a convoluted oviduct; the testicles are 2, simple, and generally of an oval or pyriform shape, with long vasa deferentia ending in the ejaculatory duct in common with 2 simple accessory mucous glands, and with horny valves enveloping the projecting copulatory organ. The larvæ, or maggots, are without legs, generally whitish, and vary exceedingly in form and habits; the larvæ of the mosquito are aquatic, breathing with the head downward through the tubular tail surrounded with feather-like appendages, and the pupæ tumble about in water by means of 2 oval fins. These larvæ, and those of most flies which have 4 or 6 bristles in the proboscis, have a distinct horny head, and cast their skins to become pupæ, which are generally of a brownish color; many have thorns and prickles on the body by which they work their way out of their coverings; a few cover themselves with silken webs and spin cocoons. The larvæ of other flies, with a soft retractile head, living by suction, increase rapidly in size, and change their form without casting off their skins, which shorten and harden, forming a case within which the larva changes into a pupa, which comes forth a fly by forcing off one end of the case. Though this order contains the bloodthirsty mosquito, the disgusting flesh fly, and many insects depositing their eggs in the bodies of living animals, it is a most useful one, supplying food to insectivorous birds, and themselves consuming decomposing animal and vegetable substances which would otherwise infect the air. Their life in the perfect state is short, very few surviving the rigor of winter. Among the genera with many-jointed antennæ the following are the most interesting and best known: *Culex* (Linn.), containing the well-known gnats and mosquitoes, whose larvæ and pupæ are so common in stagnant water, called wigglers and tumblers, and whose adult females pierce with their lancets and annoy by their nocturnal hum the human race from Lapland to the tropics; the best known species are the *C. pipiens* of Europe, and the *C. Americanus* of this country, which is probably distinct. The genus *cecidomyia* (Latr.) includes many species interesting to the agriculturist, as the Hessian fly (*C. destructor*, Say), the wheat fly (*C. tritici*, Kirby), the willow gall-fly (*C. salicis*, Fitch), injurious in the larva state. The genus *tipula* (Linn.), especially the *T. oleracea* (Linn.), commonly known in England by the name of Harry Long-legs, is noted for its depredations in the larva condition on the tender roots of meadow plants. In the genus *simulium* (Latr.) are the black fly and the midges of the northern parts of this country; the black fly (*S. molestum*, Harris) fills the air during the month of June in Canada and the northern states; it flies in the daytime, and is so savage that every bite draws blood, in some

skins accompanied by considerable irritation; it is black, with transparent wings, and about $\frac{1}{10}$ of an inch long. After continuing through June, it is followed by another species (*S. nocivum*, Harris), called "no-see-'em" by the Indians of Maine from their minuteness; they come forth toward evening, creep under any kind of garment, and produce a sharp, fiery pain without drawing blood; they are very troublesome to travellers and new settlers in July and August. Among those with few joints in the antennæ is the genus *tabanus* (Linn.), which contains the large horse flies, as the *T. bovinus* (Linn.), of a dark brown color, and an inch long, common in Europe, where there are more than 40 other species; the most common of the American species are the *T. atratus* (Fabr.), of a black color, with a whitish bloom on the back; the eyes are very large, of a shining black color, with 2 jet-black bands across them; it is about an inch long, with an expanse of wings of 2 inches; the orange-belted horse fly (*T. cinctus*, Fabr.) is smaller and less common, black, with the first 3 rings of the body orange; a smaller species is the *T. lineola* (Fabr.), with a whitish line along the top of the hind body. In the summer these flies are very troublesome to cattle and horses, being able to pierce through the thickest hide with their 6-armed proboscis; a strong decoction of walnut leaves applied as a wash is said to keep them off. The golden-eyed forest flies (*chrysops*, Meig.) are known by their brilliant spotted eyes and their banded wings; smaller than horse flies, they resemble them in their habits, frequenting woods and thickets in July and August; some are wholly black, others striped with black and yellow. The bee fly (*bombylius æqualis*, Fabr.) flies with great swiftness through sunny paths in the woods, hovering over flowers and sucking their honey, like humming birds; it is about $\frac{3}{4}$ of an inch long, shaped like a humble-bee, and covered with yellowish hairs; the expanse of the wings is about an inch; they are divided longitudinally into 2 equal parts by the colors, the outer half being dark brown and the inner colorless. Among the flies which prey on other insects, seizing them on the wing or on plants, is the genus *midas* (Latr.), of which the orange-banded species (*M. filatus*, Fabr.) is sometimes $1\frac{1}{4}$ inches long and $2\frac{1}{4}$ inches in expanse of wings; the general color is black; it frequents the woods in July and August, where it may be often seen flying or basking in the sun; the larva is a cylindrical maggot, growing to the length of 2 inches; the pupa measures $1\frac{1}{4}$ inches in length, is of a brown color, with forked tail, 8 thorns on the fore part of the body, and numerous sharp teeth on the edges of the abdominal rings; it pushes itself half out of its hole when the fly is about to come forth. The genera *laphria* (Fabr.) and *asilus* (Linn.) are also predaceous in the winged state; in the former the antennæ are blunt at the end, in the latter slender-pointed; the former resemble large humble-bees in their thick and heavy bodies and legs; in the larva state these asilians live in the ground, where they do much mischief to the roots of plants. The soldier flies (*stratiomydæ*) have 2 spines on the hinder part of the thorax; the proboscis contains only 4 bristles, and ends with fleshy lips adapted for sucking vegetable juices; they are fond of wet places, and their larvæ live in stagnant pools, some thrusting their breathing tube out of the water; they undergo transformation within the hardened larval skin. The genus *stratiomys* (Geoff.) has a broad oval body, of a dark color, with yellow markings on each side, and the antennæ somewhat spindle-shaped. The genus *sargus* (Fabr.) is said to have no spines on the thorax, a slender body, of a brilliant grass-green color, about $\frac{1}{2}$ an inch long, with a bristle on the end of the antennæ. These insects delight in sunny weather, being dull and inactive in cloudy days; the larvæ are found in dung and rich mould. The *syrphidæ* have also a fleshy proboscis, and live on the honey of flowers; they resemble bees, wasps, and hornets in the shape and colors of their bodies, and they sometimes lay their eggs in the nests of these insects; others drop their ova among plant lice, which the young eagerly feed upon. The larvæ of the genus *helophilus* (Meig.) were named by Réaumur rat-tailed maggots, from the great length of their tubular tails, which serve as respiratory organs; the experiments of Réaumur show that while the insect lies concealed in mud, its respiratory tube may reach 5 inches to the surface of the water; it seems to be composed of 2 portions, which slide one into the other like the joints of a telescope; some of the larvæ of this family live in rotten wood. The family *conopidæ* resemble slender-bodied wasps; the antennæ are long and 3-jointed; the proboscis long, slender, and geniculate. The genus *conops* (Linn.) is generally of a black color, and about $\frac{1}{2}$ an inch long; more than 20 species are described, usually found on flowers in June and July, but not in large numbers; the females deposit their eggs in the larvæ and the perfect insects of the humble-bee, in whose bodies their young undergo metamorphosis. The common stable fly belongs to the genus *stomoxys* (Fabr.); the flesh fly to the genus *sarcophaga* (Meig.); the house fly and the meat fly to the genus *musca* (Linn.); the flower flies to the genus *anthomyia* (Meig.); the cheese fly to the genus *piophila* (Fallen.); the dung fly to the genus *scatophaga* (Meig.); the fruit and gall flies to the genera *ortalis* (Fallen.) and *tephritis* (Latr.); these will be described in the article FLY. The gadflies or bot flies, comprising the genera *œstrus* (Linn.) and *gasterophilus* (Leach), affecting respectively the ox and the horse, will be described under GADFLY. Various winged and wingless ticks, infesting the horse, sheep, and birds, belonging to the order of *diptera*, but forming with the spider flies the order *homaloptera* of Leach and the English entomologists, will be treated in the article TICK; they include the genera *hippobosca* (Linn.), *melophagus* (Latr.), and *ornithomyia* (Latr.).—At the

end of this order may be mentioned the genus *nycteribia* (Latr.), the spider fly, a wingless insect resembling a spider; the small head seems a mere tubercle on the anterior and dorsal portion of the thorax; the eyes are like minute grains; the thorax is semicircular; the antennæ are extremely short, inserted close together, and immediately in front of the eyes. This genus nestle in the hair of bats, among which they move with great rapidity; according to Col. Montagu, when they suck the blood of bats they are obliged to place themselves on their backs on account of the dorsal position of the head. This last division of the *diptera* is not produced from eggs deposited in the usual manner, but the larva is hatched and developed within the body of the mother, and is not born till it arrives at the state of pupa; hence these genera have been called *pupipara* by Latreille; the pupa when born is nearly as large as the parent, enclosed in a cocoon, the altered skin of the larva at first soft and white, but soon growing hard and brown; it is notched at one end, where the mature insect escapes. The order of *diptera* makes up for the small size of its members by their countless swarms.

DIPTYCHA (Gr. δις, twice, and πτυξ, fold, tablet), registers used during the first Christian centuries, formed of 2 tablets of wood or ivory, upon which were inscribed the names of those most distinguished in church and state. They were thus of 2 kinds, the sacred and profane. On the former were catalogued the names of popes, bishops, martyrs, founders of religious establishments, and in general all benefactors of the clergy. The names of the living were on one side of the tablet, and of the dead on the other. It was the deacon's office to recite these names during the service. The profane diptycha belonged especially to the consular dignity, and upon their tablets were engraved the name and titles of the consul, and also animals and gladiators as symbols of the games which he was going to exhibit to the public in entering upon his duties. Every consul after his nomination had several of these diptycha, which he distributed among his principal officers, as modern princes sometimes send their portraits to privileged favorites.

DIRECTORY, Executive (Fr. *directoire exécutif*), the name given to the executive government of the first French republic by the constitution of Fructidor, year III. (Aug. 1795). This constitution was framed by the moderate republican party, whose influence prevailed in the convention after the fall of Robespierre and the committee of public safety, and was adopted in the primary assemblies of the people. The legislative power was vested by it in 2 assemblies, the council of 500, and the council of ancients, which numbered half as many members, aged at least 40. Both were chosen by graduated elections, and $\frac{1}{3}$ of each were renewed every year. The former had exclusively the right of proposing laws, the latter that of sanctioning them. The judicial authority was committed to elective judges. The executive directory consisted of 5 members, and was chosen one each year by the council of ancients from a list of candidates presented by that of 500. The directory promulgated the laws and enforced their execution, appointed the ministers and other principal functionaries of the state, had the management of the military and naval forces, finances, and foreign affairs, and the right of repelling hostilities, though not of declaring war. The directors received a large salary, the palace of the Luxembourg as their residence, and a guard of 240 men. They were responsible, decided questions by a majority vote, and presided by turns 3 months each, the presiding member having the signature and the seal. During their term of office none of them could have a personal command, or absent himself for longer than 5 days from the place where the councils held their sessions, without their permission; and after they had left office they could hold no command for 2 years, nor be reëlected for 5. In those days of violent struggles at home and abroad, the balance of power established by this constitution excited antagonism between the different branches of the government, and usurpations followed as a natural consequence. The convention decreed, by a law not included in the constitution, that in the first election $\frac{2}{3}$ of the members of the 2 councils should be chosen from its own body. This arbitrary act led to violent agitations in Paris, and finally to an insurrection of the royalist sections on the 13th Vendémiaire (Oct. 5, 1795), which was suppressed by Barras and Bonaparte. The convention having held its closing session on Oct. 26, the 2 councils held their first on the 28th, and on Nov. 1 elected Barras, Laréveillière-Lépeaux, Rewbell, Letourneur, and Carnot, as directors, all of whom had voted for the death of Louis XVI. Their first proclamation, written on a broken table in a destitute room of the Luxembourg, promised a firm rule, and inspired confidence; and in spite of the exhausted position of the state, the terrible depreciation of the currency, the destitution of the army, and a pressing famine, trade, speculation, and even luxury soon revived. The democratic and communistic conspiracy of Babeuf was easily suppressed (May, 1796). Carnot organized the armies, and directed their movements and victories; Moreau received the command of the army of the Rhine, Jourdan that of the Sambre and Meuse; Hoche suppressed the insurrection in the Vendée, and Bonaparte conquered Italy. But the elections of the year V. (May, 1797) gave the royalists a preponderance in the councils, which was supported by the minority of the directory, while Barras, Laréveillière, and Rewbell sided with the minority in the legislative bodies. The movements of the royalists became more and more threatening, when the majority of the directors agreed to save the republic by an act of violence. This was executed with the aid of the army on the 18th Fructidor (Sept. 4, 1797). More than 50 members of the 2 councils, with Carnot and Barthélemy, who had

replaced Letourneur, and a number of other influential persons, were condemned to transportation, and a persecution of both royalists and anarchists was commenced. Merlin of Douai and François of Neufchâteau were substituted for the 2 proscribed directors, of whom Carnot escaped to Germany. Saved by the army of the interior, the republican rule was maintained by the victories and extortions of the armies abroad. The treaty of Campo Formio was concluded; Switzerland and the states of the church were overrun and revolutionized; Bonaparte was sent to Egypt to attack indirectly England, the only remaining enemy of the republic. But the extreme revolutionary party carried the elections for the year VI. (May, 1798), a part of which were annulled by another violation of the constitution. A new coalition against France was formed. The state was exhausted and avowedly bankrupt. Switzerland and Italy were lost as rapidly as won. The republicans, too, were impatient of the dictatorial rule of the directory, in which Treilhard had replaced François, and Sieyès, an enemy of the directorial constitution, was now elected (May 16, 1798) instead of Rewbell. Finally the councils, having declared themselves permanent, compelled Treilhard, Merlin, and Larévellière to resign on the 30th Prairial (June 18, 1799). Barras saved his office by the desertion of his associates, and maintained himself with Sieyès and the 3 new directors, Gohier, Moulins, and Roger Ducos, till the 18th Brumaire (Nov. 9, 1799), when Bonaparte, suddenly returning from Egypt, by a bold *coup d'état* overthrew the directory and the constitution, and became master of France under the title of consul. The directory ruled France 4 years and a few days, and had altogether 13 members, of whom only Barras officiated during the whole period.

DIS, a contraction of *dives*, rich, the Latin name of Pluto (the giver of wealth), and hence sometimes of the lower world. He was especially worshipped among the Gauls, who believed themselves his descendants, and therefore reckoned their time by nights instead of days.

DISCIPLES, Church of the. The religious body, variously designated as "Disciples of Christ," "Christians," the "Church of Christ," &c., resulted from an effort to effect union among the Protestant denominations in western Pennsylvania. In the beginning of the present century several religious movements for this purpose occurred in different parts of the United States, independently of each other, and without preconcert. The one which gave immediate origin and distinctive character to the body now known as "Disciples," was initiated in 1809 by Thomas Campbell, a preacher of piety and distinction among the Seceders, aided by his son Alexander, to whose ability and energy its successful progress is mainly attributed, and by whom it has been chiefly directed. The original purpose was to heal, if possible, the divisions of religious society, and to develop and establish a common basis of Christian union. It was thought that these desirable objects could be attained by taking the Bible alone as a guide, and its express teachings as the only authoritative standard of faith and practice, allowing meanwhile entire liberty of opinion in relation to all matters not fully revealed. Upon these principles a considerable society was formed, consisting chiefly of members from Presbyterian churches, and meetings were held statedly for the promotion of the cause of union and for religious worship and instruction. After some time, the question of infant baptism, and, as connected with it, the use of sprinkling as baptism, became matters of investigation in the society, and it was finally after some months decided by a large majority that there was no Scripture warrant for either practice, and that consequently, upon their own principles, they were compelled to renounce them. Becoming then a society of immersed believers, they soon after were united with the Redstone Baptist association, stipulating, however, in writing, that "no standard of doctrine or bond of church union, other than the Holy Scriptures, should be required." By means of this union with the Baptists, the principles and views of the Disciples, ably developed and defended by Alexander Campbell in his writings and public discussions, were widely disseminated, and adopted by many. Meanwhile, the diligent study of the Scriptures, contemplated as it were *de novo*, and from a standpoint outside of all denominational and sectarian lines, led by degrees to the discovery and introduction of several characteristics of primitive Christianity which, as the Disciples held, had been long overlooked and neglected. Among these, a prominent one was "baptism for the remission of sins." As the apostle Peter, to whom the keys of the kingdom of heaven were committed, commanded believing penitents who asked what they should do to be "baptized in the name of Christ for the remission of sins," and in order that they "might receive the gift of the Holy Spirit" (Acts ii.), it was believed that the same answer should still be given to such inquirers, and that it was the divine plan thus to impart through the significant institution of baptism that assurance of pardon which many in modern times have been taught to seek in vague emotional impressions. This became therefore a distinguishing feature of the reformation urged by the Disciples. Another characteristic was the practice of weekly communion, after the example of the primitive church. In pressing these matters upon the acceptance of the Baptists, a spirit of opposition was at length aroused in various quarters, especially in Virginia and Kentucky, and a separation to some extent ensued, many of the Baptists remaining connected with the Disciples. Not long afterward, at the close of 1831, their numbers were still further augmented by a union between them and a numerous body which had originated in Kentucky and some other western states, under the labors of B. W. Stone and others, who, some years prior to the movement

led by Thomas and Alexander Campbell, had separated from the Presbyterian communion, and in like manner attempted to effect a union of Christians upon the Bible alone. These reformers, readily adopting baptism for remission of sins, and the ancient order of things as practised by the Disciples, became entirely assimilated with the latter. Since this period there has been a great and constantly increasing accession both from the world and from other religious denominations, and it is believed that the number of members in the United States is now about 300,000. There are many churches also established in British America, in Great Britain, and in Australia. Although the Disciples reject creeds as bonds of fellowship, and disapprove of the technical language of popular theology, holding themselves bound to speak of the "things of the Spirit" in the language of Scripture, they do not materially differ from the evangelical denominations in their views of the great matters of Christianity. The following synopsis from the pen of Alexander Campbell is a fair expression of their sentiments on the points involved: "1. I believe that all Scripture given by inspiration of God is profitable for teaching, for conviction, for correction, for instruction in righteousness, that the man of God may be perfect and thoroughly accomplished for every good work. 2. I believe in one God, as manifested in the person of the Father, of the Son, and of the Holy Spirit—who are, therefore, one in nature, power, and volition. 3. I believe that every human being participates in all the consequences of the fall of Adam, and is born into the world frail and depraved in all his moral powers and capacities, so that without faith in Christ it is impossible for him, while in that state, to please God. 4. I believe that the Word, which from the beginning was with God, and which was God, became flesh and dwelt among us as Immanuel or 'God manifest in the flesh,' and did make an expiation of sin, 'by the sacrifice of himself,' which no being could have done that was not possessed of a superhuman, superangelic, and divine nature. 5. I believe in the justification of a sinner by faith without the deeds of law, and of a Christian, not by faith alone, but by the obedience of faith. 6. I believe in the operation of the Holy Spirit through the word, but not without it, in the conversion and sanctification of the sinner. 7. I believe in the right and duty of exercising our own judgment in the interpretation of the Holy Scriptures. 8. I believe in the divine institution of the evangelical ministry; the authority and perpetuity of the institution of baptism and the Lord's supper." ("Millennial Harbinger" for 1846, p. 385.) It is proper to remark, however, that with the Disciples the Christian faith does not consist in the belief of these or any other tenets as intellectual conceptions of religious truth, but in a simple trust or personal reliance on Christ as the Son of God and the Saviour of sinners. They hence require of candidates for baptism no other confession of faith than this, following the example of Philip (Acts viii. 37). As to government, each church is independent, but the churches coöperate with each other in sustaining Bible societies and missionaries at home and abroad. Two classes of officers are recognized, elders or bishops and deacons, who are chosen by the members of each church, and to whom the interests of the congregation are confided.

DISCORD, in music, a combination of sounds inharmonious and disagreeable to the ear, so called in opposition to concord. Discords are employed to relieve a succession of pure concords, being as necessary in music as shade is in painting, and are introduced by certain preparatives and succeeded by concords to which they have a relation.

DISCOUNT, a sum of money deducted from a debt due at some future period in consideration of immediate payment. In commercial transactions it is customary, when a bill is to be discounted, to pay to the holder or presenter the amount minus the simple interest calculated for the time the bill has to run. Thus a person holding a bill for $100 payable in one year at 7 per cent. would receive $93, which would be considered its present value. The true discount, however, of any sum for any given time, is such a sum as will in that time amount to the interest of the sum to be discounted. Thus, in the above instance, the sum to be deducted from the bill would be, not $7, but $6 54 and a fraction, which would amount at the end of a year to $7. The true rule for computing discount would therefore be: "As the amount of $100 for the given rate and time is to the given sum or debt; so is $100 to the present worth, or so is the interest of $100 for the given time to the discount of the given sum." Elaborate tables have been calculated on this principle, but as abatement of the simple interest is generally resorted to, they are of little practical value.—Discount on merchandise, sometimes called Rebate, is a deduction of so much per cent. from the price of goods sold on credit when the buyer finds means to make his payment before the stipulated time.

DISCUS, among the ancients, the name of a circular mass of stone or metal, used for throwing, as an exercise of strength. This practice was of great antiquity among the Greeks. Homer gives an account of a trial of strength of this kind at the funeral games in honor of Patroclus. In this case the discus was a large globular mass of iron. Ordinarily it was of a flattened form, and about 10 or 12 inches in length, so that when held in the hand ready to be thrown, it would extend a little above the middle of the forearm.

DISINFECTANTS, substances used to counteract or destroy noxious odors and exhalations, or whatever may produce infection. The term is also made to embrace substances used to prevent decay of organic bodies, such as may be found treated of in the articles Antiseptics and Embalming. In the present article disinfect-

ants will be considered as agents for deodorizing and fumigating. As the causes of infection exist in the atmosphere, and are spread over wide districts, disinfectants properly include whatever is made use of to purify the air, and the term may even be applied to the means employed to prevent the formation of noxious miasmata, as to a proper system of drainage, the destruction by fire of vegetable matter exposed to decay, the thorough ventilation of buildings, the provisions for abundant supplies of pure air and light, and the free use of clear water for washing away unclean matters. No more powerful disinfectant exists than the fresh wind, which stirs up the infectious vapors, dilutes them with pure air, and sweeps them away. The great plague of London was preceded by an unusual calm. Violent winds, as hurricanes, are observed to arrest the progress of disease; efficient ventilation has in many hospitals reduced its ravages to a wonderful extent. The light and warmth of the sun has also an extraordinary influence in promoting health and vigor, and destroying some of the causes of injurious exhalations. Though the nature of the action of light upon the animal system is little understood, its beneficial effects are too well established for its claim as an important natural disinfectant to be disregarded. Other agents are abundantly provided by nature which man may employ to remove infectious matters. They may be swept away by running water, or their gaseous emanations be absorbed by the earth in which they are buried. Exposure to heat may change their properties, or cause their elements to enter into new and harmless combinations; or by a freezing temperature decomposition may be arrested, and the formation of noisome gases prevented. Peat bogs present their antiseptic qualities as means of accomplishing the same end, and the astringent extracts of the bark of trees, such as are employed in tanning, possess the qualities of disinfectants.—In the selection and preparation of these agents, none is found more efficient than that which imitates the great natural disinfectant, a strong current of heated air. The method of artificially applying it to the removal of noxious effluvia from clothes and articles of merchandise has been patented in Great Britain, and introduced into various manufacturing establishments. The articles are exposed in large chambers to rapid currents of air, heated from 200° to 250° F. The infectious matters present are decomposed by the heat, or swept off in the hot blasts, while these are kept at too low a temperature for the fabrics to be injured by them. It is a method highly recommended for the use of hospitals, quarantine stations, and other establishments particularly subject to infectious diseases. Earth and porous bodies generally are employed to absorb injurious vapors; none possess this property in so remarkable a degree as charcoal. De Saussure found that a single volume of this substance, prepared from boxwood, absorbed 90 volumes of ammonia; of sulphuretted hydrogen it took up 55 times its own bulk; of carbonic acid, 35 times; of carbonic oxide, 9.42; of oxygen, 9.25; of nitrogen, 7.50; and of hydrogen, 1.75. Bodies of animals have been buried in charcoal powder, which, while it did not prevent decay, still arrested all escape of disagreeable odors. The gases it retained indicated that it exerts an influence in causing the decomposition of the exhalations, and the combination of their elements to form new compounds with the oxygen of the air. These properties have caused it to be introduced in the form of coarse grains into a metallic respirator, intended to be worn over the mouth where noxious vapors are present in the air, and it is recommended to be used for preventing the escape of bad odors from putrefying substances, though it has no effect as an antiseptic to arrest their decay. Chlorine, which has for many years been in use in hospitals and other places exposed to noxious exhalations, acts as a powerful disinfectant by producing a chemical change in the injurious compounds, and also by arresting decay. It is generated by the decomposition of hydrochloric acid, which is effected by adding to it some black oxide of manganese, and convenient vessels are prepared for producing the gas as may be required, in large or small quantities. The chloride of lime, as it is commonly known, is the usual medium, however, for distributing it, the gas being freely evolved on the exposure of the salt to the air. It is set free by the presence of any acid fumes, and as carbonic acid is evolved in the decomposition of organic matters, the noxious effluvia themselves provide one of the agents for their own disinfection. Vinegar or dilute sulphuric acid, however, added to the chlorinated lime, causes a more rapid evolution of the disinfecting gas. In consequence of the acrid nature of the vapor, it should be used for fumigating rooms only when these are not occupied by invalids; and the same may be said of the disinfecting solutions, as of the hyperchloride of soda, of which chlorine is the active agent. The more powerful fumes of nitrous acid, which possess the highest disinfectant qualities, are liable to the same objection; yet so important is their application regarded that Dr. Carmichael Smyth, who first proposed their use, received therefor from the British government the sum of £5,000. The unwholesome sulphuretted hydrogen is decomposed by these fumes, as it is by chlorine, the sulphur being set free and the hydrogen uniting with the disinfectants. In combination with some of the metals, chlorine has been much used as a disinfectant, especially with zinc, in the aqueous solution of the chloride of the metal, which is known as the disinfecting fluid of Sir William Burnett. Its use is somewhat objectionable, from its poisonous qualities. The same compound is advantageously applied to arresting that form of decay in timber called dry rot. Its properties as a disinfectant are fully treated in the reports of the British navy, extracts from which may be found in the "London Medical Times and Gazette," Oct. 1853.

Chloride of manganese is an efficient salt of similar properties, and being the refuse of chlorine manufacture, may be cheaply procured. The sesquichloride of iron is another cheap and efficient agent of this class. It is prepared by dissolving calcined iron pyrites in strong hydrochloric acid. Its use is attended with none of the objections belonging to the poisonous metallic combinations with chlorine. Nitrate of lead has been recommended for its disinfectant properties, particularly in the solution known as Ledoyer's disinfecting fluid. It corrects the fetid odors of sulphuretted hydrogen and hydrosulphuret of ammonia by decomposing these compounds, but it has no antiseptic properties, and is objectionable on account of its cost and poisonous nature.—None of the agents yet named combine so many advantages as sulphurous acid and its compounds with lime or magnesia. In the form of fumes from burning sulphur it has always been highly esteemed for its purifying nature, and its chemical action upon organic compounds has long been applied in bleaching. Beside the property of decomposing and thus destroying effluvia, it also acts as an antiseptic, checking fermentation and the formation of putrid substances. The objection to its use is its own suffocating odor. This is avoided by using the acid in combination, as in the form of sulphate of soda, an excellent antiseptic for purposes of embalming. Combined with lime and magnesia, it is recommended as the best of all disinfectants. It is thus prepared by the patentees, Dr. R. Angus Smith and Mr. A. McDougall, of Manchester, England; and so highly is it approved that the British government have ordered it to be furnished to every transport ship containing horses. Applied to manures, it destroys the disagreeable smell without impairing their properties as fertilizers; on the contrary, the salts of which it is composed, even if in great excess, act themselves as stimulants to vegetation on being converted into sulphates, as they are when spread upon the ground. In treating of its qualities Dr. Muspratt, in his "Chemistry," remarks as follows: "When magnesia is united with sulphurous acid, the most effective, perhaps the only compound capable of serving both ends" (deodorizing and preserving from putrefaction), "is then produced. Metallic salts have no beneficial action on manures; magnesia alone preserves the phosphoric acid and the ammonia. To the mixture already mentioned a few per cent. of carbolic acid, or rather of carbolate of lime, are added; the latter has been found by experience to assist in destroying one portion of the odor with great rapidity. Being a fine, dry, white powder, it absorbs moisture in stables, &c., wherever it is deposited; metallic salts, on the contrary, must be in solution, and the wet is injurious, not only to the hoofs, but also to the health generally of cattle. In the sick room it is said to preserve the atmosphere, when sprinkled on offensive substances, in great purity. In the veterinary hospitals of barracks it has been proved to be very valuable. . . . . A disinfectant uniting efficiency, cleanliness, agreeable manipulation, and cheapness in an equal degree with this will not be easily found."

DISLOCATION (Lat. *dis*, apart, and *locus*, place), a term used by geologists to indicate that change which takes place in the position of rocks when torn from their original place, either by upheaval or subsidence.—It is most commonly applied, however, to that displacement in the osseous structure which results from the direct application of force or other long-continued cause. All the joints are liable to dislocation, but it most commonly occurs to those which possess the greatest mobility; hence the shoulder joint is of all others the most frequent seat of this accident. The head of the humerus or bone of the upper arm, forming a ball and socket joint in connection with the scapula or shoulder blade, is regulated in its motions by very strong muscles, and is but slightly impeded in its free motions by the very shallow socket in which it rests. While this arrangement bestows great freedom of action upon this joint, it renders it liable to dislocation in almost every direction. The most common is that which occurs when the arm is elevated above the head, by means of which the head of the humerus is thrown into the armpit. Next in frequency is the dislocation of the hip joint, which is generally produced by a sudden blow upon the knee when the thigh is flexed toward the abdomen, whereby the head of the thigh bone is drawn backward by the action of the gluteal muscles upon the dorsum of the ileum or pelvis. The jaw bone is often thrown out of place in laughing, and much more frequently in yawning. This accident sometimes occurs while speaking under undue excitement. The writer was cognizant of a case in which a female who was talking in an excited manner, while under the influence of a violent fit of passion, had her discourse suddenly arrested by dislocation of the jaw. This displacement may be easily remedied by placing the thumbs on the back teeth so as to press them downward while the chin is raised by the fingers slowly upward. Care should be taken to remove the thumbs quickly on the restoration of the joint, or they may be painfully compressed between the teeth. —The chief difficulty in restoring a dislocation consists in the opposition offered by the muscles, rendered acutely irritable by the unnatural position of the head of the luxated bone. This is often overcome by reducing the heart's action by general bleeding. The warm bath and emetics are likewise used to relax the muscles, and with the same view tobacco moistened with water is sometimes laid upon the abdomen until it induces sickness and a disposition to syncope. The surgeon in reducing a luxated joint endeavors, by a steady application of force exerted in the direction of the joint, either to fatigue the muscles, or seize some moment when they are relaxed to slip the joint into its socket. Various degrees of force and different appliances

are used to effect this object. In the case of the shoulder joint the surgeon frequently forms a lever with the heel of his boot placed in the armpit, over which, by pressing the arm inward toward the body, he overcomes the resistance of the muscles, and restores the joint. In the case of the hip joint, the force is necessarily great, and pulleys are often resorted to, by which means not only a greater but a steadier force is exerted. A recent dislocation is much more easily reduced than one of long standing; indeed, no time should be permitted to elapse between the accident and an attempt at its reduction, for every hour adds to the uncertainty of the success of the operation. The bones of the spine frequently suffer a partial dislocation which admits of no relief, and not unfrequently terminates in paralysis from the pressure on the spinal column, or death. The hangman in suspending a criminal dislocates the second vertebra of the neck. This sometimes occurs in other ways. A fellow student of the writer, while playing at ball, struck his companion an accidental blow with his club upon the back of the neck, which dislocated this bone and produced almost immediate death.

DISMAL SWAMP, Great, a large morass in Virginia and North Carolina, extending, according to Sir Charles Lyell, 40 m. S. from near Norfolk, in the former state, and 25 m. E. and W. The soil consists of black vegetable matter to the depth of 15 feet, saturated with water, yielding to the tread of man, and during a large part of the year covered in many places with stagnant pools. Several small streams flow through, and in the centre is Lake Drummond, 6 m. long and 3 m. wide, the surface of which is 21 feet above tide water. A large proportion of the swamp was originally covered with a thick forest of cypress, white cedar, and other timber, and portions are overgrown with reeds. Nearly all the most valuable timber has been cut down to furnish shingles, ship timber, and rails, the last being exported to New York and other places, under the name of cedar rails. The shingle trade is enormous, and some of the many proprietors among whom the swamp is divided employ over 100 hands in cutting shingles alone. Since the woods have been thinned out, great quantities of timber have been procured from beneath the surface, where fallen trunks have been preserved by the wetness of the soil. The supply thus obtained, however, is beginning to fail, and the lumber trade of the swamp is losing its importance. The lumbermen are slaves, who are hired of their owners by the proprietors of the swamp lands, and sent into the swamp in gangs, under white overseers. There they remain 5 months out of every 6, camping out in rude huts. An account is kept of the number of shingles cut by each man, for which a fixed sum per 1,000 is allowed, and after the value of the food and clothing furnished, and the hire paid to the owner, have been deducted from the amount, the surplus is given to the slave. The great channel of transportation is the Dismal Swamp canal, made by the assistance of the national government and the state of Virginia, who are the principal owners. It is 6 feet deep, fed by Lake Drummond, and passes for 20 m. through the swamp, affording an outlet not only for lumber but for much of the agricultural produce of the E. part of North Carolina. Its annual freightage was stated in 1856 to be about 24,000,000 shingles, 6,000,000 staves, 165,000 cubic feet of plank, scantling, and ship timber, 700 bbls. of spirits of turpentine, 4,500 bales of cotton, 2,000,000 bushels of Indian corn, 30,000 of wheat, 25,000 of peas, 5,000 cwt. of bacon, 1,300 kegs of lard, 50,000 bbls. of shad and herrings, and 30,000 of naval stores. Roads are made in the swamp by laying logs 8 or 10 feet long side by side on the surface of the soil or "sponge." They are passable by mules and oxen, but carrying is done mostly by hand to the creeks and ditches communicating with the canal. Along the coast of North Carolina are the Little Dismal and several smaller swamps, covering in the aggregate about 2,000,000 acres, and mostly state property. The "Dismals," as they are locally called, are noted retreats of runaway negroes, whose children have been born, lived, and died here. They depend for support on stealing or charity, and chance employment from the lumbermen and poor white settlers. Their number is said to have been much diminished within a few years. A part of the Great Dismal has been drained and devoted to agriculture.

DISPENSATION, the act by which an exception is made to the rigor of the law in favor of some person. To make a dispensation is an attribute of sovereign power. In the United States no power exists, except in the legislature, to dispense with law, and then it is rather a change of the law than a dispensation.—In the Roman Catholic church a dispensation is an exemption from obedience to disciplinary enactments (see Canon Law), and is, more strictly defined, a release from the obligation of observing some ecclesiastical law, granted to a person for just and rational causes, by the proper authority. The pope has reserved to himself the granting of dispensations in the more important cases, but bishops and priests may grant them in lesser ones.

DISRAELI, Benjamin, a British statesman, orator, and novelist, was born in London in December, 1805, and is the eldest son of Isaac Disraeli, the author of the "Curiosities of Literature." His mother's maiden name was Basevi. He received his early education at a private academy in the suburbs of London, whence while yet a boy he was transferred to the office of an attorney as an articled clerk, where he remained 3 years. At length weary of the drudgery of his duties, and with ambitious views far beyond the brightest dreams of the most successful attorney, "Disraeli the Younger," as he loved to style himself, availing himself of the assistance of his father's distinguished friends, obtained admission into what is called in London "the best society." His per-

sonal beauty, refined manners, and remarkable powers of conversation, soon made him a great favorite. At the age of 19 he visited Germany, and on his return to England published in 1826–'7 his famous novel "Vivian Grey," the chief characters in which were faithful pictures of himself and of persons well known in English society. The originality, vivacity, and wit of this book gave it great celebrity, and it was translated into the principal languages of Europe. Simultaneously with its publication the author became editor of a short-lived daily political paper entitled the "Representative," on which John Murray, the publisher, between Jan. 25, 1826, and July 29 following, is said to have expended $350,000. In 1828 Mr. Disraeli published in one volume the "Voyage of Captain Popanilla," a gay and good-humored but flimsy satire, which met with little success. In 1829 he left England to make an extended tour in Italy, Greece, Albania, Syria, Egypt, and Nubia, and returned in 1831. He was in Albania at the time of the massacre of the beys by Reshid Pasha, and witnessed many of the scenes of the civil war then raging there. Shortly after his return he published his second fashionable novel, the "Young Duke;" and in the following year he issued from the press another novel, "Contarini Fleming, a Psychological Autobiography," which Heine the German poet has pronounced to be "one of the most original works ever written." Its subject is the development of the poetical nature, and it contains brilliant sketches of Italy, Spain, Greece, Asia Minor, Syria, and Egypt. At this time Mr. Disraeli made his first attempt to enter parliament. He presented himself to the electors of High Wycombe, in Buckinghamshire, as a tory-radical, and was defeated by the whig candidate. In December, 1834, he again sought the support of the Wycombe electors, and was again defeated. Perceiving that tory-radicalism did not find favor with the English people, he next appeared, in May, 1835, at Taunton, as a thorough-going conservative. It was on this occasion that, when charged by somebody in the crowd with "O'Connellism," he called the great Irish agitator a "bloody traitor;" to which Mr. O'Connell made the memorable retort: "For aught I know, the present Disraeli is the true heir at law of the impenitent thief who died on the cross." Exasperated by this taunt, Mr. Disraeli challenged O'Connell's son, Morgan O'Connell, who had taken up his father's quarrel; but the challenge was not accepted. In the meanwhile Mr. Disraeli wrote and published several books: the "Wondrous Tale of Alroy," an oriental romance of extraordinary eloquence and power, based on the adventures of a prince of the house of David, who in the 12th century proclaimed himself the Messiah, and called the Jews of Persia to arms, appeared in 1833, accompanied by "The Rise of Iskander," a tale founded on the revolt of the famous Scanderbeg against the Turks in the 15th century; a political pamphlet entitled "What Is He?" in 1834, in which he tried to explain his political views; the "Revolutionary Epic" and the "Crisis Examined" in the same year, and "A Vindication of the English Constitution" in 1835. In 1836, being still unable to get a seat in the house of commons, he published a series of letters in the London "Times" under the signature of "Runnymede," which were read with great interest on account of their remarkable wit and sarcasm. Toward the close of the same year he published a love story, "Henrietta Temple;" and in the spring of 1837 appeared "Venetia," a novel, in which he portrayed the characters and appearance of Lord Byron and Percy Bysshe Shelley. At last he achieved the great object of his ambition. In the first parliament of the reign of Victoria, Mr. Disraeli, being then 32 years of age, obtained a seat as representative of the conservative borough of Maidstone. His maiden speech was a lamentable failure. Ignorant of the tastes and temper of his audience, and with the most violent and grotesque gestures, he poured forth the grossest abuse of O'Connell, the only effect of which was to call forth the laughter and ridicule of the house. He closed this now famous speech in the following words: "I am not surprised at the reception I have experienced. I have begun several times many things, and I have often succeeded at last. I shall sit down now; but the time will come when you will hear me." In July, 1839, this prediction first began to be fulfilled. He made a speech which was listened to with attention, and praised for its ability. In that year, too, he published his 5 act tragedy, the "Count Alarcos," founded on an old Spanish ballad, and was relieved from pressing pecuniary difficulties by a marriage with the wealthy widow of Wyndham Lewis, his friend and colleague in the representation of Maidstone. The happy influence of this union upon his career he has himself acknowledged in the graceful dedication of one of his novels to a "perfect wife." In 1841 he was elected as one of the representatives of the borough of Shrewsbury, and in 1844 published his most successful novel, "Coningsby, or the New Generation," which within 3 months of the date of publication had run through 3 editions, and was translated into several foreign languages. The cause of its extraordinary popularity, apart from its great literary merit, was the fact of its principal characters being drawn from well-known persons then living. It was regarded also as an exposition of the views and designs of the famous half literary, half political party then attracting public attention under the name of "Young England," of which Mr. Disraeli was one of the most conspicuous leaders. In 1845 he published "Sibyl, or the Two Nations." In 1847 he was returned as one of the members for Buckinghamshire, and in the same year he published "Ixion in Heaven," with other tales, and also "Tancred, or the New Crusade." His reputation as a parliamentary debater, and as a leading member of the conservative party, was now established. His severe and effective attacks on Sir Robert Peel, for the alleged treachery of

that statesman to his party in the adoption of his free trade policy, are among the most remarkable speeches to be found in the annals of the British legislature. They established Disraeli's reputation as one of the most powerful debaters and keen and polished satirists in that body. In 1849 he became the recognized leader of the conservative party in parliament. A biography of his father, Isaac Disraeli (1849), and a memoir of his personal and political friend, Lord George Bentinck (1852), were his next literary productions. In March, 1852, in the first Derby administration, Mr. Disraeli received the appointment of chancellor of the exchequer, was made a member of the privy council, and became leader of the ministerial party in the house of commons. He went out of office with the rest of the Derby ministry in Dec. of the same year. In Feb. 1858, when Lord Derby again accepted the task of forming a new cabinet after the downfall of Lord Palmerston, Mr. Disraeli was again selected to fill the responsible office, the duties of which he had discharged with great ability 6 years before. In Feb. 1859, he brought forward in parliament an elaborate plan of electoral reform, a principal feature of which was the extension of the suffrage to the whole body of the educated class without regard to property. The bill was defeated in the house of commons, March 31, 1859, whereupon parliament was dissolved. The political career of Mr. Disraeli thus far is one of the most extraordinary in English history. By force of talent, industry, and perseverance, unaided by wealth or family connections, in spite of the disadvantages of his Jewish origin and of his reputation as a mere novelist, he has raised himself to the position of leader of the house of commons and of minister of finance in the greatest commercial empire of the world.

DISRAELI, Isaac, an English author, born near Enfield in May, 1766, died Jan. 19, 1848. His father removed to England in 1748 from Venice, whither his ancestors, of Hebrew race, had fled in the 15th century from the inquisition in Spain. In Venice they assumed the name of Disraeli (originally written D'Israeli), "a name never borne before or since by any other family, that their race might be for ever recognized." Isaac was an only son, and was intended for the pursuits of commerce, by which his father had attained to fortune. The latter was seriously alarmed when his son during his school days produced a poem; "the loss of one of his argosies uninsured could not have filled him with more blank dismay." He was sent to a college at Amsterdam, where he studied the philosophical works in fashion at the time, and when 18 years of age returned to England a disciple of Rousseau. When informed that a place in the establishment of a great merchant was prepared for him, he replied that he had written and intended to publish a poem of considerable length against commerce, which was the corruptor of man; and he at once enclosed his poem to Dr. Johnson, who however was in his last illness and was unable to read it. Of a pensive and sensitive character, fond of solitude and the society of books, he found no literary friend and counsellor, and was sent by his parents, to whom he was an enigma, to travel in France, with the hope that adventures and change of scene might divert him from the eccentricity of his course. He lived in Paris, associating with learned men and frequenting libraries, till 1788. On his return he published anonymously a satire "On the Abuse of Satire," in polished verses, which was directed against Peter Pindar, then in the height of his popularity. This venture obtained for him the friendship of Mr. Pye, afterward poet laureate, through whose influence the elder Disraeli was persuaded to renounce the effort to convert a poet into a merchant, and was finally induced to furnish means sufficient to enable his son to gratify his passion for book-collecting and for tranquil study. The son now wrote some metrical pieces in the magazines, and in 1803 published a volume of romantic tales. In 1791 he published the first volume of his "Curiosities of Literature" (2d vol. in 1793; new edition of both vols. in 1794), a product of curious and elegant erudition, abounding in discursive and anecdotical criticism. A volume of "Miscellanies, or Literary Recreations," was published in 1796. After residing for a time in Exeter he removed to London, and resolved to devote the rest of his life, not to authorship, but to the acquisition of knowledge. Ten years were occupied chiefly with acquiring that store of facts which was the foundation of his future speculations, and it was not till the age of 45 that he resolutely began his career of authorship. In 1812 appeared his "Calamities of Authors; including some Inquiries respecting their Moral and Literary Character;" in 1814, his "Quarrels of Authors; or some Memoirs for our Literary History, including Specimens of Controversy to the Reign of Elizabeth;" and in 1816, the most finished of his compositions, his "Illustrations of the Literary Character; or the History of Men of Genius, drawn from their own Feelings and Confessions." All of these works are amusing and anecdotical, and reveal the author not only as a literary antiquary, but as a man of humor, thoughtfulness, and elegant tastes. His "Curiosities of Literature" had reached the 5th edition, when in 1817 he added a new volume, containing more elaborate essays than the preceding, and the success of the publication was such that he rapidly produced 3 additional volumes. He was 5 years in the composition of his work on the "Life and Reign of Charles I.," which appeared in 1828–'31, and gained for him the degree of D.C.L. from Oxford. He had long meditated a history of English literature, for which all his previous writings had been preparatory, but in 1839 a paralysis of the optic nerve prevented him from pursuing his researches, and a selection from his numerous manuscripts was given to the public in 1841 under the title of "Amenities of Literature." During the latter part of his life he resided on his manor of Bradenham in Buckinghamshire.

"He was," says his son, "a complete literary character, a man who really passed his life in his library. Even marriage produced no change in these habits; he rose to enter the chamber where he lived alone with his books, and at night his lamp was ever lit within the same walls. In London his only amusement was to ramble among booksellers; in the country he scarcely ever left his room but to saunter in abstraction upon a terrace, muse over a chapter, or coin a sentence." A new edition of his works is now in process of publication in London, edited and annotated by his son, the Right Hon. Benjamin Disraeli. His "Curiosities of Literature" was published in Boston in 1858, in 4 vols.

DISSEISIN, a term used in the English law to express the turning a man out of possession of a freehold estate in lands, that is to say, an estate in fee or for life. It is not applied to dispossession of a term of years, nor is it strictly applicable to an incorporal estate, inasmuch as that species of estate does not admit of actual possession in a literal sense; yet constructively there may be disseisin of incorporal rights, as an office, rent, and the like. According to the old common law, disseisin always imported a wrongful putting of another out of possession. An entry by a stranger after the death of the owner of a freehold, and before the heir or devisee had taken possession, was called an abatement; an entry after the determination of a particular estate, before the person entitled to the reversion or remainder, was an intrusion; and an alienation by tenant for life for a longer term than he was entitled to convey was a discontinuance; and different remedies were necessary for the recovery of the possession while the old forms of real actions were in use. As disseisin commenced by a wrongful act of the disseizor, the person disseized could repossess himself by an entry upon the lands; but if the disseizor died in possession, there could be no entry against his heir, but the rightful owner was then put to an action for the recovery of the possession. This rule, however, was subject to certain exceptions, as disability of the person entitled to make the entry; and finally by statute 5 years' possession by the disseizor before his death was necessary in order to take away the right of entry. It was required that the entry should be peaceable, for if force was used a summary process was given by statute to restore the possession to the person thus put out, although, as before supposed, his possession was wrongful, provided he or those from whom he claimed had held the premises 3 years. Possession, although not conclusive evidence of the right of property, was yet deemed of such importance that it could be the subject of an action without involving the question of the real ownership of the fee. The old forms of proceeding by writ of entry, assize of novel disseisin, and the like, were possessory actions. The title to the fee could be determined only by a writ of right or other analogous proceeding. A limitation of time was prescribed for the bringing of possessory actions, which has varied at different periods; but now, by statutes 3 and 4 William IV., c. 27 (1833), no entry can be made nor action brought but within 20 years after the right of entry or action accrued; descent cast (as it was called when the disseizor died in possession) is not allowed to defeat such entry or action, and all the real actions formerly used are abolished, except actions for dower, *quare impedit* (which relates to certain incorporal rights), and ejectment, which last is the mode by which all titles to corporal estates are now tried. In this country, these provisions have been long since generally adopted, and even still greater changes made; and the term disseisin has been little used in American law, and merely as synonymous with dispossession.

DISSENTER, one who differs from another in opinion. It is the general name in England for those Protestants who disagree as to doctrines or ceremonies with the established church. The beginning of dissent in England was in the reign of Edward VI., soon after the establishment of the Anglican church. The two parties were then designated conformists and nonconformists. Subsequently the name of Puritans was for a century the general appellation of dissenters. The legal toleration of dissenters in England dates only from the revolution of 1688, and during the present century they have been placed much more nearly than ever before upon an equality with the adherents of the established church.

DISTAFF, the first instrument employed in spinning, and the ancient emblem of female diligence. It consisted of a staff on one end of which was rolled the wool. It was held in the left hand of the spinner, while the right hand was occupied in drawing out the fibres of the wool, and at the same time twisting them. A small piece of wood called a spindle was attached to the thread, the weight of which continually carried it down as it was formed. When the spindle reached the ground it was unfastened, the thread which had been formed was wound around it, and it was then again fastened near the beginning of the new thread.

DISTEMPER, in painting, a mixture of opaque color with water and size, or with glutinous matter, much used in scene painting.

DISTICH, a couplet, in Greek and Latin poetry consisting of one hexameter and one pentameter verse. The Greeks did not always complete the sense in the two verses, but the Latins imposed this restraint upon themselves. There are numerous ancient poems consisting wholly of distichs, but it required all the art of the best writers to avoid excessive monotony in a kind of poetry which admits of so little variety in the succession of sounds. Its gentle and melancholy rhythm made it a favorite verse of the elegiac poets, and it is in distichs that nearly all the moral precepts of the ancients were dictated.

DISTILLATION (Lat. *dis*, asunder, apart, and *stillare*, to fall in drops), the separating two bodies which may be mixed or combined, by

converting the more volatile one into vapor with the aid of heat, and condensing this product. On heating sea water, the vapor which passes off leaves behind the impurities mechanically mixed, and the salts that were held in chemical solution; the steam condenses upon cold surfaces, and forms drops of pure distilled water. Such is the rain, and such are the dew drops, which in nature's laboratory are distilled from all fluid sources exposed to evaporation, even the most impure. By this process a more volatile liquid may be separated from others less so, as ether, alcohol, or ammonia, &c., from the water with which they may be mixed. The volatile principles of plants, extracted by their solution in water or in other fluids, are thus separated from the substances with which they were associated, and remain with these fluids on their distillation. The vapor of water may itself be made to take up the volatile vegetable principles, as this is evolved in the process of distillation. Vegetable and animal substances undergo a process of destructive distillation by being exposed to the action of heat in close vessels, the effect of which is to separate the volatile fluids and gaseous matters, leaving the solid portions in the retorts. Wood is thus distilled, producing charcoal, tar, the volatile pyroligneous acid, naphtha, &c.; bituminous coal also producing coke, coal tar, ammoniacal liquors, inflammable gases, &c. New combinations of the elements of organic bodies are produced in this process of destructive distillation. When the vapor produced condenses in a solid form, as when sulphur, arsenic, or camphor is volatilized, the operation is called sublimation, and the product a sublimate, as in the other case it is called a distillate. In the chemical laboratory the process of distillation is commonly conducted in vessels called retorts, which are usually of glass. The liquid to be boiled is held in the body of the vessel, and the vapor passes through the neck, which turns over to one side from the top, and connects with another glass vessel called a receiver. This and the neck of the retort being kept cool by the application of cold water upon the outside, the vapors are condensed and collect in the receiver. Glass flasks with bent glass tubes closely fitted in their necks furnish convenient substitutes for retorts. If the supply of vapor is large, more efficient means must be resorted to for its condensation. Such is furnished in the worm of the still, a metallic pipe coiled around within a tub, and kept cool by the water filling the tub, which is removed constantly as it becomes heated, and is replaced by cold water flowing in. The vapors passing through the pipe drop out condensed from its lower end, which projects through the bottom or side of the tub. The still itself is a metallic vessel of any convenient form for a boiler, furnished with a head, which accurately fits upon the body and connects this with the worm or condenser at the other end. For the laboratory metallic stills are little used; the steam produced in the operation of distilling acting upon most metallic surfaces, and the product being rendered impure by the presence of foreign matter thus introduced, the object of distillation, which in chemical operations is to obtain pure products, is thus defeated.

DISTILLERY, works in which the manufacture of ardent spirits is conducted. The operation is commonly called distillation, though this is but the last of several distinct processes involved in the manufacture. The preparation of a highly intoxicating liquor, by separating the more volatile portions of the fermented juices of sweet fruits and infusions of grains, does not appear to have been understood by the ancients. Dr. Ure states that "it seems to have been invented by the barbarians of the north of Europe as a solace to their cold and humid clime; and was first made known to the southern nations in the writings of Arnoldus de Villa Nova and his pupil Raymond Lully, of Majorca." Yet there are but few nations at the present time, above the condition of savages, who are not in the habit of preparing some form of intoxicating liquors by distillation. In the articles Alcohol and Brandy the processes have been explained by which the ardent spirit is produced in the course of fermentation of saccharine juices; and in Beer and Brewing the generation of the same spirit is described as resulting from amylaceous fruits or grains, or those containing starch, by causing this starch to be converted into grape sugar, the fermentation of which produces alcohol. The fermented juice of the grape, or wine, and the fermented infusion of grape sugar derived from malted liquors, contain the same intoxicating principle, which it is the object of distillation to separate; and which, when separated from vegetable substances of such diverse qualities, retains the peculiar aroma or flavor of the plant, until by repeated distillations or rectifications the pure spirit is at last obtained free from the volatile oil and other matters to which the flavor is due. All the juices of plants which can undergo vinous fermentation, and all vegetable matters which contain starch, may thus be made to produce distilled liquors; and many kinds obtained from very cheap and inferior materials are by the introduction of flavoring matters made to pass for those which naturally possess the most esteemed aroma. Some animal fluids also, which contain saccharine matters, may by fermentation produce alcohol. Milk is one of these, and from that of the mare the Tartars manufacture an ardent spirit; the fermented milk is also used by them without distilling. A large proportion of the substances used for the food of man may thus be applied to the preparation of ardent spirit. The fruits of each country furnish spirits of their peculiar flavors, when these are obtained directly from the fermented juice; but if the juices are first allowed to crystallize, the sugar thus obtained, on being redissolved and fermented, is found to have lost the aroma of the plant. Thus the high flavor of the rum distilled from fresh cane juice is missed when the distillation is conducted from fermented sugar and molasses;

the product is then a comparatively insipid whiskey. The distilled liquors of each country are those of its peculiar fruits. Sugar-growing countries produce rum, vine-growing countries brandy, and grain-growing countries whiskey and gin. The Chinese manufacture a distilled liquor from rice, and the inhabitants of Kamtchatka another from mushrooms. The processes of obtaining these liquors are essentially the same, excepting that the grains require some preparatory operations before they are ready like the saccharine juices for immediate fermentation. These operations are in fact the same as those required in brewing. The grain is first subjected to the process of "mashing," and then to that of "cooling," when the infusion is ready for fermentation, after which follows the distillation.—A short account of the manufacture of whiskey as prosecuted in the great distilleries of Scotland will sufficiently explain the various operations. In different establishments the proportions and kind of grain vary considerably. Barley is commonly employed, more or less mixed with oats, rye, or other grains. It may be malted wholly or in part, or may be used with sugar; and sugar and molasses may also answer without grain. Barley malt is the best material, but the heavy duty imposed upon it restricts its use. The effect of the malt is to convert the starch into sugar, as explained in the article DIASTASE, and a small proportion will accomplish this result. If used in the proportion of $\frac{1}{2}$, it is well; but it often forms no more than $\frac{1}{5}$ of the mixture. Dr. Thomson gives an account of the process long conducted with great success in some of the Scotch distilleries, in which 40 bushels of ground barley are mixed with 20 bushels of bruised malt in a mash tun of cast iron, together with about 750 wine gallons of water at the temperature of about 150° F. The mashing is continued by hand labor or machinery for $1\frac{1}{2}$ hours, or longer, with a greater proportion of raw grain. About 500 gallons more of water at 190° to 205° are introduced at intervals to keep up the heat. The whole is then allowed to infuse for 2 hours. During this time the grain subsides, and the liquid above it is a saccharine muddy fluid, called wort. As the starch continues to change into grape sugar by the action of the diastase in the malt, the sweetness of this fluid increases. After the infusion the greater part, usually $\frac{2}{3}$, of the wort is drawn off from the top. In brewing, the whole contents are drawn off together from the bottom. The infusion upon the same grain is then renewed with 500 gallons more of water at 190°, and continued another hour and a half; and a third infusion after the wort has been drawn off succeeds this with 800 gallons of boiling water. This being well stirred for 20 minutes and then left for about half an hour, the saccharine matters are found to be extracted from the grain; the wort is drawn off, and is either boiled down to bring it to the required strength, or is added to the 1st and 2d worts, or is kept to be used instead of pure water for the first infusion of the next mashing. Strong worts are not desirable, the fermentation being more complete and the yield of spirits greater when these are of moderate specific gravity. By the old excise laws of Great Britain they were required to be of a certain high degree of strength, but in Scotland and Ireland they are now allowed to range from specific gravity 1030 to 1080, that of water being 1000. The next process is that of cooling the worts, and in consequence of the tendency of those produced from raw grain to become acid, this must be rapidly accomplished. In some distilleries the liquors are run into large shallow coolers, placed in an exposed situation in the upper part of the building, and filled only a few inches deep; and artificial arrangements are made for producing currents of air over the surface. In others, which are supplied with abundance of cold water, the worts are passed through tin or copper pipes surrounded with this cooling medium. When reduced in cold weather (which is the most suitable for this business) to a temperature between 52° and 65°, the worts are transferred, together with the starchy matter which subsides in the cooling, to the fermenting tuns. In the improved process of rapid fermentation now adopted, the worts are more commonly of the temperature of from 65° to 76°, and the process, instead of being conducted as formerly by adding at intervals of each day quantities of brewer's yeast for 4 or 5 days and protracting the operation through a period of about 10 days, is completed in 2 or 3 days. The yeast is added at once, a gallon or a gallon and a half, according to the season, to each 100 gallons of wort; and if the fermentation does not go on briskly enough, more is added the next day. Upon the quality of the yeast the success of the important process of fermentation in great measure depends. The object is to decompose the largest possible proportion of the saccharine matter, and convert it into alcohol; but the presence of the alcohol as it is formed impedes the progress of this change, and a quantity often amounting to $\frac{1}{3}$ of the whole saccharine matter escapes decomposition; in strong worts this proportion is greater than in weak worts. By the invention of Mr. Sheridan in fermenting the wash in close tuns, and causing the alcohol to evaporate by using a powerful air pump, the whole saccharine matter was alcoholized, but the excise restrictions prevented the adoption of this improvement. As the process goes on the fluid becomes of less specific gravity, and when successfully conducted its density is found to be the same as that of water. If it be pushed too far, or go on sluggishly or at too high a temperature, loss will result by a portion of the alcohol passing to acetic acid, the presence of which is indicated by increase of specific gravity, as well as by its peculiar odor and taste. The undecomposed portion of the wort, or, as it is called after fermentation, the wash, is a loss to the distiller, the only use made of it being to feed cattle and swine, for which its

sweetness renders it a fattening material. The fermenting tuns are huge vats of wood or iron, and when of the latter material are so constructed that hot or cold water may be applied to the outside to regulate the temperature of the contents. The operation as it goes on is thus described by Dr. Thomson in the "Records of General Science," vol. ii.: "Its first effects are indicated round the sides of the back (tun) by the appearance of a scummy-looking matter on the surface of the worts, and the emission of small bubbles, which contain carbonic acid gas. The temperature increases as fermentation advances; its progress is rather slow at first, but gradually increases, and after some time proceeds with prodigious rapidity. Large bubbles of carbonic acid gas escaping set the whole in motion, as if in a state of violent ebullition; a large quantity of froth collects on the surface of the liquor (which is now called wash), which often accumulates with such rapidity that several men are required to beat it down with oars, to prevent its spilling over the top; indeed, on some occasions, the beating on the top has been found ineffectual, and the distiller forced to pump a portion of the wash up to the coolers to lower its temperature, and then return it, after which the process proceeded at a moderate rate; and in all cases, toward its close, the rate of fermentation gradually diminishes, and the temperature decreases, till at last the wash acquires the temperature of the tun room, and remains quiescent."—The process of distillation, which, by distinguishing the preparation of ardent spirits from that of fermented liquors, gives its name to the whole operation, now succeeds. It is conducted in stills of various sizes and forms, some of which in the largest establishments have a capacity equal to distilling 2,000 gallons of wash per hour; one at Leith is described as exceeding even this by more than ½. As formerly constructed, this apparatus was made large, but of such depth that its contents were evaporated only once in a whole week. Duties in Scotland being imposed upon the works, based on the dimensions of the stills, led the distillers to enlarge the size of the bottoms exposed to the fire, by which the time of the operation was reduced to a few hours. As the duty was subsequently increased, but still based on the same principle, the distillers contrived to increase the production of the stills without enlarging them, until by working them rapidly, with great consumption of fuel, one of the capacity of 80 gallons could be completely distilled off, emptied, and ready for a new operation, in 3½ minutes, and in some cases in 3 minutes, and one of 40 gallons in 2½ minutes. In 1815 this mode of assessing the duties was abolished; but the large diameter of the bottoms of the stills is retained, and the operations are more rapidly conducted than elsewhere.—In distilling a mixture of liquids, as alcohol and water, the boiling points of which are not the same, the more volatile fluid, as the former in this instance, begins to be converted into vapor near the mean temperature between the 2 boiling points, which is about 190°, alcohol boiling at 170° and water at 212°. As the proportion of alcohol diminishes by reason of its forming the principal portion of the first products of the distillation, the boiling point of the mixture becomes higher, till it approaches that of water. The process is then stopped, aqueous vapor forming the principal part of the product. The liquor which remains in the still is let off, and is of no further value but to feed cattle. In condensing the products of the distillation, the same law is observed of the alcohol and water reassuming the liquid state, which regulated their leaving it. Whenever the vapors are cooled below 212°, the aqueous portion condenses; but the greater part of the alcoholic vapors remains uncondensed till their temperature falls below their boiling point. By keeping up the heat, and gradually diminishing it through a series of condensing vessels, similar to the apparatus called the Woulfe bottles, used in chemical laboratories for impregnating liquids with gases, the products may be in great part separated from each other, those furthest off from the still receiving the most volatile or the most alcoholic vapors, while the water is arrested in those of higher temperature into which the vapors are first received. Some volatile oils also, which are produced with the alcohol and communicate to it an unpleasant flavor, are more readily condensed than this, and are consequently detained and got rid of together with the aqueous portion of the mixture. It is on this principle that the great improvements have been introduced in the modern stills, the old form of the worm having the great imperfection of letting the vapors all condense and run together into one receiver. The idea of this application was suggested in the year 1801 to a Frenchman, Édouard Adam, who is described as an uneducated man, a distiller by trade, though ignorant of the art. He saw the Woulfe apparatus at a chemical lecture which he attended at Montpellier, and soon constructed a similar arrangement for condensing brandy distilled from wine. This succeeded so well that the whole process of distillation was soon completely changed. The restrictions of the excise laws of Great Britain prevented the introduction of the improvement into that country until after their modification in 1815. Adam's apparatus was in the mean time much improved in France by the inventions of Isaac Bérard, Blumenthal, and Derosne, by which the process was made continuous, the wine being supplied at one place, and, when deprived of its alcohol, escaping at another in a continued stream. The portions first condensed, least rich in alcohol, were made to flow back into the still by pipes arranged for the purpose. In England the same form of still has been greatly improved to adapt it to the immense scale upon which the operations are there conducted. The most efficient apparatus of this kind for the production of grain whiskey is that invented by Mr. Coffee

of Dublin, and for the production of malt whiskey that of Stein, which is based upon the same principle, but is intended to retain the volatile oils which impart flavor to the spirits. They are too complicated for any intelligible description to be given of them without drawings. They work continuously; that is, so long as the operation is kept up new wash continues to be supplied. The wash, already heated before it enters the apparatus, is exposed in a series of shallow chambers to currents of steam which take up the alcoholic vapors and carry them into the condensing part of the apparatus. This consists of a series of chambers, which are successively colder as their distance increases from the entering point of the hot vapors. They collect the condensed fluid of all degrees of strength and of the utmost purity. The strongest commercial spirits of wine are thus produced by a single operation, rendering the old processes of rectification quite unnecessary. But in producing these strong spirits the flavor is lost, and the product is consequently not a favorite with whiskey drinkers. It is, however, often made to suit their taste by dilution with water and flavoring "with a dose of the most odorous malt spirit." Such is said to be the mode of manufacturing the greater part of the so-called malt whiskey, and nearly all the Scotch whiskey sold in England. The economy of Coffee's still is very striking. "The water for supplying the boiler passes through a long coil of pipe immersed in the boiling hot spent wash, by which means it is raised to a high temperature before it reaches the boiler. The vapor which passes through this apparatus is all condensed by the wash, not by the water, so that no heat is wasted. It is stated that about ¾ of the fuel used with the common stills is saved by this apparatus. By the usual process, to distil a gallon of proof spirits 12 lbs. of coal are required, 9 lbs. of which are saved by this apparatus. Supposing the whole quantity of spirits distilled in Great Britain and Ireland to be 36,000,000 gallons, and that the improved still is adopted, the saving of fuel would amount to 140,000 tons of coal per annum."—The products of the distilleries of different localities are distinguished by peculiar flavors, which give a reputation to their liquors. These have for the most part little to do with the original qualities of the materials from which the ardent spirits are obtained, but are commonly derived from the fuel burned in drying the malt. Much of the Scotch highland and Irish whiskey possesses a peculiar flavor of peat smoke, possibly derived from the bog water in which the malt is steeped; other qualities have a birch oil or Russia leather flavor from the use of birch for fuel. Brandies manufactured from wines have their peculiar flavors from the distillation being conducted at sufficiently high temperature to carry over the volatile oils, some acetic acid, acetic ether, and other matters, and these are retained together with so much water that their strength is considerably below that of the ardent spirits produced in Great Britain; they commonly consist of more than half water. Gin, known also by the names Schiedam, Hollands, and Geneva, has long been manufactured at Schiedam in Holland, by the same process at the different distilleries. The materials are 112 lbs. of barley malt (weight about 37 lbs. to the bushel) and 228 lbs. of rye meal mashed with 460 gallons of water at 162°. After infusing, cold water is added till the strength is reduced to 45 lbs. per barrel, of specific gravity 1.047. At the temperature of 80° it is run into the fermenting tubs, and half a gallon of good yeast is added for every 500 gallons of liquor. The temperature rises to 90°, and in 48 hours the attenuation is complete. From 12 to 15 lbs. of undecomposed saccharine matter still remain in the liquor. Both the wash and grains are put into the still, and the whole of the low wines are distilled off. These are again distilled, and after rectification, in which juniper berries and sometimes hops are added to give the flavor, the product is the famous Geneva. The process is peculiar in the fermentation not being prosecuted to the usual extent, and in the small quantity of yeast added to promote it. Gin manufactured in England, and rum also, is whiskey disguised with suitable flavorings.—In France several distilleries are engaged in manufacturing ardent spirits from potatoes, both by fermenting the steamed and mashed potato, and by treating the starch previously prepared from the tuber with sulphuric acid, thus converting it into sugar. The advantages of the process are said to be the cheapness of the material, the excellence of the spirit, the saving of the more valuable grains for other uses, and the economy in yeast. The residuum of the process is also good food for cattle. It is found that 110.3 lbs. avoirdupois of potato starch produce from 4.4 to 5.5 imperial gallons of alcohol at 0.935. From some experiments of Dr. Hare upon sweet potatoes, it would appear that they are as well adapted as malt for the manufacture of ale, and so probably for ardent spirits. Five bushels of potatoes are thought to produce as much wort as 3 of malt, and the residue to be worth half the cost of the potatoes as food for cattle. Carrots also have produced liquor of good quality and a residue making excellent feed for stock. The molasses of beet sugar factories is used for the same purpose. The manufacture of spirit from the washings of madder, which have heretofore been allowed to run to waste in the dyeing establishments, is now carried on at several distilleries in France and at one in Glasgow. Two tons of madder liquor at 30° are stated to produce about 60 gallons of spirit. In the north of France the berries of the mountain ash, *sorbus aucuparia*, are made to produce brandy equal, it is said, to the best made from wine. The second distillation is from the first distillate mixed with very fresh and finely powdered charcoal in the proportion of 8 or 9 lbs. to every 40 gallons of weak spirit. Charcoal coarsely ground is used in many of the distilleries of the United States as a filter for purifying whiskey.

—All the spirits obtained from these various sources are but mixtures of alcohol and water, disguised by the peculiar flavors of the principal materials employed, or of those incidentally introduced, as the yeast, soap thrown into the stills to check, by the oily scum it produces, a boiling over of the liquors, or the peat, &c. These flavors are removed by the process of rectification, which succeeds that of the distillation proper, and in England is commonly but not always conducted at a separate establishment. It involves further distillations from substances introduced into the spirits, which combine with the essential oils and other noxious ingredients and render them fixed, while the alcoholic portions are distilled over. The crudest spirits of whatever origin, contaminated with the unwholesome fusel oil, or the disagreeable yeast, are thus brought to the same degree of purity with the choicest products of distillation, and then by the art of the rectifying distiller are converted into imitations of any genuine liquors or cordials, and sold as such. A great number of substances are employed for purifying the liquors; caustic potassa, under the name of gray salts, and pearl ash, called white salts, are commonly used in the proportion of 4 lbs. of each to every 700 gallons of crude spirits. Charcoal and ashes are also employed, the latter to neutralize any acid present.—The total revenue of Great Britain from spirits for the year ending Jan. 5, 1854, was £6,760,422 6*s.* 6*d.*—The distilleries of the United States, though no doubt far more extensive than the good of the people requires, are much behind those of Great Britain in the perfection of their machinery and the wonderful capacity of production of single establishments. Whiskey from rye and Indian corn is the product of American distilleries; rum, manufactured from West India molasses, is produced to a limited extent, and brandy is made from some of the fruits upon a very small scale. The manufacture of whiskey is conducted in a great number of small distilleries along the seaboard, and large quantities of the raw liquor are exported to France to be there rectified and converted into French brandy. The distilleries of the western states, particularly of Ohio and western Pennsylvania, produce immense quantities of whiskey, which are sent down the rivers to find a market in New Orleans, whence they are largely exported.

DISTRESS (Lat. *distringo*, to press, straighten, wring out), a term applied to the taking of property of a tenant for non-payment of rent; also to the seizing of cattle for damage done by them; and lastly to a proceeding for the coercion of a defendant to appear in a cause after service of the summons by which an action was at an ancient period commenced. In the two cases first mentioned, the landlord or person who had been injured could make the seizure himself or by his deputy—an anomalous authority, entirely at variance with a fundamental principle of law that parties should not be permitted to redress their own injuries without judicial process. The reception of property which has been wrongfully taken away, or wrongfully detained, or the reëntry upon lands of which a man has been dispossessed, though analogous in one respect to distress for rent or *damage feasant*, yet differ in another, viz.: that such reception or reëntry cannot be made with force, whereas a distress may be executed in like manner as process upon a judgment, that is to say, force may be used in case of resistance. The 3d case above mentioned, viz., distress to compel an appearance, was by a judicial writ called a *distringas*, which it will be unnecessary to consider further under this head, as it belongs more properly to the practice of courts. In a popular sense, a distress is understood only of the taking property of a tenant or wrong doer in satisfaction of rent or damages, and to this we shall limit our remarks in the residue of this article. The term is with some incongruity applied as well to the property taken as to the act of taking. Formerly, the property distrained was deemed a mere pledge, and the distrainor had no power over it except that of detaining it till satisfaction of the rent or damages for which the distress was made; but for the security of the owner it was required that the property should be kept in a pound (*parcus*, which signifies any enclosure); and if the distress consisted of live animals, it was required that they should be impounded within 3 miles of the place where they were taken. If put into a public pound, the risk and expense of keeping the same devolved upon the owner without notice from the distrainor. By statute 11 George II., c. 19, the distrainor was authorized to make a special pound upon the premises where the distress was taken, in which case notice to the owner was required; but the liability to provide necessaries for animals belonged to the owner as in the other case. The distrainor was bound to keep a distress of chattels which might be injured by exposure to the weather in a pound covert. A distress was allowed only by daylight, except in the case of beasts *damage feasant*, which might be taken at night, lest they should escape. Formerly the landlord could distrain only such goods as were found upon the premises for which rent was due, but by statute goods which have been clandestinely removed may be followed within 30 days after the rent accrues. In making the distress the landlord is not permitted to break open the outer door of the house, but being once in, he can break an inner door, being the same rule as in levy upon execution. As to the amount of distress, the only protection of the tenant is by an ancient statute (52 Henry III., c. 4) under which an action may be brought for the taking of an unreasonable or excessive amount. After the impounding of the property, by the ancient law the remedy of the distrainor ceased; but by various modern statutes, when the distress is for rent, it may be sold after the expiration of 5 days for payment of the rent. Such is the present law of England in respect to dis-

tresses. In the United States important modifications have been made. In the state of New York, distress for rent was abolished in 1846; it is still, however, allowed for injuries done by animals, but provision has been made for a sale of such animals in satisfaction of damages and expenses, in like manner as provided in England respecting a distress for rent.

DISTRICT OF COLUMBIA, a tract of territory containing the seat of government of the United States, and subject to the exclusive jurisdiction of congress. It is about 300 miles from the ocean by the Potomac river and Chesapeake bay, and lies between lat. 38° 51′ and 39° N., and long. 76° 58′ and 77° 06′ W. It was named in honor of Christopher Columbus, and also with some reference to the poetical use of the term Columbia as a designation for the United States. It is bounded on the S. W. by the Potomac, and on all other sides by Maryland, and is 10 m. long from N. W. to S. E., with an area of about 60 sq. m. It forms the county of Washington, and contains 2 cities, Washington and Georgetown. The greater part of the area is outside the boundaries of these cities. The surface is undulating, with hills sufficiently high to command extensive views and afford fine sites for public edifices. The soil is light and moderately fertile. The agricultural products comprise wheat, rye, Indian corn, oats, barley, buckwheat, peas, beans, Irish and sweet potatoes, hops, and tobacco. A few hundred gallons of wine are made annually. Two considerable streams empty into the Potomac within the district, Rock creek, and the Anacostia or Eastern branch. There are also several small brooks, to one of which the name of the Tiber was given by the early settlers in the 17th century, because a planter named Pope lived near it. The climate is moist and warm, and there is much local miasma. In the summer and autumn fevers prevail in many parts, especially in the low grounds near the Potomac. The population of the district by the census of 1850 was 51,687, of whom 37,941 were whites, 10,059 free colored, and 3,687 slaves. At present (1859) the population is estimated at 65,000. The commerce of the district is very small, and is carried on chiefly through Georgetown. The value of exports to foreign countries in the year ending June 30, 1858, amounted to $16,710; of imports, $26,520. The shipping owned within the district amounted to 33,974 tons, of which 656 tons was registered, and the remainder employed in the coasting trade and the Chesapeake and Ohio canal. The steam shipping amounted to 3,971 tons. The Chesapeake and Ohio canal passes through a portion of the district, and crossing the Potomac at Georgetown terminates at Alexandria. A branch of the Baltimore and Ohio railroad terminates in Washington, and a railroad connects Washington with Alexandria. There are 2 colleges in the district, Georgetown college and Columbian college. The former is under the direction of the Jesuits, and was founded as an academy in 1789 and chartered as a college in 1792. In 1818 congress gave it authority to confer degrees. It occupies 2 brick buildings in the western part of Georgetown, and owns a large and valuable tract of land. It has a museum of natural history, an extensive philosophical apparatus, and a botanic garden. Connected with it is a flourishing female seminary taught by nuns. In 1858 this college had 21 instructors, 245 students, and 26,000 volumes in its libraries. Columbian college stands in a plot of 46 acres just outside the northern boundary of Washington city. It was founded in 1821 under the auspices of the Baptist general convention. It occupies a building 117 feet by 47, 4 stories high, and costing $35,000. The funds contributed to the college since its foundation amount to $187,000. It has a library of 7,500 volumes and property estimated at $170,000. In 1858 there were 8 professors and 66 students. From a census taken by a committee of the Columbian teachers' association in Dec. 1857, it appears that only about one half of the white children in the district are receiving school education. Of 10,697 children in Washington city between the ages of 5 and 18, 5,069 were not attending any school.—After the adoption of the articles of confederation by the United States, the question of fixing upon a seat of government for the Union excited great interest, and called forth much sectional rivalry. During the period between the conclusion of the revolutionary war and the adoption of the present constitution, congress met alternately at Princeton, Annapolis, Trenton, and New York. After the organization of the government under the constitution on March 3, 1789, warm discussions took place in congress on the location of the capital, which were finally settled by the passage, June 28, 1790, of an act containing the following clause: "That a district of territory on the river Potomac, at some place between the mouths of the Eastern branch and the Connogacheague, be, and the same is hereby accepted for the permanent seat of the government of the United States." The same act provided that congress should hold its sessions at Philadelphia until the 1st Monday in November, 1800, when the government should remove to the district selected on the Potomac. The area fixed upon for the district was a square of 10 miles, or 100 square miles. It embraced about 60 square miles of Maryland, which was ceded by that state to the United States in 1788, and 40 square miles of Virginia, ceded in 1789. The portion on the Virginia side of the Potomac was retroceded to that state in 1846. The constitution of the United States confers upon congress the exclusive legislative control over the district, but does not allow the inhabitants any representation, or any vote for national officers. The district is governed by laws enacted by congress and by the laws of Maryland in force at the time of the cession to the United States. A code of laws prepared by commissioners under the sanction of congress was submitted to the people in 1858 and rejected by a decisive vote. The official expenses of the district are

paid by the federal government. The following table shows the amount expended by the United States for improvements in the district up to June 30, 1857:

Years.	For the gov't.	For the district.
1800–'48	$6,530,814 42	$2,708,253 88
1848–'49	63,045 99	189,000 00
1849–'50	69,945 01	195,126 03
1850–'51	157,370 78	279,901 08
1851–'52	403,265 69	158,869 03
1852–'53	882,223 05	154,630 03
1853–'54	429,884 03	954,910 81
1854–'55	1,074,749 65	129,165 58
1855–'56	1,278,230 35	200,495 26
1856–'57	1,859,313 36	250,073 77
Total	$12,748,842 33	$5,120,435 47

(See Georgetown and Washington.)

DITHYRAMBUS, in Grecian antiquity, a song sung in the vintage season in honor of Bacchus. The origin of these songs is traced to the earliest ages of Greek civilization, and the most famed of the early composers of them was Arion of Methymna. But few fragments of ancient dithyrambic poetry remain, and it is only by tradition that we know the successes of Melanippides, Pindar, and Philoxenus, in this style of composition. The character of the dithyrambus was primitively religious, it being designed for showing gratitude to the deity; and it was lively, rapid, brilliant, and disordered, like the joy and intoxication of a Bacchanalian festival. In the heat of improvisation, the poets allowed themselves to unite several words into one, from which there resulted expressions so voluminous and sonorous that they wearied alike the ear and imagination. The Latins had the good taste not to borrow from the Greeks this kind of poetry, which in the age of Pericles was the object of the railleries even of the Athenians. A parody of Aristophanes informs us that the extravagance of the dithyrambic poets had in his time become proverbial.

DITMARSH, Ditmarsch, Ditmarshes, Dithmarsh, Dithmarschen, or Ditmarsen, the westernmost division of the duchy of Holstein, Denmark, bounded N. by the Eider river, W. by the Wilstermarsh, S. by the Elbe, and E. by the German ocean; area, 500 sq. m.; pop. in 1855, 61,388. Consisting almost wholly of low marshes protected against the sea by dikes, it is better suited for cattle-raising than for agriculture. But its chief importance is historical and ethnological. The inhabitants, supposed by some to be descendants of the old Marsi, have preserved all prominent features of the primitive Teutonic character in the most marked form, and may in some respects be called a relic of the specific German culture of the earliest times. Through all vicissitudes of time they have faithfully clung to their ancient institutions of municipal self-government, equality of all freeholders (there never has been a nobility among them), and many peculiar social customs, the origin of which dates back to a time before the Germans were converted to Christianity. They are a hardy and tough race, and in their struggles to maintain their independence they have shown great devotion, courage, and persistency. Yet they have not always acted on the defensive. There was a time in their history when they frequently emerged from their inaccessible marshes like the old Northmen, in order to subject the neighboring tribes. From the 6th to the 9th century Ditmarsh was a portion of northern Albrigia. In 921 the country was given in fief by the German emperor to the counts of Stade. In 1072 it was conquered by the duke of Mecklenburg, Kruko, but after his death the counts of Stade ruled it once more. The tyranny of some of these drove the inhabitants to open rebellion, and they slew their oppressors. In consequence, Henry the Lion, duke of Saxony and Bavaria, invaded their country and chastised them severely, but after his death the emperor united the territory with the bishopric of Bremen. They improved this opportunity to drive all knights and noblemen from among them. Near the end of the 12th century they subjected themselves voluntarily to Danish rule, but threw off their allegiance in 1227. From that time they were almost constantly in feud with the dukes of Holstein and kings of Denmark, who for 3 centuries were unable to obtain a firm foothold in their country, while on the contrary the Ditmarshers very frequently invaded the Danish territory. In 1500 King John of Denmark, with an army of 30,000 men, marched into Ditmarsh, took the town of Meldorf, and butchered all the inhabitants, without distinction of age or sex. Then it was that the sturdy peasants, led by one of their number, Wolf Iseband, intrusted their banner to a maiden, Else of Oldenwoerde, and after a hotly contested battle, opened the sluices of the dikes, thus inundating the whole country, and drowning some 20,000 Danes. For 60 years after this victory Ditmarsh enjoyed perfect independence; but in 1559 Frederic II. of Denmark conquered it, after a manful resistance. Since that time Ditmarsh has been a portion of Holstein, but it has always been treated as a quasi independent territory, and its administration is directed by a special code of laws, dating back to the year 1321.

DITTON, Humphrey, an English mathematician, born in Salisbury, May 29, 1675, died Oct. 15, 1715. He received an excellent private education, and it was doubtless owing to the nonconformist principles of his parents that he studied at neither of the universities. At his father's solicitation he studied theology, and filled for several years the functions of a minister at Tunbridge, in Kent. Upon the death of his father he relinquished the clerical profession, and devoted himself to the more congenial study of mathematics. He was encouraged by Sir Isaac Newton, through whose influence he was elected professor in the newly created mathematical school of Christ's hospital, a position which he retained till his death. In 1714 he published, with Whiston, an advertisement of a new method of finding the longitude at sea. The plan was approved by Newton, but rejected by the board of longitude; and it is said that the chagrin caused by this disappointment, and by

some sarcastic verses of Dean Swift, occasioned the premature death of Ditton. He was the author of numerous mathematical treatises, among which are the following: "Of the Tangents of Curves;" "General Laws of Nature and of Motion;" an "Institution of Fluxions;" and the "New Law of Fluids, or a Discourse concerning the Ascent of Liquids in exact Geometrical Figures, between two nearly contiguous Surfaces." His writings upon theology are the least of his titles to fame.

DIU, an island of Hindostan, belonging to the Portuguese, formerly a fortified place of great trade. It lies south of Guzerat, from which it is separated by a narrow channel, in lat. 20° 42′ N., long. 70° 52′ E. It is about 1½ m. in breadth, and stretches parallel to the coast for a distance of 7 m. The Portuguese took possession of Diu in 1535, and immediately provided it with strong fortifications. It had an important commerce until the decline of the Portuguese power, but was taken and plundered by the Muscat Arabs in 1670, and has never recovered its prosperity. The town of Diu lies on the east end of the island, and has a population of 4,000. The island is generallly unfit for cultivation, and its water is brackish; but provisions are plentifully supplied from the mainland, and water is secured in reservoirs during the rainy season.

DIVAN, an oriental word found in the Arabic, Turkish, and Persian languages, and applied in the East to every seat of authority, to the place where the sultan, the minister, the governor, the bey, the pasha, or the dey pronounces his orders, receives communications, and conducts his administration. It designates not only the official habitation, the chamber of a functionary, but also the series of cushions and couches ranged along the walls which serve as the seats of all subordinate officers.—In literature, divan designates among the Persians and Turks a collection of songs. A complete divan contains as many poems as there are letters in the alphabet, and each poem rhymes throughout, every line terminating with the same letter, which is different in the different poems. Goethe collected some of his minor poems under the title of divan.

DIVER (*colymbus*, Linn.), a bird of the order *anseres*, and family *colymbidæ*, the latter containing the divers and the grebes. The bill in this genus is long, strong, straight, curved slightly at the tip, which is sharp, with compressed sides; the nostrils are in a membranous groove; the wings are moderate and pointed, the first and second quills the longest; the tail is very short and rounded; the tarsi rather short, compressed, and covered with reticulated scales; the toes long, the 3 anterior united by an entire web, and the inner side of the internal toe margined with membrane; the hind toe short, with a small membranous margin; the claws moderate, depressed, and broad. Only 3 species are well ascertained, the *C. glacialis*, *C. arcticus*, and *C. septentrionalis* (Linn.), which belong to the arctic circle, migrating to the northern temperate regions of America and Europe. The great northern diver, generally called loon in the United States (*C. glacialis*), is a large, powerful, and handsome bird; the largest males measure about 3 feet to the end of tail, with an extent of wings of nearly 5 feet, and a weight of from 8 to 10 lbs. The head is moderate, narrowed in front; the neck thick and long; the body elongated and depressed; the feet very far back; the plumage is short and dense. The bill is black, iris deep bright red, feet of a grayish blue, with the webs brownish black; the head and neck are dark greenish blue, with purple reflections; on the throat there is a transverse white patch, with longitudinal dusky streaks; in the middle of the neck are 2 white patches, continuous behind, but separated an inch in front; the sides of the neck at the lower part are streaked longitudinally black and white, there being on each feather 2 oblong spots of the latter hue; the upper parts are glossy black, with spots of white in regular transverse curved lines with the convexity backward, the spots being rounded and small toward the neck, sides, and tail coverts, larger and quadrangular on the middle of the back, largest on the scapulars; the lower parts are white, except on the sides under the wing, which are black with elliptical white spots, a faint dusky band across the vent, and the lower tail coverts, which are blackish, tipped with white; the tail is brownish black, with a paler tip. The female resembles the male in colors, but is smaller in size. The young in winter are dark grayish brown above, white underneath, with the sides dusky; toward spring the white spots begin to appear, and the plumage is that of the adult at the end of summer; they go further south than the adults. The flight is rapid, long sustained, and at a considerable elevation. The gait of the bird on land is generally slow and awkward; on the water, when at ease, it swims lightly, but when alarmed it sinks the body so deeply that not more than an inch of its back can be seen. As a diver it is unsurpassed except by the darter and the auk, disappearing quickly, flying rapidly beneath the surface, remaining under water a long time, and coming up again at a great distance from the spot of its disappearance. Loons are occasionally found drowned in fishermen's nets, and are sometimes caught on hooks. The curiosity of the loon is often taken advantage of to draw them within shot, as the bird will almost always approach any bright colored object waved by a concealed gunner. Its notes are so loud and plaintive that to be "as noisy as a loon" has become a proverb. Its food consists of fish, lizards, frogs, aquatic insects, and the roots of fresh-water plants; it fishes in both salt and fresh water, and usually swallows its food beneath the surface. Though the flesh is tough and rank, it is occasionally used as food. The loon breeds in various parts of the United States from Maine to Maryland, according to Audubon, and Dr. Richardson states that it is found breeding as

far as 70° N. The nest is built near the water, in marshes, on the ground, and of rushes and grasses growing in the vicinity. The eggs are generally 3, about 3¾ inches long by 2¼ broad, elongated, with a narrow point; their color is dull greenish ochry, with indistinct spots of dark umber, most numerous toward the larger end. The geographical range of the loon is very extensive, from the Atlantic to the Pacific, and from the fur countries to Florida; it is found also in Europe and northern Asia. The black-throated diver (*C. arcticus*), next in size to the loon, is 29 inches long to the end of tail, with an extent of wings of about 40 inches. The upper parts are glossy black, with a greenish tinge anteriorly and brownish behind, the head and hind neck being hoary; on the fore part of the back are 2 longitudinal bands of white bars, the feathers tipped with white; the scapulars and wing coverts with white spots; the quills are blackish brown, with a gray tinge externally; on the front of the neck for about 6 inches is a purplish black patch, ending angularly below, with a band of white spots above; the sides of the neck are blackish brown, with longitudinal white streaks; the lower parts are pure white, except a dusky band under the wings. The female is smaller than the male, but similarly colored. This species breeds in the far north, where the old birds principally remain, and whence the young wander over North America and northern and eastern Europe. Birds in full plumage are rarely obtained in the United States, and, according to Audubon, never further south than Delaware; along the eastern shores they are seen from autumn until spring. Their flight is rapid and well sustained, and performed with the neck and feet stretched out at full length. The red-throated diver (*C. septentrionalis*) is about 26 inches long, with an extent of wing of 43 inches, and a weight of 4 lbs. It resembles the preceding species except in the rich brownish red color of the anterior neck, and the lines of black and white on the hind head and neck; in the young males the fore neck is merely dotted with red. They begin to fly north to breed from early spring to the middle of May; they are found on the coast from Maryland to Maine, from autumn to spring; the younger the birds, the further south they go, and it is rare to find an old one south of Boston; they abound in the bay of Fundy. They are very shy, and always approach their nests from the water. Both sexes incubate. The full beauty of the plumage is not attained until the 4th year. They are rarely seen inland, and almost never out of the breeding season. Along the New England coast and in the bay of Fundy they are commonly called "cape-racer" and "scapegrace."

DIVI, or Divi-Divi, the pod of a leguminous shrub, *cæsalpinia coriaria*, a native of the northern parts of South America and the West India islands, used for tanning, for which purpose it is exported to Europe and other countries. The plant grows to the height of 20 or 30 feet, and the pods, which are of a dark brown color, and curl up in drying, attain a length of 3 inches. The rind has a strongly astringent and bitter taste from the tannin contained between the outer layer and the husk that encloses the seed. The leather prepared with it is very porous, and acquires a deep brownish red color. The astringent property of the pod recommends it as a mordant in dyeing, and it is used to some extent for this purpose instead of sumach. Almost the only ports of shipment are Maracaibo, Rio Hacha, and Savanilla. The exportations to various parts of Great Britain, principally to Liverpool, in 1856, were 4,186 tons.

DIVIDING ENGINE. Instruments for astronomical or geodetical purposes were formerly divided by hand, and but few artists possessed the faculty of dividing them, so that even good instruments for the common purposes of navigation were difficult to be obtained. Mr. Jesse Ramsden, a cloth presser by trade, who subsequently turned his attention to engraving, being brought in contact with mathematical instrument makers, was led to construct the engine which for many years was called by his name. At that time (1775) it was considered so valuable that the commissioners of longitude entered into a contract with him to instruct a certain number of persons, not exceeding 10, in the method of making and using it, and to divide sextants and octants at certain prices as long as the engine remained in his possession, they becoming the purchasers for the sum of £315, and giving £300 in addition for the invention. Perfect as the instrument was then considered, it has since been greatly improved, so that it is now automatic, the whole operation of dividing a circle, after it has been placed on the engine, being performed by a motion given by the descent of a weight, or by a crank turned by hand. The engine consists of a large wheel of bell metal, the circumference being ratched into 720, 1,080, 1,440, 2,160, or 4,320 teeth, or any number which, divided by 2, 3, 4, 6, or 12, would give 360. These teeth are cut with great accuracy, and the wheel is turned on its centre by an endless screw, by which it may be moved any number of degrees or parts desired. The dividing point is fixed in a frame which admits of a free and easy motion to and from the centre. In England, Troughton, Simms, Thomas, Jones, and a few others, have been successful in making these engines, while many others have failed. On the continent of Europe they were first made automatic, and other improvements were also made in them. Gambey of Paris has so arranged his as to divide an instrument without any eccentricity, even when placed in a slightly eccentric position on the engine. Oertling of Berlin has an arrangement for correcting any original errors in the teeth while dividing, while other mechanists of celebrity have constructed them to suit their own views, and for their own use. In the United States there is a large one belonging to the coast survey, made by Simms of London, and afterward made auto-

matic by Saxton; also one in Philadelphia made by Young, and one in New York by the Messrs. Blunt, both of which are automatic. There is no branch of the mechanic arts which requires more skill in the use of tools, more geometrical knowledge, and greater patience, than the construction of a circular dividing engine. The large astronomical instruments are divided in a different manner, and unless placed on a large engine from which the divisions may be in a manner copied, are original divisions. Troughton, Simms, and Jones of London have used movable microscopes with micrometers, the method of the former; while others on the continent of Europe have availed themselves of the feeling lever, a powerful instrument for that purpose invented by the astronomer Bessel. Straight line divisions for scales, &c., are made by means of a screw, a milled roller, or a wedge which is employed to move a platform sliding freely beneath a cutting frame, and carrying the scale to be divided. In the use of the screw much depends on its accuracy, and, with regard to the roller or wedge, on the working or manner of applying them. When great accuracy is required, the divisions are tested by means of two microscopes, and an error can be detected of $\frac{1}{50,000}$ of an inch. The ruling machines used by engravers in this country are well calculated for this purpose.

DIVINATION (Lat. *divinatio*, from *divinus*, divinely or prophetically inspired), a general term for the various pretended arts of discovering things secret or future by preternatural means. These arts appear in the remotest antiquity, furnished with rules, founded on mysterious principles, intimately connected with religion, and fortified by the pretences of a science. Both as a learned doctrine and a popular faith, divination has always existed in the East, and was common in Europe throughout classical antiquity and during the middle ages. It was distinguished by the Greeks as natural or artificial; the former being a presage of future events by a spontaneous mental process, by a sort of inspiration or frenzy, which was possible only to persons specially favored by the Deity, as the priestesses of the oracles; the latter being founded on careful observation of certain natural phenomena which were believed to have mysterious relations with future events. Astrologers, augurs, sorcerers, gypsy fortune tellers, and Scotch second-sighted persons, are eminent examples of diviners. The following are among the principal of the numerous and diverse forms of artificial divination practised in antiquity: Alectryomancy was practised by drawing a circle and dividing it into 24 equal parts, into each of which were put a letter of the alphabet and a grain of wheat; a cock was then placed in the centre, and the letters, being put together in the order that the grains were eaten by it, made a word which solved the question of the diviner. Thus Iamblichus of Apamea is said to have learned the name of the successor of the emperor Valens. Arithmomancy depended upon the secret operation of numbers and magical squares, and the numerical value of letters; it was practised by the Chaldeans, and formed a part of the doctrine of the Pythagoreans, Neo-Platonists, and cabalists. Axinomancy consisted in suspending an axe from an upright stick, and the names of suspected persons being pronounced it was supposed to indicate the guilty by its motion. Belomancy consisted in the choice of arrows by chance from a bag containing many of them inscribed with various responses; it was in use especially among the Arabians. Capnomancy consisted either in observing the direction taken by smoke, or in inhaling the smoke of victims, which was believed to produce prophetic inspiration. Dactylomancy was practised by enchanted rings, or rings that were made in harmony with the position of the celestial bodies. Its origin is attributed to Helen, the wife of Menelaus. It is by one of these rings that Gyges is said to have rendered himself invisible. A favorite method was to suspend the ring by a hair within a goblet, when it began to swing, the motion gradually increasing till it struck the tumbler once or twice for yes or no, as previously determined. Gyromancy consisted in walking round in a circle, the circumference of which was marked with letters, the presage being drawn from the letters on which the inquirers stumbled when they became too dizzy to stand. Hydromancy, or divination by water, the invention of which is attributed to the Persians, consisted in observing the colors and images presented by water in a vase, either when motionless or when disturbed by dropping little stones into it. The motions of the agitated waves of the sea were also studied for purposes of divination, especially by the ancient Sicilians and Eubœans. Lampadomancy furnished presages for the future from the form, color, and various fluctuations of the flame of a lamp. Lithomancy was a method of divination by means of precious stones. The sounds of stones striking each other gave presages, and the amethyst was believed to have the virtue of sending dreams prophetic of future events to whoever possessed it. The *bætylia*, or animated stones, of which the Greeks learned from the Persians, and which were believed to bear oracles, are celebrated instances. Ornithomancy, or divination from the flight and song of birds, was a principal function of the Roman augurs. (See AUGUR.) The flame of fire (pyromancy), the accidental opening of a book (rhapsodomancy), the combinations of cards (chartomancy), the drawing of lots, the dropping of staffs or observation of cups (especially in use among the old Egyptians), the interpretation of dreams, the reflections of mirrors, and the contortions of serpents, are other means. Several of these methods of divination are yet in use among the superstitious, even in the most enlightened countries of Europe and America.—Some of the more remarkable forms of divination are fully treated in special articles, as ASTROLOGY, CHIROMANCY, DIVINING ROD, and MAGIC.

DIVING. Though the natural constitution of man entirely unfits him for remaining under water with safety for more than two minutes at a time, the desire of obtaining valuable articles lying at the bottom of the sea has led him to devise numerous expedients, by which he is enabled to lengthen his continuance at moderate depths. By long practice, such as that of the Indian pearl divers of Ceylon, it is stated that this is extended to even 6 minutes; but such accounts are not credited. Admiral Hood, who took pains to time their diving by the watch, found that they were under water in no instance more than a minute. The instance narrated by Dr. Halley of a Florida Indian diver at Bermuda, who could remain two minutes under water, is regarded as an extreme case. In Franchère's "Narrative of a Voyage to the N. W. Coast of America," mention is made of the feats of diving of the Sandwich islanders. Two of them were induced to go down in 14 fathoms of water in search of a couple of sheaves lost overboard. They went down several times, each time bringing up shells as a proof that they had been to the bottom. "We had the curiosity to hold our watches while they dove, and were astonished to find that they remained 4 minutes under the water. That exertion appeared to me, however, to fatigue them a great deal, to such a degree that the blood streamed from their nostrils and ears. At last one of them brought up the sheaves, and received the promised recompense, which consisted of 4 yards of cotton." Tomlinson states "that there is no authentic case of a man being able, under ordinary circumstances, to take in a supply of air sufficient to maintain him under water for two minutes;" and the authorities generally agree in this. Some, however, regard the statements that the divers of Ceylon, in rare instances, remain 6 minutes under water, as not admitting of question, and the statement of Mr. Franchère is entitled to the same consideration. And facts are stated by other authorities which appear to warrant the supposition that this time may possibly be somewhat extended. The lungs retain at each ordinary expiration some carbonic acid gas among their passages. By breathing hard for a short time this is expelled; and if a full inspiration is then taken, the lungs are charged with a large supply of oxygen, and are capable of being sustained a longer time than usual without its renewal. The knowledge of this fact might be of service in some other circumstances, in which it is important to retain the breath the longest possible time, as well as in diving. Again, it is stated that the engineer Brunel, wishing to examine a break in the Thames tunnel, was lowered with another person in a diving bell to the depth of 30 feet, and the break not permitting the bell to go deeper, he dived into the water, holding a rope in his hand. He found no difficulty in continuing under the water fully two minutes, which is explained by the air he inhaled being taken into the lungs under the pressure of a column of water 30 feet high, and consequently condensed into but little more than $\frac{1}{2}$ its ordinary bulk. The lungs, receiving of this air their full capacity, were furnished with nearly double their usual supply of oxygen. The pressure which thus lessens the bulk of air is exerted upon all parts of the body. It is felt by the diver descending from the surface, when at the depth of 15 feet, as a force of 900 lbs. upon every square foot of surface, and increasing about 60 lbs. with every additional foot of descent. The air is with difficulty retained in the chest; the eyes become blood-shot, and blood is ejected from the mouth. Neither these difficulties, however, nor the dangers from sharks, deter the natives of Ceylon from pursuing their avocation as pearl divers, nor those of the Grecian archipelago from gathering the sponges and coral attached to the rocks at the bottom of the sea. In collecting pearls, 10 divers generally go in each boat, half of them resting while the others dive. Each diver is furnished with a sack for securing the oysters he hurriedly gathers at the bottom. He descends holding a rope, by which he is afterward drawn up, and is carried quickly down by placing in his toes another rope fastened to a large heavy stone, which sinks with him. This also is drawn up to be used by the next diver. Some divers carry in their mouth a sponge wet with oil, the object of which is probably to still the ripple upon the surface, and render this smooth and glassy, by which the light is more clearly transmitted to the bottom.—The artificial expedients contrived to render a longer stay beneath the water practicable consist, beside the diving bell, to be particularly described hereafter, either of a partial covering for the body, made water-tight, with a metallic helmet entirely protecting the head; or of water-tight vessels of metal made to enclose the whole body, and furnished with flexible arms and with eye plates of strong glass. Their capacity is sufficient for air to support life for a certain time, the quantity absolutely necessary for this being at least 200 cubic inches per minute; several times as much is allowed. The case is suspended by ropes from a vessel, and is moved about from above, the man within giving signals by a small line held in the hand; his position is face downward, and his hands projecting in the flexible sleeves are at liberty to attach the rope he carries to any objects within his reach. In deep water the pressure is severely felt, forcing the arms and shoulders into the case, so that even a sort of saddle is required upon the back of the man by which he may brace himself more effectually against it. This might be remedied by forcing air through flexible pipes into the case from above. The machine was contrived by Mr. Rowe in 1753, and within the last 20 years has been much improved in the United States. The partial covering, as contrived by M. Klingert, and described in a pamphlet published in Breslau in 1798, possesses important advantages over the tight case, but is still limited in its use

to depths not exceeding 12 or 15 feet. The helmet is made to connect water-tight with a metallic armor around the body, and this with short leather sleeves, and drawers of the same material strengthened within with iron hoops, and securely fastened above the knees. Two flexible pipes connect the interior of the helmet with the air above, one furnished with an ivory mouthpiece through which the air is inhaled The air is expelled from the nostrils and passes out through the other tube. Heavy weights enable the man to keep at the bottom. In 1856 Mr. E. P. Harrington of Westfield, N. Y., recovered the iron safe of the steamer Atlantic, sunk 4 years previously in Lake Erie in about 170 feet of water. The safe itself was at the depth of 157 feet. He made use of a common flexible India rubber armor, unprotected with metal, and supplied with air from an air pump above, this being sent down through a tube of $\frac{3}{8}$ inch bore, composed of 9 alternate layers of canvas and rubber, with a copper wire coiled inside to prevent collapse. He also wore shoes of lead, and carried weights of lead amounting in all to 248 lbs. His first descent was on June 19, and the 18th and last was on the 22d, when he succeeded in attaching a line to the safe, which was in a state room on the upper deck, and it was hauled up. The time of his remaining below increased from one minute the first descent to 11 minutes at the last. At 50 to 70 feet depth all light disappeared. The deck was already covered with a sediment a few inches thick. Mr. H. suffered from extreme chilliness; his strength too, he thinks, was diminished $\frac{9}{10}$. The pressure sometimes caused a violent rush of blood to the head, causing the appearance of bright flashes like electrical sparks.—During the revolutionary war an ingenious but complicated machine, called the American turtle or torpedo, was contrived by Mr. David Bushnell of Connecticut, designed for a sort of submarine boat, which could be propelled along close to the surface by a man within. It contained air sufficient to last half an hour. By admitting a little water in a receptacle made for the purpose, it was made to sink, and could be kept at any desired depth. The water being ejected by two small brass forcing pumps, the machine rose again to the surface. A vessel containing powder enough to blow up a ship was attached outside, and could be freed from the machine, and secured to any object it touched. An apparatus running by clock-work caused the powder to be ignited at any desired interval of time after it was left by the operator. This machine occasioned the greatest alarm among the British ships in New York harbor.

DIVING BELL, a hollow inverted vessel, in which when lowered into the water persons may descend to considerable depths, fresh air being forced down from above to supply the amount required for breathing; and under which upon the bottom they may work to prepare foundations, or to secure articles of value. The principle of the diving bell is seen in pressing any vessel like a tumbler mouth downward into the water. The air within the vessel prevents the water from rising and filling it, but being highly elastic and compressible, it is made to occupy less space as the pressure is increased with the increasing depth of the water. If the vessel were forced down to the depth of 33 feet, it would be found that the water would half fill it, the air being compressed into half its bulk. A little burning taper made to float upon the surface of the water within the vessel makes the relative position of the air and water more conspicuous. Such is the simplest form of the diving bell, as it was known probably in the time of Aristotle, mention being made that divers at that period took down with them a kind of kettle to enable them to remain longer under the water. Beckmann in his "History of Inventions" expresses the opinion that little was known of it before the 16th century. During the reign of Charles V. a satisfactory experiment was tried by 2 Greeks at Toledo, in Spain, in the presence of the monarch and his court, of descending in a large inverted kettle into the water with a burning light, and coming up dry. But this experiment, made by order of Charles to prove the possibility of the thing, and others also undertaken for practical purposes (as recovering sunken treasure) in the course of the succeeding 200 years, were imperfect as there was no provision for renewing the supply of air as it became exhausted, nor for keeping the vessel free from the water forced by the pressure to rise within it. Beckmann also furnishes an interesting account of a ship carpenter, named William Phipps, from Boston, Mass., who persuaded King Charles II., in 1683, to furnish him with a ship and the necessary apparatus for exploring for a rich Spanish ship sunk on the coast of Hispaniola. The experiment was unsuccessful, but on a second trial made in 1687, Phipps was so fortunate as to raise from the depth of 6 or 7 fathoms so much treasure that he returned to England with the value of £200,000 sterling. The account is found in the "History of the British Empire in America," by J. Wynne (London, 1770), and is noticed in Campbell's "Lives of the Admirals." About the year 1715, Dr. Halley contrived a method of furnishing air to the bell while it was at the bottom, thus rendering it unnecessary to hoist it to the surface for new supplies. He had two tight barrels prepared, each with an open bung below, and a hose attached to the top long enough to reach outside below the bottom, in which position the air could not escape through it. These, loaded with weights, were sunk alternately, like two buckets in a well, or, by guys attached to the bell, were made to drop alongside of it. A person within, reaching out into the water under the mouth of the bell, could draw in the hose, and raising the end of it above the level of the top of the cask, the air would be forced upward and furnish a new supply to the bell. All the water would thus be displaced, and one could step about upon the bottom over the area

covered by the bell. The air contaminated by breathing was let off by a stop-cock in the roof, and pieces of glass set in here admitted the light. In the apparatus thus prepared Dr. Halley descended with 4 others, and remained 1½ hours in water over 9 fathoms deep. He soon afterward devised an apparatus with which one could leave the bell, and walk on the bottom for a considerable distance. The diver was furnished with a heavy metallic cap, which was connected with a long flexible tube for conveying air within the bell. Heavy weights were attached to his belt and also to the feet to counteract the buoyancy of the body at great depths. Numerous modifications to the construction of the bell continued to be made by others, none of which however proved to be of much importance until Smeaton, the engineer, applied the air pump about the year 1779 to forcing down the air, and made the first application of the apparatus to engineering purposes. In 1788 he constructed a bell of cast iron, in the form of a chest, 4½ feet long, 4½ feet high, 3 feet wide, and weighing 2½ tons, so as to sink by its own gravity. Those previously made were of wood, loaded externally with weights. With this he cleared the foundations for a pier in Ramsgate harbor, removing stones of over a ton in weight with great facility; and some years afterward it was employed with equal advantage in renewing the foundations, which had been at first made with caissons and failed, with regularly built masonry, consisting of large stones dovetailed together. A bell of this size affords room for two laborers to work at the bottom, and contains air enough, being of the capacity of more than 50 cubic feet, to sustain the life of two persons for more than an hour. In the bell they are supported by seats attached to the sides for the purpose. The air pump, stationed in a boat above, requires the force of several men (sometimes 4) to work it. The quantity of air actually required for each man is about 200 cubic inches per minute at the ordinary pressure of the atmosphere. In the compressed air of the diving bell the same bulk is inhaled, expired, and vitiated at each respiration of the lungs, consequently more is needed than at the surface; and a still larger supply also is requisite to prevent the air from becoming so impure by the mixture of that expired as to endanger the health of the workmen; it is consequently well to provide many times the amount of air that is indispensable. The impure gases rise by their greater heat to the top of the bell, where they escape through the valves provided for this purpose. The glass-covered apertures let in sufficient light to render objects clearly visible when the water is limpid; even the calorific action of the solar rays is not destroyed by their passage through the water. An instance is narrated of a diver at the depth of about 55 feet finding all at once the bell to be filled with smoke. He soon discovered that this came from his cap, which was set on fire by being in the focus of one of the glass lights, through which the solar rays were concentrated. If the water is not clear, the darkness is indescribably dense, even at the depth of only 12 feet. A candle may then be used to advantage if the air is liberally supplied. The increase of pressure experienced in descending in a bell affects individuals differently. Usually a pain is felt upon the tympanum of the ear, caused by the pressure upon the outside not being at once counterbalanced by the air within the tympanic cavity having acquired the same density. The construction of the Eustachian tube, leading from the mouth to the internal part of the ear, is such that a little time is necessary for the compressed air to make its way within. This usually takes place by a sudden impulse, which may be hastened by an effort of the individual like that of swallowing, the mouth and nostrils being closed at the time. When one is unaccustomed to going down, it is often necessary to stop the descent at short intervals to give time for this action to take place. Having reached the bottom, all disagreeable sensations pass away; but on ascending, the expansion of the air within the head excites a painful feeling of distention, which is relieved so soon as the internal and external pressure can be equalized. The practice of descending in diving bells has been thought to be beneficial in some cases of deafness, and also in some affections of the respiratory organs. As the workmen below wish to communicate with those above, they strike a certain number of blows upon the side of the bell, which indicate the desired message according to a system of preconcerted signals. The sound is readily heard above, though noises made at the surface are not heard below. By such signals, or by messages written on wood or other substance, those above are directed to hoist or lower the bell, to move it by the boom from which it is suspended, to renew the supply of air, or to send down or draw up the buckets in which are placed articles found on the bottom. In 1820 a bell was in use for clearing out Howth harbor near Dublin, which measured 6 feet in length, 4 in breadth, and 5 in height. It was of iron cast in one piece, the metal being 3 inches thick at the bottom, and half that thickness at the top; the whole weight was 4 tons, which was much more than sufficient to carry it down. This bell afforded room enough for 4 men. At the bottom they could fill the iron baskets with stones to be hoisted up, and drill the rock for blasts.—In vol. xxii. of the "American Journal of Science" is an interesting account of the experiments made with a diving bell in Portsmouth harbor, N. H., in 1805. The bell inside was 5 feet in diameter at the bottom, 3 feet at the top, and 5¾ feet high. Two men descended in it at a time. When about 12 feet below the surface, the painful sensation experienced in the ears would pass off with a sudden shock, and this would be repeated at each interval of about 12 feet. It might, they found, be avoided by having the bell raised a foot or two every 8 or 10 feet of the descent.

The greatest descent made was about 72 feet. "In a clear day and with an unruffled sea they had light sufficient for reading a coarse print at the greatest depth. As they moved the pebbles with their gaff at the bottom of the river, fish in abundance came to the place like a flock of chickens, and as devoid of fear as if it was a region where they had never been molested by beings from the extra-aquatic world. From the description of the adventurers, no scenery in nature can be more beautiful than that viewed by them in a sunshiny day at the bottom of the deep Piscataqua. It does not appear that the health of either of the men was in the least impaired by their submarine excursions. Their pulsations were quick and their perspiration was very profuse while under water; and upon coming out of it they felt themselves in a fit condition for a comfortable sleep." One of the men, it is further stated, found himself much relieved of rheumatic complaints from which he was suffering, which is attributed by a writer in the *Bibliothèque universelle*, in which the account was translated, to the great heat produced in the bell, which is like that of a steam bath.—An improved form of the diving bell has been recently brought into notice, to which the name of nautilus has been given, and a patent has been issued to Major Sears of New York, who has perfected its construction. Like the torpedos, one form of which has been noticed in the preceding article, it is provided with chambers distinct from those occupied by the divers, but under their control, so that they may at their will be filled either with air or water. By this means the specific gravity of the machine is made to vary so that the bell may rise to the surface or sink to any desired depth. The trap door in the bottom being raised, communication is thus opened with objects outside of or below the bell. Guy ropes from the surface pass through the chamber occupied by the operators, being secured by stuffing boxes in the sides. By drawing upon these the bell is moved in any direction by the persons within. The apparatus has been recently used with success in New York harbor. A diving bell was employed in the operations connected with the removal of the rocks known as Diamond reef in New York harbor, in 1858, which contained a new feature introduced by Mr. Ryerson of New York. In the lower compartment, which was sufficiently capacious to accommodate 6 persons, or for 4 laborers to work together, an arrangement was provided around the sides by which jets of water were allowed to play in, causing a fine spray, the effect of which was to wash the air and free it in part, at least, of the carbonic acid generated by respiration.

DIVINING ROD. The increase of knowledge has not yet expelled even from the best educated portions of the United States all faith in the magic virtues of this instrument. There is a mystery in the hidden flow of subterranean courses of water, and in the occurrence of deposits of valuable ores, which encourages a resort to mysterious methods for discovering them. If the wise can point to no sure clue to them, the ignorant pretender does not fail to find one, which to many is all the more acceptable for its extravagant pretensions and inexplicable nature. It is stated by a writer in the "American Journal of Science" (vol. xi., 1826) that the divining rod has been in frequent use since the 11th century. A work was published in France in 1781 detailing 600 experiments made to ascertain the facts attributed to it, "by which is unfolded," according to this work, "their resemblance to the admirable and uniform laws of electricity and magnetism." These sciences still continue to be appealed to in order to support in some vague way phenomena which defy other means of explication. As commonly used, the divining rod is a forked slender stick of witch hazel; elastic twigs, however, of any sort, or even 2 sticks of whalebone fastened together at one end, do not appear to be rejected in the want of the hazel tree. One branch of the twig is taken in each hand between the thumb and fore finger, the 2 ends pointing down. Holding the stick in this position, the palms toward the face, the gifted operator passes over the surface of the ground; and wherever the upper point of the stick bends over and points downward, there he affirms the spring or metallic vein will be found. Some even pretend to designate the distance below the surface according to the force of the movement, or according to the diameter of the circle over which the action is perceived, one rule being that the depth is half the diameter of this circle; whence the deeper the object is below the surface the further is its influence exerted. It is observable that a rod so held will of necessity turn, as the hands are closed more tightly upon it, though this has at first the appearance of serving to resist its motion. From the character of many who use the rod and believe in it, it is also plain that this force is exerted without any intention or consciousness on their part, and that they are themselves honestly deceived by the movement. On putting the experiment to the test by digging, if water is found it proves the genuineness of the operation; if it is not found, something else is, to which the effect is attributed, or the water which attracted the rod is sure to be met with if the digging is only continued deep enough. Some ingenuity is therefore necessary to expose the deception. The writer above referred to succeeded in showing the absurdity of the operation by taking the diviners over the same ground twice, the second time blindfolded, and each time marking the points designated by the rod. This, however, is a test to which they are not often willing to subject their art. Some operators do not require a forked twig. There was in 1857, and may be still, within less than 100 miles of New York city, a man who believed himself gifted in the use of the divining rod, and was occasionally sent for to go great distances to determine the position of objects of value sunk in the lakes,

of ores, and of wells of water. He carried several little cylinders of tin, but what they contained was a secret. One had an attraction for iron, another for copper, a 3d for water, &c. He had in his hand a little ratan cane, which he used as not likely to excite the observation of those he met. Taking one of the cylinders out of his pocket he slipped the ratan into a socket in its end, and holding in his hands the other end of the stick, he set the contrivance bobbing up and down and around. That it was attracted and drawn toward any body of ore in the vicinity he was evidently convinced.

DIVISIBILITY. To what extent particles of matter may be subdivided we are restricted from ascertaining by experiment, through the imperfection of our senses; or by metaphysical reasoning, through our want of mental capacity. Dr. Thomson caused a grain weight of nitrate of lead dissolved in 500,000 parts of water to be decomposed, and the sulphuret of the metal formed by the action of a current of sulphuretted hydrogen to appear in a visible form diffused throughout the whole quantity of water. Each drop and each microscopic portion of a drop contained the metallic salt, which he hence concluded was divided into at least 500,000,000,000 parts, and each of these contained its proportional quantity of lead and of sulphur. The mechanical subdivision of ductile metals is hardly less remarkable. By drawing a wire coated with 8 grains of gold, this may be made to reach $2\frac{1}{2}$ miles. Wollaston drew down a platinum wire of the diameter of $\frac{1}{1000}$ of an inch, enclosed in a coating of silver making the thickness $\frac{1}{5}$ of an inch, until the two were reduced to $\frac{1}{1500}$ of an inch. The silver being dissolved by nitric acid, the platinum wire was left, the thickness of which must have been $\frac{1}{30,000}$ of an inch. The microscopic observations of Leeuwenhoeck have developed some wonderful facts respecting the tenuity of the spider's web. The common thread is known to be made of 4 strands, each of which is visible to the naked eye, and this is found to consist of at least 1,000 small threads which issue from as many orifices in the spinner of the animal. Of the smallest spiders Leeuwenhoeck estimated that the quadrupled thread was so minute that at least 4,000,000 of them would not exceed in thickness one of the hairs of his beard; and as each of these is made up of at least 4,000 fibres, it must follow that each fibre can be no larger than $\frac{1}{16,000,000,000}$ of a human hair. Nothing perhaps more sensibly exhibits the principle of the extreme divisibility of matter than the diffusion of odors. Musk, without appreciable diminution of weight, continues for months to impart its odor to an apartment, the air of which is constantly renewed. Every portion of the air that has passed through the room has evidently taken with it a portion of musk, and yet so small is the aggregate amount that we have no other means of showing that the original quantity has been diminished. According to the demonstration of Dr. Keill, any given quantity of matter, however small, may be diffused through any given finite space, however large, and so fill it that there shall be no pore in it the diameter of which shall exceed any given line.

DIVORCE. In a popular sense, divorce is a dissolution of the bond of matrimony, for causes occurring after marriage. Jurists, however, in treating of the subject, usually include also another class of cases, viz.: those in which the marriage may be deemed by a court to have been null *ab initio* upon antecedent grounds; as where such marriage was accomplished by force or fraud, or where, by reason of near consanguinity of the parties, the marriage was unlawful. The common law allowed divorces *causa impotentiæ seu frigiditatis*, if such impotence or frigidity existed before marriage, this being deemed a fraud; but it was no ground of divorce if it supervened after marriage; and it is the only kind of fraud of which we find mention in the English cases as a ground of annulling a marriage. Fraudulent representations by either party in respect to his or her condition in life, pecuniary circumstances, family connections, bodily health, and the like, however material these may have been in inducing a consent to the contract, still are unavailable as an impeachment of the marriage. A false personation of another, or any fraud by which one of the parties is deceived in respect to the person with whom the marriage is solemnized, is a sufficient cause for annulling the marriage; but this is put upon the ground of want of consent, it being equally essential to this as to other contracts that there should be the *animus contrahendi*, and the contract cannot take effect contrary to the real intention of the party who is to be bound. In the English courts the proceeding *causa jactitationis matrimonii* was intended for relief in such cases; in form, being an action by the one party for an alleged assertion by the other that a marriage has taken place, whereupon the matter is tried, and unless the defendant proves that there was a marriage he is prohibited from averring the same, which is equivalent to a decree that there was no such marriage. In the state of New York it was formerly held that physical incapacity existing before marriage was not a ground of divorce, for which decision the reason assigned was that the English ecclesiastical law had never been adopted in this country. By the Revised Statutes of New York it is provided that a divorce may be granted where one of the parties was physically incapable of entering into the marriage state, and also where the consent of one of the parties was obtained by force or fraud (2 R. S. 142). The nature of the fraud referred to is not defined, but it may be presumed that it must be some imposition or deception relating to the ceremony itself; and probably it would be held, in conformity with the English rule, that if it was really intended that the marriage should take place, and if it has in fact been solemnized with the

person intended, such marriage will be valid, notwithstanding consent was obtained by fraudulent representations in respect to other matters which may have constituted the inducement to the consent. If, however, there has been any intimidation used, it is a sufficient cause for annulling the marriage, and this seems to have been the true ground of the decision in the case of Fierlat *vs.* Gojon (Hopkins's Rep. 478), though it was put mainly upon the ground of fraud. Voluntary cohabitation of the parties as husband and wife is a bar to dissolution of the marriage, either for force or fraud.—The degree of kindred in which marriage is lawful in England is the 4th, according to the computation of the civil law; that is, counting the degrees of the ascending and descending lines. Marriage is, therefore, lawful between first cousins, or between great uncle and niece, but not between uncle and niece. And the same prohibition extends to relationship by marriage; therefore a man is not permitted to marry his deceased wife's sister, mother, or aunt, nor his stepdaughter nor daughter-in-law. By statute in the state of New York the prohibition extends only to relatives who are lineally related, and to brothers and sisters, whether of the half or whole blood (2 R. S. 129). In France marriage is prohibited between lineal ascendants and descendants; between brothers and sisters, whether legitimate or illegitimate; between uncle and niece, aunt and nephew; and also between those who are related by affinity in the same degrees; but in the case of uncle and niece or aunt and nephew a dispensation can be granted for weighty reasons. (*Code civile*, art. 161–164.) The same was substantially the rule of the Roman law, except that marriage of uncle and niece or aunt and nephew was considered incestuous, and under no circumstances was admitted, and the prohibition was extended to uncle and grand niece or aunt and grand nephew. Relationship by adoption was equally within the prohibition while such relationship continued to exist, as between brother and adopted sister; but if the sister was emancipated, marriage between them became lawful; and without such emancipation, the brother could marry an adopted sister's daughter. But there could be no marriage between those lineally related by adoption, either before or after emancipation, as between father and adopted daughter or granddaughter. (Justinian, Inst., lib. i. tit. 10.) In the English ecclesiastical courts there was formerly another ground upon which marriage could be annulled, viz., a prior engagement with another party. But this was abrogated by stat. 26 George II., c. 33, which prohibited all suits to enforce performance of a marriage contract; the parties being thus left to an action for damages upon refusal to perform it.—We have next to consider divorce for causes occurring after marriage. In England, from a very early period, divorce *a vinculo matrimonii* was not allowed for such causes, but only a separation *a mensa et thoro*, which did not authorize either party to marry again. This practice was derived from the canon law, which held marriage to be a sacrament, and that it could not be dissolved for any cause whatever. But by statute 20 and 21 Victoria, c. 85 (1857), divorce *a vinculo* is now allowed on the petition of the husband for the adultery of the wife, and on the petition of the wife when the husband has been guilty of incestuous adultery, rape, bestiality, or adultery accompanied by cruelty. Divorce *a mensa et thoro* is by the same act denominated a decree of judicial separation, and under that designation is allowed for the same causes as heretofore. A new tribunal, called the court for divorce and matrimonial causes, has been established, and the jurisdiction of the ecclesiastical courts has been entirely superseded in such matters, except the granting of marriage licenses.—By the Roman law marriage was held to be dissoluble at the pleasure of either party, the dissolution being called in such cases *divortium sine causa* or *sine ulla querela*. Augustus attempted to impose restrictions upon voluntary divorces, but his authority was unavailing against this evil. Justinian, by an imperial edict, prohibited voluntary divorces; but this was repealed by his successor, Justin, and the old law was restored, allowing full freedom of dissolving marriage by mutual consent. It appears that under the Christian emperors divorces *sine causa*, or at the option of one of the parties, were no longer allowed, but the causes which were held sufficient afforded ample facility for separation, with a preponderating advantage in favor of the husband. "In the most rigorous laws a wife was condemned to support a gamester, a drunkard, or a libertine, unless he were guilty of homicide, poison, or sacrilege, in which cases the marriage, as it would seem, might have been dissolved by the hand of the executioner." (Gibbon, c. 44.) Adultery of the wife was available to the husband as a ground of divorce, and either party was allowed a release from the matrimonial obligation for incurable impotence of the other party, whether existing before marriage or occurring afterward; for desertion, or long absence; and on the assumption of the monastic profession.—The *Code civile* of France allowed divorce: 1, for adultery of the wife, but not for adultery of the husband except when he brought a paramour or concubine into his own house; 2, to either party for any outrage, cruelty, or grievous wrong inflicted upon him or her by the other party (*pour excès, sévices, ou injures graves*); 3, to either upon the condemnation of the other to an infamous punishment (*condemnation à une peine infamante*), which is elsewhere defined to be either imprisonment, banishment, loss of civil rights, or being placed in the public stocks (*attaché au carcans sur la place publique; Code pénal*, arts. 8 and 22); 4, by mutual consent, with other satisfactory proof that the continuance of the marriage would be insupportable (*que la vie commune leur est insupportable*). These provisions were rescinded in the religious reaction of

1816. A law was passed (May 8, 1816) effacing divorce from the *Code civile*, and reëstablishing the old law, which allowed only *séparation par corps*. Ineffectual attempts were made in 1831 and 1832 to repeal this law, and there is therefore at present no divorce *a vinculo matrimonii* in France.—The Prussian laws (*Landrecht*), framed under Frederic the Great, who is well known to have been by no means a friend of marriage life, have established a facility of divorce greatly beyond any precedent in modern Europe; as for incurable impotency, although occurring after marriage; madness continuing a year; inexcusable desertion (*Verlassung*); drunkenness, or other disorder, of long continuance; ineradicable repugnance, and several other causes.—The law of divorce in the United States is various in different states. In New York, jurisdiction of all cases, whether of divorce *a vinculo*, or of limited divorce *a mensa et thoro*, was given by statute to the court of chancery, and upon the abolition of that court it vested in the supreme court in the exercise of equity power. Adultery of either party is the sole cause occurring after marriage, for which a divorce *a vinculo* can be granted. It is, however, provided that sentence of imprisonment to the state prison for life is civil death (2 R. S. 701), and the husband or wife of such imprisoned person is at liberty to marry again without the necessity of any judicial action. Imprisonment for a less term than for life merely suspends civil rights, but does not abrogate them; and the convict, upon expiration of his term, resumes his marital rights. No provision is made by law for the case of long continued absence, except that there is an exemption from the penalty of the statute against bigamy in the case of a second marriage, when the former husband or wife has been absent 5 successive years without being known to the other to be living (2 R. S. 687), but the second marriage is not thereby made valid. In some of the states jurisdiction has not been conferred upon the courts to grant divorces, and the power rests solely with the legislature; and in others, although there is judicial authority, yet applications to the legislature are also made. In all the states adultery of either party is a ground of divorce. In Massachusetts, Maine, and New Jersey, wilful desertion for 5 years; in Indiana and Missouri, desertion for 2 years, cruel and inhuman treatment by the husband, or his habitual drunkenness for 2 years; in Ohio, wilful desertion for 3 years, and habitual drunkenness for the same period; in Vermont, imprisonment in state prison for 3 years; in Pennsylvania, wilful desertion for 2 years; in Connecticut, wilful desertion for 3 years, or 7 years' absence without being heard of; also constitute sufficient grounds of divorce. In the state of New York a limited divorce *a mensa et thoro* is granted on the complaint of the wife for cruel and inhuman treatment, or such conduct as makes it unsafe and improper for her to cohabit with her husband, or for wilful desertion and refusal or neglect to provide for her. Applications to the legislature for a divorce have been most frequent in Vermont, Connecticut, and some of the western states. In Connecticut no petition for a divorce can be acted upon in a case where the courts are competent to give relief. In other states, as Virginia and Kentucky, such an application is usually referred to the courts for investigation. An interesting and difficult question often arises as to the effect to be given in one state to a divorce obtained in another. It has been incidentally held by the federal courts that laws for the dissolution of the marriage contract for cause, are not within the prohibition of the constitution against laws impairing the obligation of contracts, though it might be otherwise as to a law which should allow a dissolution without cause. A divorce granted by the courts of the state where the parties are domiciled, or rather where the defendant is domiciled, at the time the divorce is pronounced, may be considered as valid everywhere. This should perhaps be qualified by a further assumption that the parties have been regularly brought before the court or legislature by proper process. It is a fundamental principle that no one is bound by any judicial proceeding to which he has not been regularly made a party by personal service of process, or such notice as is declared by law to be equivalent thereto. As between citizens of the same state (or perhaps it would be more proper to say residents, for there is no distinctive citizenship of a state except residence), any provision of law substituting notice by publication or otherwise instead of personal service, would undoubtedly be binding; but when the defendant in the proceeding is at the time of the commencement thereof a resident of another state, it is questionable if any thing but personal service within the state where the proceeding is commenced, would be held sufficient to give jurisdiction. In the state of New York it was held that a divorce granted by a court in Vermont, in a suit in which there had been no service of process except by publication, defendant being then a resident of New York, was void, although the record recited that the defendant had been duly notified to appear. (Borden *vs.* Fitch, 15 Johnson, 121.) Later cases in that state, however, would rather lead to the conclusion that the record will be held to be conclusive, except that when an appearance has been entered by attorney the authority of such attorney may be disproved. (Shumway *vs.* Stillman, 4 Cowen, 292.) Still it has been denied that there can be any proper record if the parties have not been regularly before the court (Starbuck *vs.* Murray, 5 Wendell, 148; Bradshaw *vs.* Heath, 13 Wendell, 407); and a late decision in the court of appeals takes the broad ground that even in the same state in which a judgment was rendered, the judgment is of no validity against a party not personally served with process (Oakley *vs.* Aspinwall, 4 Comstock, 513). If, however, an inhabitant of one state goes into another for the express purpose of getting a divorce for a cause which would not au-

thorize a divorce in the state of his domicile, this has been held to be a fraud, and that the divorce would not be recognized in the latter state. (Barber *vs.* Root, 10 Mass. Rep. 264; Mass. Rev. Stat.)—In respect to divorces by foreign tribunals, it may be safely laid down as a general rule that they are valid if the parties were properly before the court. For this purpose it would be necessary that the defendant should have been served with process within the jurisdiction of the foreign court. There has been a serious conflict between the courts of England and Scotland as to the effect of a divorce in the latter country for causes not admitted as a sufficient ground in the former. The English courts formerly insisted that the *lex loci contractus* must govern, and that an English marriage could not therefore be dissolved by the courts of another country, although the parties (or the defendant, which it may be presumed is all that is material) should be domiciled in such country. (Lolly's case, 1 Dow P. C. 124; Tovey *vs.* Lindsay, 1 Dow Rep. 117; Conway *vs.* Beazley, 3 Hagg Eccl. Rep. 639.) But it was finally decided by the house of lords that a valid dissolution of marriage contracted in England might be made in Scotland. (Warrender *vs.* Warrender, 9 Bligh, 89.) Yet it is still maintained in the English courts that no decision made in the courts of another country can affect the rights of parties to lands in England, and therefore that the child of unmarried parents domiciled in Scotland who afterward married there, could not inherit lands in England. (Birtwhistle *vs.* Vardill, 9 Bligh, 72.) With some incongruity the same courts have held that the right of succession to lands in Scotland, by a child of parents residing in the state of New York who were afterward married, must be determined by the law of New York and not of Scotland. But whatever may be the doctrine of the English courts, there can be no doubt that in this country a foreign decree of divorce would be recognized as valid in any case where jurisdiction had been properly acquired by service of process on the party against whom such decree is made.

DIX, Dorothea L., an American philanthropist, born in Worcester, Mass. Her father was a physician, and after his death she supported herself by teaching a select school for young girls in Boston. While thus engaged she was one day passing through a street of that city, and overheard two gentlemen who were walking before her conversing upon the state prison at Charlestown, and complaining of the neglected condition of the convicts. Their remarks affected her so powerfully, that she could not rest until she had visited the prison herself. She became deeply interested in the welfare of the unfortunate and suffering classes, for whose elevation she labored until 1834, when, her health becoming impaired, she gave up her school, and embarked for Europe. Shortly before this she had inherited from a relative sufficient property to render her independent of daily exertion for support. In 1837 she returned to Boston, and devoted herself to investigating the condition of paupers, lunatics, and prisoners. In this work she was warmly encouraged by her friend and pastor, the Rev. Dr. Channing, of whose children she had been the governess. Since 1841 Miss Dix has given her time and influence entirely to this work, and in the prosecution of it has made many long and laborious journeys, having visited every state of the Union east of the Rocky mountains, examining poorhouses, prisons, lunatic asylums, and endeavoring to persuade legislatures and influential individuals to take measures for the relief of the poor and wretched. Her exertions contributed greatly to the foundation of state lunatic asylums in Rhode Island, Pennsylvania, New York, Indiana, Illinois, Lousiana, and North Carolina. She presented a memorial to congress during the session of 1848–'9, asking an appropriation of 5,000,000 acres of the public lands to endow hospitals for the indigent insane. The measure failed, but she renewed the appeal in 1850, asking for 10,000,000 acres. The committee of the house to whom the memorial was referred made a favorable report, and a bill such as she asked for passed the house, but failed in the senate for want of time. In April, 1854, however, in consequence of her unwearied exertions, a bill passed both houses of congress, appropriating 10,000,000 acres to the several states for the relief of the indigent insane; but the bill was vetoed by President Pierce, chiefly on the ground that the general government had no constitutional power to make such appropriations. Miss Dix has published several works anonymously. The first, the "Garland of Flora," appeared in Boston in 1829, and was succeeded by a number of books for children, among which were "Conversations about Common Things," "Alice and Ruth," and "Evening Hours." She has also published a variety of tracts for prisoners, and has written many memorials to legislative bodies on the subject of lunatic asylums. Miss Dix is gifted with a singularly persuasive voice, and with manners that are said to possess a remarkably controlling influence over the fiercest maniacs. She has recently been in Europe, and is now (April, 1859) again exploring the United States on her ceaseless mission of benevolence.

DIX, John Adams, a U. S. senator from New York, born in Boscawen, N. H., July 24, 1798. During the war of 1812–'15 he served on the frontier as an ensign, and subsequently acted as adjutant of a battalion. At a later period he was aide-de-camp to Gen. Brown, commander-in-chief of the army. Having married, and travelled extensively abroad, he established himself about the year 1828 as a lawyer at Cooperstown, N. Y., and becoming identified with the democratic party, he soon turned his attention to politics. In 1830 Gov. Throop appointed him adjutant-general of the state. In Jan. 1833, he was chosen secretary of state. By virtue of his office he was superintendent of common schools and a member of the canal board, and one of the commissioners of the canal fund. The last two

bodies have charge of the vast works of internal improvement of New York, and also of its complicated financial affairs. While he was in office new canals were being constructed, the enlargement of the Erie canal was commenced, and the network of railways that now covers the state was just starting into existence. Having been out of office for some time, he was elected a member of the assembly in 1842, from Albany co., and in the winter of 1845 was chosen to fill a vacancy in the U. S. senate, caused by the election of Silas Wright as governor. He remained in this new field till March 4, 1849, and bore a distinguished part in discussing the great questions of that stormy period—the annexation of Texas, the war with Mexico, the joint occupation and disputed boundary of Oregon, and the power of congress over slavery in the territories. On the question of slavery he was the exponent of the views of the free-soil section of the democratic party in New York, whose candidate for governor he was in 1848, when Mr. Van Buren was a candidate for the presidency in opposition to Gen. Cass, both Dix and Van Buren standing upon the "Buffalo platform." While in the senate, he was chairman of the committee on commerce, and a leading member of the committee on military affairs. He brought in a bill for reciprocal freedom of trade with the British provinces—substantially like that passed 6 years later—and supported it in 2 speeches which display an intimate acquaintance with the trade and resources of both countries. He was the author of the act defining the duties and reducing the salaries of officers of the customs in the large ports. The divisions in the democratic party of New York, arising out of the slavery question, rendered his reëlection to the senate impossible; and he was succeeded by Mr. Seward. Having taken an active part in 1852 in favor of the election of Mr. Pierce to the presidency, his immediate friends in the democratic party desired that he should be appointed secretary of state, and he was at first selected for that post by Mr. Pierce. But, difficulties seeming to arise in the mind of the president elect, Gen. Dix was induced to decline in favor of Gov. Marcy. He afterward accepted in 1853, as a temporary employment, the post of assistant treasurer in New York city; but dissatisfied with the president's conduct in relation to the appointment of a minister to France, he resigned his office, and has since taken no part in politics beyond an occasional speech before some popular meeting of the democratic party. He has travelled extensively in Europe, and now devotes much attention to study and the management of a large estate. He is the author of "Resources of the City of New York" (8vo., New York, 1827); "Decisions of the Superintendent of Common Schools of New York, and Laws relating to Common Schools" (8vo., Albany, 1837); "A Winter in Madeira" (12mo., New York, 1851); and "A Summer in Spain and Florence" (12mo., New York, 1855).

DIXON, George, an English navigator, died about 1800. He sailed in Cook's 3d expedition. On his return he was promoted to the rank of captain in the navy, and in 1785 in concert with Capt. Portlock sailed on a new expedition, consisting of 2 vessels, under the auspices of the Nootka sound company. In the course of their joint explorations they discovered a number of harbors, ports, bays, and small islands on the coast of North America, and arrived at Hawaii, Sept. 28, 1786, whence Dixon proceeded to China. He is the author of a description of his own expedition, under the title of "A Voyage round the World, but more particularly to the N. W. Coast of America," &c. (London, 1785–'88).

DIXON, James, D.D., an English clergyman of the Wesleyan Methodist church, entered the Wesleyan conference in 1812; in 1824 was stationed in the Gibraltar mission, where he labored for 3 years; in 1828 he was stationed on one of the London circuits, and remained in London until 1833; thence he was sent to Liverpool, and afterward was successively superintendent of Sheffield and Manchester circuits. In 1848 he was appointed by the Wesleyan conference a delegate to the general conference of the Methodist Episcopal church which was held at Pittsburg, Penn. On his return home he published an account of his visit to the United States. In 1841 he was chosen president of the British conference, and in accordance with established usage he preached the "conference sermon," in 1842, on "Methodism, its Origin, Economy, and Present Position." This sermon was subsequently elaborated into a book bearing the same title, beside which he published a "Memoir of the Rev. William E. Miller," and about the same time a work entitled "The Present Position and Aspects of Popery, and the Duty of exposing the Errors of Papal Rome," and "Letters on the Duties of Protestants with regard to Popery."

DIXON, William Hepworth, an English author and critic, editor of the London "Athenæum," born in the county of York in 1821. He was educated at a provincial school, and evinced an early genius for literature by the composition of a tragedy in 5 acts. After conducting a newspaper for a considerable period at Cheltenham, he gained prizes for two successive essays thrown open to unlimited competition by Mr. Madden of London, proprietor of the "Prize Magazine." These attracted the attention of many eminent persons, among others of Mr. C. Wentworth Dilke, who soon engaged Mr. Dixon as a contributor to the columns of the "Athenæum." In a short time he became the critical editor of this periodical, and on the retirement of Mr. T. K. Hervey in 1853 was appointed to its sole direction, an office which he continues to hold. He removed to London in 1845, since which time his published works, chiefly historical and biographical, have taken standard rank. The first was entitled "John Howard the Philanthropist, and the Prison World of Europe" (London, 1850; 5th ed. 1854), and was followed in the same year by the "Lon-

don Prisons," a volume amplified from a series of communications to the "Daily News" newspaper. In 1851 appeared his "Life of William Penn," and the 3d edition in 1856, with an "Extra Chapter on the Macaulay Charges," concerning which much controversy has arisen. His "Life of Admiral Blake," based on family and state papers, was published in 1852 (2d ed. 1858). After the publication of his biography of Penn, the Pennsylvania historical society elected him an honorary member. He also produced in 1852 a work entitled the "French in England; or Both Sides of the Question on Both Sides of the Channel." As deputy royal commissioner for the great exhibition of 1851 he was eminently successful; and as a representative of the ballot society, the principles of which he advocated in an extensive political tour, he received the offer of a seat in parliament. He declined the honor, being resolved upon the execution of a national work, a history of England during the rebellion and under the commonwealth. For this he has ransacked the state paper office, and explored every site and scene in the old world at all connected with the events of the period, studying documents, men, and manners. He purposes also to visit America with similar objects in view. In his capacity of editor of the "Athenæum" Mr. Dixon forms the centre of a large and brilliant literary circle.

DIXWELL, John, colonel, one of the judges of Charles I., born in 1608, died March 18, 1689. After the reaction in England which placed Charles II. upon the throne, and caused himself and his associates to be condemned to death, he escaped to America. He changed his name, taking that of John Davids, and lived undiscovered among the inhabitants of New Haven, where he was married and left children. In 1664 he visited two of his fellow regicides, Whalley and Goffe, who had found a refuge amid the solitudes of Hadley, a township of Massachusetts. His favorite study in exile was the "History of the World," which Raleigh had written in prison, and he cherished a constant faith that the spirit of liberty in England would produce a new revolution.

DLUGOSZ (Lat. *Longinus*), Jan, a Polish historian, born at Brzeznica in 1415, died in Cracow, May 29, 1480. He studied at the university of Cracow, found a patron in the cardinal Zbigniew Olesnicki, took orders, was made canon of Sandomir, and subsequently of Cracow. Casimir IV. employed him in several important diplomatic missions to John Hunniades, governor of Hungary, the pope, the emperor, George Podiebrad of Bohemia, the grand master of the Teutonic order, and Matthias Corvinus of Hungary. Casimir also intrusted him with the education of two of his sons, Ladislas, who still remained under his guidance when elected king of Bohemia, and John Albert, afterward king of Poland. Shortly before his death he was appointed archbishop of Lemberg. He left in manuscript a number of works in Latin, of which the history of Poland, from the origin of the nation down to the last year of the author's life, is one of the most valuable historical productions of that age. The first partial edition of this work appeared at Dobromil in 1615; the first complete edition in 2 vols. at Frankfort and Leipsic in 1711 and 1712, under the title of *Joannis Dlugossi seu Longini Canonici quondam Cracov. Historiæ Poloniæ libri XII.* Measures for the publication of a new Latin and Polish edition of his complete works were set on foot in 1858, under the auspices of Count Vladimir Plater.

DMITRIEFF, Ivan Ivanovitch, a Russian poet and minister of justice, born in the government of Simbeersk in 1760, died in Moscow in Oct. 1837. Having studied for some time at Kasan and Simbeersk, he removed with his father, on the revolt of Posgatcheff, to St. Petersburg, where he entered a military school, and subsequently the active service. On the accession of Paul he left the army with the rank of colonel, sat in the senate, was made privy councillor, and under Alexander I. became minister of state, which office he resigned after 4 years, and retired into private life. He aided Karamsin in promoting a new movement in the Russian language and literature, writing himself popular songs, fables, and tales, mostly after Lafontaine, Florian, and others, excellent satires, and an epico-dramatic poem, *Yermak*, as well as his own memoirs, a part of which he published. There are several editions of his complete works.

DNIEPER, Dniepr, or Dnepr (anc. *Borysthenes*, also *Danapris*), next to the Volga the largest river of Russia in Europe, rises on the S. slope of the Volkonsky plateau, near Dneprovsk in the government of Smolensk, flows S. between woody marshes as far as Drohobush, thence W. between more elevated banks to Smolensk, continues its western course as far as Orsha, takes then a S. course, passes through the meadowy valleys and fertile plains of the government of Mohilev down to Kiev, turns then S. E. through the steppes of the Ukraine, passes by Krementshug and Ekaterinoslav, flows S. as far as Alexandrovsk, and then W. S.W. to its mouth below Kherson, emptying into the Black sea between Kinburn and Otchakov. Its whole course is about 1,100 m. Its chief tributaries are, on the right, the Beresina, the Pripetz, which empties into it the waters of the Lithuanian marshes, and the Inguletz; on the left, the Desna and Vorskla. Though large, the Dnieper was formerly hardly navigable, owing to natural obstructions in its lower course and at the mouth. Some of these have been removed by the Russian government, but its commercial importance is still lessened by its frequent shallowness. About lat. 48° 20′ N. it commences a course of more than 40 m. over a rugged bed of granite, forming below Ekaterinoslav a number of cataracts and rapids (in Russian *porogs*, whence the name of Zaporogian Cossacks), and separates into a great number of courses, embracing many woody islands. Reuniting, it becomes navigable in its lower course for flat-

bottomed vessels, among which steamboats have been employed since 1838 in carrying the produce of the interior, timber, corn, linen, iron, and coal, to the Black sea. The Beresina, Oginski, and King's canals, connecting tributaries of the Dnieper with the Düna, Niemen, and N. Bug, form water communications through these rivers between the Baltic and Black seas. The estuary or lake (Russ. *liman*), formed by the mouths of the Dnieper as well as by that of the Bug, is very shallow, and emits noxious exhalations during the hot summer months. The Dnieper, like the Volga, abounds in sturgeon, carp, pike, and shad. In its long course it passes through the most fertile provinces of Russia, and through different climates. At Smolensk it freezes in November and remains icebound till April; at Kiev it is frozen over from January to March. The most remarkable bridges over the river are in these 2 cities. The ancients regarded the Borysthenes as the largest river of the world next to the Nile, and entertained an exaggerated opinion of the fertility of the surrounding country. They knew only its lower course. Near its mouth was Olbia, or Olbiopolis, a colony of Miletus, which carried on trade with the nomadic tribes of the interior.

DNIESTER, or Dniestr (anc. *Tyras* and *Danaster*), a river of eastern Europe, which rises on the N. side of the Carpathian mountains, near Turka in Austrian Galicia, flows mostly S. E. for about 500 m., passes by Sambor, Halicz, and Mariampol in Galicia, and Chocim, Mohilev, and Bender in Russia, separates the Russian province of Bessarabia from Podolia on the W. and Kherson on the E., and empties into the Black sea between Akerman and Ovidiopol. Its principal tributaries are the Stry and Sered. There is but little navigation; its mouth is encumbered with flats and sandbanks.

DOAB (Sanscrit, two waters), a name given in Hindostan to any tract of country included between 2 rivers. It is especially applied to the tract lying between the Ganges and the Jumna, and when applied to other similar districts is joined with some distinctive appellation, as the Jallunder Doab, between the Beas and the Satlej, and the Rukna Doab, between the Ravee and the Chenab. The Doab, so called by way of eminence, is a large tract reaching from Allahabad in the south to Saharanpoor in the north, and forming the finest and most fertile part of the province of Agra. It contains many thriving towns, and the whole territory has been brought into a highly productive state by means of a system of irrigation.

DOANE, George Washington, D.D., LL.D., an American clergyman, 2d bishop of the Protestant Episcopal church in the diocese of New Jersey, born at Trenton, N. J., in 1799, died at Burlington, N. J., April 27, 1859. He was graduated at Union college, Schenectady, in 1818; in 1821 was admitted to holy orders; officiated for 3 years in Trinity church, New York; in 1824 was appointed the first professor in Washington (now Trinity) college, Hartford. In 1828 he became assistant minister, and then rector of Trinity church, Boston, where he continued to officiate until 1832, when he was elected and consecrated bishop of New Jersey, whereupon he removed to Burlington, and became rector of St. Mary's church in that city. Here he devoted his energies to the establishment of a comprehensive system of Christian education for females. In pursuance of this plan, in 1837 he established St. Mary's hall, a boarding school for girls, beautifully situated on the shore of the Delaware, in which 200 girls from every state in the Union, as well as from foreign countries, are carefully educated in the tenets of the Episcopal church. In consequence of the great success of this enterprise, he founded Burlington college in 1846, under a charter from the state legislature; on Jan. 1, 1858, this institution had 29 instructors and 118 students. Bishop Doane's theological controversies were frequent. As a writer and preacher his style is not only peculiar, but his language robust and eloquent. His contributions to literature and theology were many and voluminous, and his poems have been much admired. Under his episcopate the church in New Jersey experienced an unexampled increase in the number of its communicants, from 801 in 1832 to 4,500 in 1858, while the clergy increased from 14 to 90 in the same period, and the number of parishes from 31 to 79.

DOBBIN, a family in Baltimore, long connected with the newspaper press of that city. Archibald Dobbin, and his sons Thomas, Archibald, George, and Robert, emigrated from the north of Ireland, and settled in Baltimore in 1790. Thomas Dobbin published the first daily newspaper in that city in 1795, called the "Baltimore Telegraph," which was continued after his death in 1809 by his brother George, in connection with Thomas Murphy, under the name of the "American." George Dobbin died in 1811, leaving two sons, Robert A. and George W. Robert A. succeeded in the management of the newspaper, and is still connected with it. The "American" is one of the oldest commercial journals of the Union, and has been under the control of the same family for 64 years. It is now published by R. A. Dobbin and Charles C. Fulton, under the title of the "Baltimore American and Commercial Advertiser."

DOBBIN, James Cochrane, an American statesman, born in Fayetteville, N. C., in 1814, died there, Aug. 4, 1857. He was graduated at the university of North Carolina in 1832, and 3 years later was admitted to the bar in Fayetteville, where he commenced the practice of the law. In 1845 he entered public life as a member of congress from the Raleigh district, and in 1848 and again in 1850 was elected a member of the North Carolina house of commons, on the latter occasion serving in the capacity of speaker. In 1852 he was a delegate to the Baltimore convention which nominated Mr. Pierce for the presidency, and in the same year he was

again a member of the state legislature and an unsuccessful candidate for the office of U. S. senator from North Carolina. Upon the inauguration of President Pierce in 1853 he received the appointment of secretary of the navy, which he retained until the close of the administration.

DOBELL, Sydney, an English poet, born at Peckham Rye, near London, in 1824. In 1835 his father, a wine merchant in London, removed his business to Cheltenham, and at this place, or at a country house in the neighboring valley of Charlton Kings, young Dobell lived until his marriage in 1844. It is said that he fell in love at 10, became engaged at 15, and was married at 20. At the age of 12 his education, which had been conducted entirely at home, was completed, and he entered the counting room of his father, with whom he remained in the capacity of a clerk for 15 years. While thus employed he devoted his leisure hours to literary pursuits, and in 1850 produced, under the *nom de plume* of "Sydney Yendys," which he retained for several years, his poem of the "Roman." This and "Balder," which appeared 4 years later, found many admirers, who hailed the author as the originator of a new era in English poetry. The 2 poems were, however, subjected to much severe criticism, and the latter of them was travestied by Mr. Aytoun in his "Firmilian." In 1855 Mr. Dobell published, in connection with Alexander Smith, a volume of "Sonnets on the War," and in the succeeding year another volume of poems entitled "England in time of War," in which his peculiarities of rhythm, language, and thought are fully developed.

DOBREE, Peter Paul, an English scholar, and professor of Greek in the university of Cambridge, born in Guernsey in 1782, died Sept. 24, 1825. After the death of Porson he was intrusted with the task of editing a part of his notes, and published in 1820 all that Porson had left upon Aristophanes, together with learned notes by himself. In 1823 he was appointed regius professor of Greek, and at the time of his death was preparing an edition of Demosthenes, and writing a course of lectures on Greek literature.

DÖBRENTEY, Gábor, a Hungarian author, born at Nagy-Szöllös in 1786, died in 1851. He studied philology and history at Wittenberg and Leipsic; in 1810 established the "Transylvania Museum," a periodical which exercised so considerable an influence upon the development of the Hungarian language and literature that no Hungarian library is thought complete without it. In 1820 he removed to Pesth, where he continued subsequently to reside, actively engaged in literary labors, while also holding various civil offices. In 1822 he was one of 22 savants invited to assemble at Buda to devise a plan and constitution for the Hungarian academy, and in 1831 was appointed a member and secretary of that body. During the same time he was engaged upon the great work of his life, the "Ancient Monuments of the Hungarian Language." Four volumes of this were published during his life, and a 5th was left by him nearly completed. He also wrote several biographical sketches of old Hungarian authors. His poems consist of odes, epigrams, and elegies; he also translated Shakespeare's Macbeth, Molière's *Avare*, and several tragedies of Schiller, into Hungarian.

DOBRIZHOFFER, Martin, a Jesuit missionary, born at Gratz, in Styria, in 1717, died in Vienna in 1791. He passed 18 years among the Indians inhabiting the W. bank of the Paraguay river, South America, and the interior of Paraguay. When the Jesuits were expelled from the Spanish colonies he went to Vienna, where he enjoyed the favor of Maria Theresa. His principal work is a history in Latin of the Abiponians (Vienna, 1784), of which a German translation appeared in Pesth in the same year, and an English translation in London in 1822.

DOBRODJA, a district in European Turkey, on the right side of the Danube, extending from Silistria and Varna to the mouth of that river, offering the most accessible route from the north for armies to reach Constantinople. The Russians commenced here their operations against Turkey in 1828; and again in 1854, after having crossed the Danube at Braila and Galatz, they gained an important advantage by securing Matshin, one of the principal towns of the district. The Dobrodja belonged to Russia after 1829, was restored to Turkey by the treaty of peace of 1856, and now forms a part of the eyalet of Silistria, and is the most S. E. portion of Bulgaria. The population consists of 16,000 to 20,000 families of various eastern and northern tribes, who support themselves chiefly by the raising of cattle and bees, by the manufacture of salt, and by fisheries. The soil is but little cultivated, and the district is, at most seasons, a wilderness. The scanty herbage dries up early in the summer, and the flocks of sheep and herds of buffaloes repair to the borders of the Danube for pasture.

DOBROVSKY, Jozef, a Slavic scholar, born near Raab, Hungary, Aug. 17, 1753, died in Brünn, Moravia, Jan. 6, 1829. He early applied himself to the study of the German language, and acquired afterward still greater knowledge of that of Bohemia, of which country his father was a native. Previous to attending the university of Prague, he had studied at a neighboring college of Jesuits, and after having become, in Oct. 1772, a member of that order in Brünn, he devoted himself from the time of its dissolution, in Aug. 1773, to literature generally, without, however, neglecting the study of theology, which he continued to pursue at Prague. Having made his début in literature in 1778 by a critical work which attracted much attention, he increased his reputation by conducting from 1780 to 1787 a journal devoted to Bohemian and Moravian literature. He achieved most abiding fame, however, by his subsequent works on the Slavic languages and history, which gained for him the reputation of having

laid the foundation of Slavic philology. The most celebrated of them is his *Institutiones Linguæ Slavicæ Dialecti veteris* (Vienna, 1822). In 1792 and 1794 he visited Sweden, Russia, and western Europe, for the purpose of collecting documents bearing upon Slavic history. On his return he was for several years afflicted with insanity, brought about by the intensity of his labors. He recovered his health, however, in 1803. An account of his life and writings was published by Palacky at Prague in 1838.

DOBSON, Thomas, a bookseller and author of Philadelphia, died March 8, 1823. He republished the "Encyclopædia Britannica" (21 vols. 4to., including the supplement, 1798–1803), and wrote "Letters on the Character of the Deity and the Moral State of Man" (2 vols. 12mo., 1807).

DOBSON, William, an English painter, born in London in 1610, died in 1646. He served an apprenticeship with a picture dealer, and availed himself of the opportunity thus offered him to copy some of the works of Titian and Vandyke. One of his pictures fell by chance under the eye of Vandyke, who was so much struck by its merit that he presented the painter to Charles I., who sat to Dobson for his picture, and upon the death of Vandyke conferred upon him the title of his chief painter. Several of his pictures are in the cabinet of the duke of Northumberland.

DOCE, a river of Brazil, rising in the province of Minas Geraes, and entering the Atlantic in lat. 19° 36′ S.; length, 330 m., or, including windings, about 500. For about half its course it flows N., then turns nearly E., intersecting the province of Espiritu Santo, and is bordered by a rich, beautiful, but much neglected country. Its navigation is greatly impeded by numerous cataracts.

DOCETÆ, in the primitive church, the partisans of those doctrines which admitted the appearance but denied the reality of the human form and nature of Jesus Christ. Those who looked upon matter as essentially evil, a view derived from a perverted Platonism or from oriental theories, were offended at the idea of a revelation of Deity through sensible objects. Accordingly they declared that every thing corporeal in Christ was only in appearance, and for the manifestation of the spirit, and that his life was merely a continued theophany. It was probably against Docetic errors, which had appeared even in the time of the apostles, that some passages in the gospel and epistles of St. John were directed. Docetism, of which there were various forms, was itself a form of Gnosticism, and its teachers, as Valentinus and Bardesanes, are reckoned among the Gnostics. It was thought by its believers to reconcile the narrative of the Gospels with the respect due to the Deity, in maintaining that the sufferings and death of Christ were only apparent.

DOCHART, a lake in the parish of Killin, Perthshire, Scotland. Its banks are clothed with groves of remarkable beauty; it contains a curious floating island, and another small isle on which stand the ruins of an ancient castle. The lake is about 3 m. long, and has its outlet through a river of the same name, which waters Glen-Dochart and falls into the Lochy.

DOCIMASIA (Gr. δοκιμασια, trial), in ancient Athens, a scrutiny into the life and conduct of any person chosen to hold a public office. Archons, senators, generals, and other magistrates were exposed to this scrutiny, which was conducted by selected persons. The examination for the archonship was intrusted to the senators themselves. The docimasia was not limited to candidates for public offices, but a scrutiny might be denounced against any orator or other eminent person who had been accused of flagitious crime; and he was then obliged to prove his innocence before a court of justice, or suffer disgrace and exclusion from the assemblies.

DOCK, an artificial basin for the reception of ships, either for their security or for the purpose of building, repairing, or examining them. Docks are of 2 sorts, wet and dry. The former are usually constructed with gates to retain the water. Ships are admitted at high water, and kept afloat by closing the gates. Basins are wet docks without gates, the water ebbing and flowing with the tide. Dry docks sometimes become dry by the ebbing of the tide, but are usually pumped out by the steam engine; they are closed by gates carefully constructed to prevent the ingress of the water. The most common form for this purpose is that of swinging gates, opening in the middle like the lock gates of a canal. The floating gate or caisson is a vessel with keel and stem, constructed to fit grooves in the masonry at the entrance of the dock; water being admitted into this vessel, it sinks in the grooves, forming a closed gate; it is removed from its place by pumping out water sufficient to float it clear of the grooves. These caissons are more cheaply constructed than swinging gates, occupy less space, are more easily repaired, and the same caisson may be used at different times for different docks.—Wet docks have proved a very important auxiliary to navigation and commerce. By their means vessels are more safely moored and protected against winds, tides, and currents, and, with suitable police regulations, are less liable to fire, robbery, &c. Wet docks also effect a great saving in the time and expense of loading and unloading vessels. The principal docks on the Thames are the East and West India docks, the London docks, the St. Katherine's, the Commercial, and the Victoria docks. The West India docks were commenced in Feb. 1800, and opened in Aug. 1802. They stretch across the isthmus joining the Isle of Dogs to the Middlesex side of the Thames, and consisted originally of an import and export dock, each of which communicated by means of locks with a basin of 5 or 6 acres in extent at the end next Blackwall, and with another of more than 2 acres at the end next Limehouse, both of these basins in turn communicating with the Thames. The south dock, which runs parallel to the ex-

port dock, was added in 1829. The export dock, appropriated to ships loading outward, is about 870 yards in length by 135 in width, covering an area of nearly 25 acres. The import dock, appropriated to ships entering to discharge, is as long as the export dock, and 166 yards wide; its extent is nearly 30 acres. The south dock is 1,183 yards long, and is used indiscriminately for vessels either loading or discharging; it has an entrance to the river at each end. At the highest tides the depth of water in the docks is 24 feet, and the whole will readily contain 600 vessels of from 250 to 500 tons. The import and export docks are parallel to each other, and divided by a range of warehouses which are chiefly used for the reception of spirituous liquors; smaller warehouses and sheds on the quays of the export and south docks are used to receive goods sent down for exportation, while the warehouses for imported goods are on the 4 quays of the import dock. An idea may be formed of the extent of these docks, when it is stated that there have been deposited at the same time upon the quays, under the sheds, and in the warehouses, 148,563 hhds. of sugar, 70,875 casks and 433,648 bags of coffee, 35,158 puncheons of rum and pipes of Madeira wine, 14,021 logs of mahogany, 21,350 tons of logwood, &c. The whole area occupied is about 295 acres; the establishment is surrounded with a high wall, and so strict are the precautions against fire and pilfering, that as soon as a ship enters the docks the crew is discharged, and no person whatever is allowed to remain on board or within the premises, the gates of which are shut at a certain hour. In almost all docks a serious evil is felt from the accumulation of mud and consequent diminution in depth of the water, and scouring and dredging have been deemed the only relief; but in the West India docks the evil has been obviated. The water of the Thames is very muddy, and when admitted in large quantities to repair the loss caused by evaporation, leakage, lockage, &c., the deposit is very considerable; the loss or waste of water from the docks was found to be upon an average equal to 5 inches in depth over the entire surface every 24 hours, and not only was this loss to be supplied, but it was necessary that the water in the docks and basins should be kept up to a point higher than that of the highest spring tides, since all the gates of the locks point inward, to sustain the water of the docks. To supply this want, the company have constructed 3 reservoirs, 2 of which are filled from the river by a culvert with sluices; the water is then allowed to settle, and afterward pumped by an engine into an elevated reservoir, from which the docks are constantly supplied with clear water. This establishment was formed by subscription, and the property vested in the West India company, the affairs of which were managed by 21 directors. All West India ships frequenting the Thames were obliged to use them for a period of 20 years from their completion. The dividends were limited by the act of incorporation to 10 per cent. So successful was the company that in 1819 a surplus fund of nearly £400,000 had been accumulated; but having reduced their charges very materially, the surplus has been absorbed. The engineer of these docks was William Jessop, and the total expense of their erection was about £1,500,000.—The East India docks at Blackwall were originally intended only to accommodate vessels engaged in the East India trade, but are now open to vessels from all parts. There are 2 docks, the import dock containing about 18 acres, and the export dock about 9 acres. The entrance basin connecting the docks with the river contains about 2¾ acres; the length of the entrance lock is 210 feet, and the width of the gates 48 feet clear. The depth of water in the docks is never less than 23 feet, and there is attached to them a quay fronting the river nearly 700 feet in length. Both these and the West India docks are now under the control of the East and West India dock company, the union having been effected in 1838. The capital of this company amounts to over £2,000,000, and the management is vested in a board of 32 directors.—The London docks are situated in Wapping, and were principally intended to receive ships laden with wine, brandy, tobacco, and rice. They were begun in 1800, and opened in Feb. 1805. The western dock is 20 acres in extent, and the new or eastern dock about 7. The tobacco dock, which lies between, and is appropriated solely to tobacco ships, exceeds one acre in extent. On the north side of this dock is the great tobacco warehouse, a building which occupies under one roof between 4 and 5 acres of ground. It is said to be capable of containing 25,000 hhds. of tobacco, while the vaults underneath will accommodate as many pipes of wine. All ships bound for the Thames, laden with wine, brandy, tobacco, or rice (except ships from the East and West Indies), were obliged to unload in these docks for 21 years; this monopoly expired in 1826, and the use of the docks is now optional. The entrances were formerly by the basins at Wapping and Hermitage, but another entrance was completed a few years ago from old Shadwell dock to the eastern dock. The stock of the company amounts to nearly £4,000,000, a considerable portion of which was required to purchase the houses, some 1,300 in number, that occupied the site of the docks. The board of directors consists of 25 members, the mayor of the city of London, as conservator of the river Thames, being one. Two new docks have been recently constructed at the London docks (200 and 150 feet long respectively, 60 feet wide; depth of water 28 feet), as well as a new basin, 780 feet by 450 feet, and extensive warehouses.—St. Katherine's docks, situated immediately below the tower, were executed in a year and a half, and first opened Oct. 25, 1828. The entire property covers an extent of 24 acres, 11 of which are occupied by the 2 docks, which communicate by a basin. The entrance lock is 180 feet long and 45 broad, and ships of over 800

tons register are docked and undocked with facility. The warehouses are very commodious, and being built close to the water's edge, goods can be transferred to them directly from the hold of the vessel, without a preliminary landing on quays, as in the docks before mentioned, thus effecting a great economy of time and labor. —The Commercial docks are on the opposite side of the river, and existed in 1660 under the name of the Howland great wet dock, and subsequently of the Greenland docks, having been prepared for the express purpose of accommodating Greenland whaling vessels. In 1807 they were greatly enlarged, and received their present name. They are used chiefly to receive vessels laden with corn, iron, lumber, guano, and other bulky commodities. They cover an area of 120 acres, 70 of which are water. The granaries will contain 140,000 quarters of corn. A new dock at the Commercial docks was opened in 1855.—The Victoria docks are situated on the Plaistow marshes, on the N. side of the Thames, immediately below the East and West India docks. The company own 200 acres, 74 of which are occupied by the dock, which affords 23½ feet depth of water. The entrance into the Thames is at Bow creek, by a lock 300 feet long and 80 feet wide. There is also a half-tide basin of 16 acres, and 5 jetties with warehouses containing over 11 acres of warehouse floor. The company own in addition an acre and a half, between Thames street and the river, on which to erect warehouses. These docks were completed in 1855. The lock gates, cranes, and capstans are all worked by hydraulic power. A special object of the company is, by the construction of a collier dock, to withdraw from the Thames a portion of the coal trade of the port, thus relieving the traffic on the river from serious obstruction, and extending greater facilities of discharge to the colliers.—The Southampton dock company was incorporated in 1836, and have at present built 2 wet docks, one an open dock of 16 acres, and with a depth of 18 feet at low water, and the second a close dock (the first of an intended series of 3), with an area of 10 acres, and a permanent average water depth of 23 feet. Both docks are surrounded by extensive bonded warehouses, vaults, sheds, &c. Attached to the wet docks are 3 dry docks, the largest of which is 450 feet in length, with 80 feet gates and 25 feet depth of water. At the Grand Surrey dock, a new dock entrance, inner dock, basin, and timber dock are in course of formation (1859), and are estimated to cost upward of £100,000. Extensive docks have also been formed at Brentford in connection with the canal terminus and the Great Western railway.—The Liverpool docks are very numerous, and have greatly contributed to the growth and consequence of the port. The first dock, constructed in 1715, had an area of 3¼ acres. It was filled up in 1826, in order to erect the custom house on its site. Between 1830 and 1852 no fewer than 22 docks and basins were opened; the total water space is about 200 acres, and the entire dock estate 712 acres. The Huskisson dock, constructed in Liverpool between 1852 and 1859 for the accommodation of ocean steamships, is one of the largest in the world. The width of the E. lock gates is 80 feet, of the W. lock gates 70 feet, and the water area is about 14 acres, with quay space to the extent of 1,122 yards. The docks all extend along and parallel with the river, and the river wall is 5 miles 200 yards long, while the quays measure 14 miles in length. The dock estate is managed by a committee of 24, who have charge of all the docks. The warehouses do not generally belong to the dock estate, but are mostly private property. Many are at a considerable distance from the quays, and the inconvenience arising from this arrangement has lately induced the construction of warehouses around the Albert and Stanley dock, and they are also to be built around the new Wapping dock. The docks at Birkenhead, on the west side of the Mersey and directly opposite Liverpool, were commenced in 1844, and the first, called the Morpeth dock, was opened by Lord Morpeth (the present earl of Carlisle), April 5, 1847; it communicates on the S. E. with a tidal basin of 16 acres for coasters. The Wallasey pool is to form a wet basin or float of 150 acres, and the total dock accommodation is intended to be over 200 acres. The first warehouses of the Birkenhead warehouse dock company were opened in April, 1847, and are capable of stowing away 80,000 tons of goods. Within the last few years the works have been renewed at Birkenhead on a large scale, and a considerable extension has been commenced (1859) in the docks of Liverpool. In 1857 a vast floating stage was constructed under the direction of Sir W. Cubitt, at a cost of £140,000, and moored in its place at Prince's pier. It is 100 feet long by 82 feet wide, and weighs upward of 3,000 tons; it is supported on 63 air-tight rectangular pontoons, of which 12 are each 96 feet long, 12 feet wide, and 5 feet deep; 49 each 80 feet long, 10 broad, and 5 deep, and 3 of somewhat smaller size.—At Newport a new dock (950 feet by 350 in the widest part; area 8 acres; cost £64,000) was opened in March, 1858. Docks covering an area of 13 acres were begun at Swansea in 1853. Extensive works were also in progress in the docks of Southampton and of other places in the same year. Hull has 5 docks, which occupy with their basins a water area of 49¼ acres. At Dundee there are 2 wet docks, viz.: King William's of 6¼ acres, and Earl Grey's of 5¼ acres; the breadth of the lock of the former is 40 feet, and of the latter 55. A wet dock of 14½ acres is now being constructed, with a lock of 60 feet, and an additional dock of 11 acres is projected; there is also a fine dry dock in connection with the King William dock. Leith, the port of Edinburgh, has 3 wet docks, which furnish a water area of about 15 acres. The Bute dock was constructed by the marquis of Bute at Cardiff, between 1834 and 1839, at an expense of £300,000; it contains a water space of about 20 acres, and the main entrance lock is

152 feet long and 36 feet wide. A new graving dock was constructed at Cardiff in 1858, as well as other works in connection with the Bute docks.—At Havre there are 3 old docks or basins, which can accommodate 200 to 300 vessels; a fourth, the *bassin de Vauban*, situated outside the walls, is larger than any of the others, and furnished with warehouses of the best construction; it was completed in 1842. A fifth dock has also recently been constructed for steamers. The harbor of Marseilles is a basin in the centre of the city, 1,050 yards in length by about 300 in breadth; the depth of water ranges from 12 to 24 feet, and dredging machines are kept constantly at work to clear out the mud, and prevent the basin from filling up. Three extensive basins were constructed at Antwerp in 1803; these are sufficiently deep to admit vessels of large size, which are enabled to penetrate the heart of the city by means of 8 canals. The docks at Cherbourg were commenced by Napoleon I., and the first basin was opened in Aug. 1813; the work was completed and the last basin opened in Aug. 1858. (See CHERBOURG.) The dry docks at Sebastopol, which were mainly destroyed after the capture of the city, Sept. 8, 1855, were situated considerably above the level of the Black sea, and the expense of pumping was entirely avoided; ships were raised into a general dock basin by a series of 3 locks, each of which had a rise of 10 feet. The water for supplying the basin, for filling the docks, and for working the locks, was brought by a canal 12 miles long, which taps a mountain stream. Vessels, after being elevated into the general basin, were floated into one of these dry docks, and, the gates being closed, the water was let off into the sea, through a subterranean culvert. The Brazilian government has been engaged for several years in the construction of a dry dock, the work on which is performed by convicts. It is excavated out of the solid rock, and is to be 300 feet long, 92 feet broad, and 32 feet deep.—In the United States are to be found the finest dry docks in the world. The largest is the granite dry dock at the Brooklyn navy yard, situated on the Wallabout bay, directly opposite New York city. It was commenced in Aug. 1841, and completed in Aug. 1851. The main chamber of the dock is 286 feet long and 30 feet wide on the bottom, and 307 feet long and 98 feet wide on the top, and by using the caisson or floating gate instead of the folding gates an additional length of 52 feet may be obtained; the least width is at the hollow quoins, where the walls are 66 feet apart at mean high water line; the least depth of the dock is over the mitre sills, where there is 26 feet of water at mean high tide; the whole height of the walls is 36 feet. The caisson is an iron vessel 66 feet long, 16 feet beam, and 30 feet hold; it is used in case the turning gates require repair, or to relieve the strain on them by dividing the pressure of the water. The pumping engines are sufficiently powerful to empty the dock in about 2 hours 10 minutes, the amount of water pumped out in that time being 610,000 gallons. When a ship is to be docked, the filling culverts are closed, as well as the passages from the dock chamber to the draining culverts leading to the pump well, and the water is pumped from the latter; the ship is then admitted and placed over the keel block in the centre of the dock; the caisson is next floated to its place, over the recess or groove, and filled with water until it sinks down to the bottom of the masonry fitted to receive its keel; after which the turning gates are closed by men standing on the bridge, and working the 4 hand wheels that move the machinery. The culvert gates in the dock chamber are next drawn and the water allowed to flow into the draining culvert and well, by which means the water is lowered several inches in the dock in a few minutes, thus hastening the shoring and producing an immediate pressure on the gates, so as to effectually prevent the admission of water and fix them steadily. A complete command of the level at the moment the gates are closed, or when a ship, especially a large one, is about to touch the blocks and requires the placing of shores, is important; and the above method gives a more perfect control of the operation for the first foot than could be obtained by the best regulated pumps and machinery for driving them. The water remaining in the dock is afterward pumped out of the well into the reservoir, from which it is discharged into the culvert leading to the bay, the ship being continually shored up, as the process of emptying is carried on.—There are also numerous floating dry docks at New York, owned and controlled by private companies; the principal of these are the balance docks, the floating sectional docks, and the hydrostatic screw dock. The balance dock, patented by Gilbert, combines the principles of the caisson and the camel, united together in a walled dock, in the middle compartment of which the vessel rests after the water is pumped out; the side compartments or balancing chambers butt into a caisson, the inner walls of the chambers being sloped, and the entire structure strongly braced and trussed, both transversely and longitudinally. It received the name of balance dock from the facility of preserving an exact equilibrium and level by means of water let into or pumped out of the separate compartments of either of the side chambers, all of which communicate with the pump well by means of valves. The New York balance dock company own 2 of these docks, the smaller one being 210 feet long, 70 feet wide, and 30 feet deep; while the larger one is 325 feet long, 100 feet broad, and 40 feet deep. The lifting power of this large dock is 8,000 tons, and it is worked by 2 steam engines of 100 horse power each, setting in motion 14 pumps, each 40 inches in diameter and 5 feet stroke. As an instance of its power, it may be mentioned that the Russian frigate General Admiral, an immense vessel of 6,000 tons burden, and weighing 3,680 tons, was taken up on this dock, Nov. 20, 1858, in the

space of 1½ hours. Docks of this description are now in use at the Portsmouth navy yard, and at Savannah, Mobile, Charleston, and New Orleans; also at Havre and Marseilles; and the Austrian government is now building one at Trieste equal in dimensions to the larger New York dock. In docking a vessel on the balance dock, the pumps are first set in motion by the steam engines on the deck above, and the discharge opening being closed by a gate for that purpose, the water rises in the chamber above the pumps until it is full to the deck of the dock. It is next allowed to flow into the upper chamber of the dock until its weight, acting as ballast, sinks the dock to the required depth. When the ship is floated into the dock, this ballast is drawn off by means of valves, causing the dock to rise by its own specific gravity until it touches the bottom of the ship, after which the vessel is lifted by pumping the water out of the side chambers and bottom tank; and as the dock rises, the water around the ship in the middle chamber ebbs out, so that the quantity of water to be exhausted in raising a vessel is in proportion to her weight and not to her bulk.—The New York sectional floating dock company was formed in 1838, and the first dock was begun in 1839 by Messrs. Burgess and Dodge, the patentees. This form of dock derives its name from its consisting of distinct sections of timber framing, forming, as in the case of the balance dock, a floating dock into which ships can enter. In the sections on each side are balance tanks, raised and lowered by means of a rack and pinion; also tanks which by being filled with water cause the dock to sink, and by the water being pumped out enable it to be raised to any required height out of the water, the ship resting on the platform within. On the top of the section is machinery for working the racks and pinion, and pump work. The present number of sections owned by the company is 18, and they generally form 3 docks of 4, 6, and 8 sections respectively, but, according to the size of the vessel to be raised, any number of sections may be used, as convenience suggests. Each section is 92 feet broad externally, and 64 feet internally, and 23 feet long; the sections are also 38 feet high externally, exclusive of engine house, and 28 feet high internally to the top of the standards. Each section may be considered as consisting of 3 parts, viz.: 2 lateral scaffoldings, or framings of standards within which the balance tanks run, and a central platform connecting them. The process of docking is as follows: the dock is sunk to any required depth, by opening the gates or valves with which each water tank is furnished; the ship is then introduced between the vertical side framing and rests upon the keel blocks, being supported on the sides; the valve which previously admitted the water into the water tanks is then closed, and the water being pumped out the air again fills the tanks, which rise, bringing with them the vessel to the required height; by again admitting water into the tanks the vessel is undocked.—The New York screw dock company own a screw dock and a hydrostatic screw dock. In the former dock, the vessel is floated on to a timber platform, which is suspended from strong manning pieces of beams on each side, laid on the quay walls, by 8 suspending screws 4½ inches in diameter; the platform can be sunk about 10 feet below the surface of the water, to receive the vessel, which is properly shored by timbers resting on the platform. In a dock of this kind at Baltimore, the platform is suspended by 40 screws of about 5 inches in diameter. The hydrostatic screw, or lifting dock, is an improved form in which hydrostatic power is brought to bear as the lifting force; it forms a slip abutting on the shore, with a suspended keel, allowing vessels to be raised up vertically; this keel consists of 2 outer and parallel ranges of piling, each bearing a way at the top from which are suspended chains with transverse beams or swing beams slung to them, over which the vessel to be docked floats; and having arrived over this movable platform or grating, the chains are raised by a hydrostatic press and the vessel brought to the level of the permanent way. The dock is 165 feet long internally and 35 feet wide; the distance from the outside of one mainway to the outside of the other is 51 feet. The mainways abut on the land, and run about 38 feet beyond the head of the dock on to the land, resting on a solid quay of masonry, to which they are bolted down and which supports the machinery. A number of docks on this principle have been constructed by the same company.—Beside the dry docks enumerated, New York possesses a basin of considerable extent called the Atlantic basin, situated in Brooklyn, opposite Governor's island. This work was constructed by the Atlantic dock company, incorporated in 1840 with a capital of $1,000,000; the entire area occupied is about 80 acres, 42 of which form a water surface. The basin was formed by enclosing this area with piers and bulkheads; the piers are 150 feet wide; those which form the front of the basin on the stream are divided by an entrance 200 feet in width; the depth of water in a portion of the basin is equal to 25 feet at low tide. Spacious warehouses are erected on the piers and surround the basin. A somewhat similar basin was constructed at Albany, at the terminus of the Erie canal, for the accommodation of the canal boats and of the ordinary shipping. The basin, containing about 32 acres, was formed by erecting a pier 80 feet in width along the W. bank of the Hudson; this was laid out into lots 30 feet in front, with warehouses on the same 50 feet deep. The pier is connected with the main shore by drawbridges, and is accessible at all times.—In addition to the New York dry dock already mentioned, there are naval dry docks at the navy yards of Boston, Portsmouth, Philadelphia, Norfolk, Pensacola, and San Francisco, costing in the aggregate, and exclusive of the New York dock, no less than $5,000,000. The Boston dry dock is of granite; it was commenced in June, 1827, and completed in March,

1834; its location is not in Boston proper, but in Charlestown. The interior of the chamber at top is 86 feet wide and 253 feet long, to the face of the arch above the water sill, being the portion that can be used for docking vessels inside of the turning gates; in addition, however, the space between the turning and floating gates, 53 feet, can be used by blocking up to the level of the mitre sills, making the total length of the dock 306 feet. The width of the chamber floor is 30 feet, and length 228 feet; the depth from coping to mitre sill is 30 feet; depth of water at ordinary high tide over mitre, 25 feet. The dry dock at Norfolk is also granite, and is located on the southern branch of the Elizabeth river, about 1½ miles from Norfolk and adjoining Gosport. It was commenced in Nov. 1827, and completed in March, 1834. Before its completion, the ship of the line Delaware was docked in it on the anniversary of the battle of Bunker hill (June 17, 1833), being the first national ship ever docked in a dry dock of the United States. In dimensions and character it is almost precisely similar to the Boston dock, described above, having been built from the same working plans, and under the direction of the same chief engineer. The dock at the Philadelphia navy yard consists of a sectional floating dry dock of 9 sections, and a permanent stone basin, with 2 marine railways extending from one of its 3 sides. It is located upon the Delaware river. The sectional dock consists of 9 sections, 3 of which are 30 feet and the remaining 6 32 feet in width, each consisting essentially of a main tank, 2 end frames, and 2 end floats; the main tanks are each 105 feet in length, 30 or 32 feet in width, 11 feet high at the ends, and 11½ feet at the centre. There are 2 beam engines of 20 horse power, and 2 of 12 horse power, each with locomotive boilers, which move the machinery for working the 3 pumps at each end of each section, and the end floats; the 9 sections are often arranged into 2 floating docks, 2 of the engines being employed for each dock. As a general rule, the largest ships of the line and steamers may be docked upon 6 sections, while a sloop of war can be docked upon the remaining 3; or a frigate may be docked upon 5 sections, and smaller vessels upon the remaining 4. This form of dock can be readily repaired, and one section may be raised by 2 others for that purpose. The bottom of the basin is 350 feet long and 226 feet wide, and 12 feet 9 inches to the top of the side and end walls, and so constructed as to have 10 feet 9 inches of water in the basin above the floor, at mean high tide. Each marine railway consists of 3 parallel ways of white oak, the centre way being intended to sustain the weight of the vessel upon her keel, and the other 2 at equal distances from the centre way to keep the vessel steady upon her keel during the operation of sliding her on shore; there are also temporary bedways for placing upon the deck of the dock, and when used to be accurately alligned with the bedways on shore. The cradle is constructed to be placed under the keel and bilges of the vessel, to sustain her with her keel upon the centre bedway and her bilges upon the bilgeways; for the latter purpose each side of the vessel is blocked up with square blocks of timber, from the bilgeway of the cradle. This dock was commenced in Dec. 1849, and completed in June, 1851. The San Francisco dock is also a sectional floating dock, similar to that at Philadelphia, but exceeding the latter in displacement and lifting power about 10 per cent. It consists of 10 sections, each 100 feet long, 32 feet broad, and 11 feet 9 inches high, with 2 end floats to every section, each 26 feet 8 inches long, 15 feet wide, and 8 feet high. The construction of the dock was commenced in New York in June, 1851, and it was completed ready for shipment early in the spring of 1852. The dock at Portsmouth, N. H., is situated on the Piscataqua river, and consists of a balance dry dock, a stone basin, and railways. The balance dock is 350 feet long, 105 feet 4 inches broad, and 38 feet deep. The chambers on each side are 7 feet 8 inches wide, reducing the interior width to 90 feet. The basin is 360 feet long, and 120 feet wide on the bottom, the walls 14 feet high, battening back 3 feet on all sides, from the bottom to the top of the basin. The railways are similar in character and dimensions to those at the Philadelphia navy yard. The dock was contracted for on Nov. 11, 1848, and completed in Nov. 1851. The dock at Pensacola consists of a balance dock, basin, and marine railways. The balance dock is precisely similar to that at Portsmouth, except that it is provided with extra fixtures to steady vessels, when used as a camel for carrying them over the bar of the bay. The railways are the same as those constructed for the Philadelphia dock.—For a description of the government dock yards of Great Britain, see Chatham, Deptford, Devonport, Portsmouth, Sheerness, Woolwich, &c.

DOCTOR (Lat. *doceo*, to teach), a person who has taken all the degrees of a faculty, and is empowered to teach and practise it. It is bestowed by universities and colleges as an honorary distinction. The doctorate and the degrees which conduct to it were first instituted early in the 12th century. The first ceremonious installation of a doctor was at the university of Bologna, when Bulgarus was promoted to the doctorate of the civil and canon law. The learned Irnerius, one of the revivers of the Roman law at that time, composed the formulary which has been followed since, and which gives great solemnity to the reception of the degree. The usage was immediately adopted by the university of Paris, which in 1145 conferred the degree of doctor upon Peter Lombard and Gilbert de la Porrée, two of the most eminent theologians of that period. According to another tradition, the title was first applied to those teachers who explained to their scholars Lombard's "Book of Sentences," which was not published till 1140. It was at that time substituted for the title of master, which had grown too com-

mon and familiar. The title and degree of doctor were in use in England under King John, about 1207. In Germany during the middle ages a doctor of law enjoyed the same privileges as knights and prelates. The first doctors were only of law and theology; medicine was afterward added; and in 1340 in the university of Paris the 4 faculties of law, theology, medicine, and the arts or letters, were organized as they are now. At Oxford and Cambridge, and recently also in some of the German and American universities, diplomas of doctor of music have been given. The title of doctor has occasionally been bestowed upon women. In 1787 the university of Göttingen decreed the title of doctor of philosophy to Dorothea Schlözer; in 1817 the university of Giessen gave the title of doctor of medicine to Mariane Charlotte von Siebold; in 1827 the university of Marburg pronounced Johanna Wyttenbach doctor of philosophy. Still more recently several young women have received the title of doctor of medicine from foreign and from American schools. The comic authors of the last century show that the title of doctor had even then fallen into discredit and was a common theme for ridicule. In a French dictionary of that era, under the word "forget," was found the following explanation: "A bachelor is a man who learns; a doctor is a man who forgets." In the universities of Oxford and Cambridge, and in most of the European universities, a student who is to receive the degree of doctor has to prepare one or more theses, which in Germany are called the inaugural theses. In the United States the title is conferred upon those of eminent learning or ability in their profession, without demanding from them any learned exercise in return; excepting in the medical profession, where it is bestowed at the end of a course of study. The title had an existence outside of the universities during the middle ages, and was bestowed upon every one of singular learning. Thus Alexander Hales was called the irrefragable doctor; Thomas Aquinas, the angelic doctor; Bonaventura, the seraphic doctor; Duns Scotus, the subtle doctor; Roger Bacon, the admirable doctor; William Occam, the singular doctor; Denys le Chartreux, the ecstatic doctor; and Alain de Lille, the universal doctor. The title of doctor has been given to some of the fathers of the church whose teachings have the highest authority. At an early period there were accounted 4 doctors of the Greek church, St. Athanasius, St. Basil, St. Gregory Nazianzen, and St. Chrysostom; and also of the Latin church, St. Augustine, St. Jerome, St. Gregory the Great, and St. Ambrose. Pope Pius V. assigned the 5th place among the Latin doctors to St. Thomas Aquinas, and Sixtus V. gave the 6th place to St. Bonaventura. St. Bernard was added to the series by Pius VIII. The title of doctor of the law existed among the ancient Jews. Those who figure in the Talmud are called doctors of the Talmud, or distinctively doctors of the Mishna and of the Gemara, according to the division of that book in which they appear. They were also called rabbis, a title bestowed also on Jewish scholars of a later period. These, however, are not called doctors. The Jewish doctors were invested with the dignity by receiving into their hands a key and a tablet book. The key was the symbol of the science shut up in the heart, which the doctor was to open to impart to his disciples.

DOCTORS' COMMONS, the college of civilians in London, near St. Paul's churchyard, founded by Dr. Henry Harvey, dean of the arches, for the doctors of the civil law, burned down in the great fire of 1666, and rebuilt in 1672, at the cost of the profession. In the common hall were held until 1858 the sessions of: 1, the court of arches, the chief ecclesiastical court of the province; 2, the prerogative court, for the trial of testamentary causes; 3, the consistory court of the bishops of London; 4, the court of admiralty. The most interesting part of doctors' commons was the prerogative will office, in which were kept all wills admitted to probate in the prerogative court of the archbishop of Canterbury, which had jurisdiction over nearly all such business in the kingdom. The original testaments preserved here dated from 1483; the copies from 1383. Great care was taken to prevent mutilation. No stranger was allowed to make a memorandum from either the wills or the index; extracts or transcripts, when wanted, were written out by the attending copyists, but any person was allowed to examine a will on payment of the regular fee. Attached to the college there were 34 proctors, who gave licenses for marriages, and performed the duties of solicitors. Only doctors of the civil law, however, were allowed to practise in the courts held in doctors' commons. By acts of parliament passed Aug. 25 and 28, 1857, and Aug. 2, 1858, the importance of doctors' commons was for ever destroyed. Jurisdiction in all testamentary, divorce, and matrimonial cases was transferred from the ecclesiastical tribunals to a court of probate, and a court for divorce and matrimonial causes. A central office for the registry of wills was opened with branches in the chief towns of the kingdom, and judges of ecclesiastical courts were ordered to transmit to it all wills in their possession. Serjeants and barristers at law were admitted to practise in the probate court, but compensation was made to the displaced proctors to the amount of ¾ the average profits of their business, payable during their natural lives, and officers of the ecclesiastical courts were transferred to corresponding positions in the new probate court. Marriage licenses were to be granted as before. The same restrictions relative to the examining of wills continue in force in the new registry office, and drew forth a remonstrance from literary men early in 1859.

DOCTRINAIRES, a French constitutionalist party, which originated after the restoration of the Bourbons, and represented the interests of liberalism and progress as opposed to the ultra royalists in the executive government and legis-

lature. Camille Jordan, Decazes, Royer-Collard, and Guizot were leaders of this party. They were called *doctrinaires* because they insisted that the state should be administered in accordance with the abstract doctrine of right, rather than with the mere expediency and passion of the hour. After the revolution of July, 1830, when they came into power, they assumed a conservative position in antagonism with the republicans and radicals, who then came upon the stage. After the revolution of Feb. 1848, the *doctrinaires* were no more heard of.

DOD, Albert Baldwin, D.D., an American scholar, born in Mendham, N. J., March 24, 1805, died in Princeton, Nov. 20, 1845. He was of a family remarkable for mathematical talent, his father being an eminent mechanician. He was graduated at Princeton college in 1822, and, after having spent more than 3 years in private teaching in Fredericksburg, returned to Princeton in 1826 as a student in the theological seminary. In the following year he accepted a tutorship in the college, which he retained till 1829, being in the mean time licensed to preach by the presbytery of New York. In 1830 he was elected professor of mathematics in the college, and continued in this position till his death. In addition to his official duties he lectured upon architecture and political economy, and wrote occasional review articles, especially for the "Biblical Repertory," to which he was one of the favorite contributors. An article written by him on capital punishment, and in answer to objections urged against it, was adopted by a committee of the New York legislature as their report. His talent lay in the clearness and vivacity of his intellect, and was best exhibited in philosophical discussion. He therefore excelled as a preacher and lecturer, and especially in conversation. He declined an invitation to the chaplaincy and professorship of moral philosophy in the military academy at West Point.—Daniel, an American machinist, father of the preceding, born in Virginia, Sept. 28, 1788, died in New York, May 9, 1823. His father was distinguished for his versatile mechanical genius, and after having taken part in the war of the revolution, labored alternately as blacksmith, gunsmith, silversmith, land surveyor, and manufacturer of mathematical instruments. Daniel received a thorough scientific education, and declined an appointment as professor of mathematics in Rutgers college to devote himself to the manufacture of steam engines for steamboats, then a new invention. He established himself at Elizabethtown, N. J., and built for the steamboat Seahorse an engine of different construction from any that had preceded it; but it proved to be superior to all former ones, was generally adopted, and has continued without much modification the usual model of the steam engine until the present time. In 1818 he built an engine for the steamship Savannah, which the next year made the first voyage across the Atlantic ever performed by a steamship, and returned in safety after visiting England and Russia. The experiment was, however, pecuniarily unprofitable, and was not immediately repeated. Mr. Dod removed in 1821 to New York city, where he continued his employment, and was reputed the most successful engine builder in the United States. In 1823, after having altered the machinery of a steamboat, he went on board of her to witness in a trial trip on the East river the effect of his changes. The boiler of the engine exploded, so severely injuring Mr. Dod that he survived the calamity but a few days.

DOD, Charles Roger, an English journalist, born May 8, 1793, died Feb. 21, 1855. He was educated for the legal profession, but began early to write for periodicals, and in 1832 became connected with the London "Times." He had under his care the biographical department of that paper, and the reports of parliamentary debates. He also edited the "Parliamentary Pocket Companion," and the "Manual of the Peerage, Baronetage, and Knightage" of Great Britain.

DODD, Ralph, an English engineer, born in Cheltenham in 1756, died April 11, 1822. He first studied drawing at the schools of the royal academy, but abandoned this pursuit to follow his genius as a civil engineer. In 1798 he published in London plans for several public works, some of which were carried into effect. Among these were schemes for tunnelling the Thames, for a canal from Gravesend to Chatham, for the East London water works, and for a bridge at Vauxhall. He obtained a patent for a steamboat on the Thames between London and Gravesend, but the project was not carried out. He was seriously injured by the explosion of the boiler of a steam packet at Gloucester, and though he languished for some time after it, he never recovered. Beside the plans above mentioned, he published an "Account of the Principal Canals in the Known World, with Reflections on the Utility of Canals" (8vo., 1795); "Reports, with Plans and Sections, of the proposed Dry Tunnel from Gravesend to Tilbury" (4to., 1798); and "Letters on the Improvement of the Port of London, demonstrating its practicability without Wet Docks" (1799).

DODD, William, an English clergyman, celebrated for his talents, his follies, and his misfortunes, born at Bourne, Lincolnshire, in May, 1729, executed in London, June 27, 1777. He studied at the university of Cambridge, where he displayed rare talents, and at an early age distinguished himself as a writer both of prose and poetry. He left Cambridge for London in 1750, and the next year married a young lady who possessed neither virtue nor fortune, and whose tastes were even more extravagant than his own. He was ordained deacon the same year, and priest in 1753, and was appointed to the vicarage of West Ham, near London, where he obtained great success by the amiability of his character and his impressive eloquence. His reputation so increased that he was quickly called to London as a preacher, at the same time retaining

his former benefice. He now abandoned himself to extravagance and excesses. In the hope of being able to meet his increasing expenses, he multiplied his labors as editor and author, and in the course of several years published various original pieces, translations, and new editions of esteemed works. He was intrusted in 1763 with the care of the education of Philip Stanhope, afterward earl of Chesterfield, and obtained from his patrons an appointment as one of the chaplains of the king. In 1766 he took the degree of doctor of laws at Cambridge. His dissipations increased with his income, and though he drew a lottery prize, and received numerous salaries and the income from several benefices, he did not succeed in improving his financial condition. Pursued by his creditors, and ambitious of a still higher position than he had yet obtained, he ventured to write to the wife of the lord chancellor an anonymous letter, offering her £3,000 if by her influence he might be promoted to the rectory of St. George, Hanover square. This letter, being communicated to the chancellor, laid before the king, and traced to the author, caused his name to be stricken from the list of the royal chaplains. The scandals of his past life then became a theme of public remark and ridicule, and he fled from England to Geneva, where his pupil, the young Lord Chesterfield, was then residing. The latter, taking into consideration the painful situation of his former instructor, gave him a sum of money to satisfy his creditors, and presented him to a living in Buckinghamshire. But Dodd was incorrigible, and went directly with his money to France, where he spent it in an unecclesiastical manner, at one time appearing in a phaëton at the races at Sablons, near Paris, dressed like a Parisian sportsman. On his return to England in 1776 he resumed with gravity his pastoral functions, and preached with a fluency and unction worthy of a purer reputation. His last sermon was at the Magdalen chapel, Feb. 2, 1777. Two days after this he forged a bond upon his late pupil, Lord Chesterfield, for £4,200, on which he borrowed money. The fraud was discovered before the criminal had time for flight. He was imprisoned, tried at the Old Bailey, and condemned to death. Though recommended by the jury to the royal clemency, and though numerous noble protectors, many clergymen, and a petition from the city of London bearing 23,000 signatures, prayed for the interference of the crown, he was executed at Tyburn. Of the many writings of this strange moralist, the "Thoughts in Prison," a poem in blank verse, written during the progress of his trial, and his "Reflections on Death," are the only ones which are not now forgotten.

DODDRIDGE, a N. W. co. of Va., drained by Hughes river; area, about 300 sq. m.; pop. in 1850, 2,750, of whom 31 were slaves. The land is mostly hilly and adapted to pasturage, but Indian corn and oats are also raised in considerable quantities, and lumber is exported. In 1850 the productions were 59,423 bushels of Indian corn, 13,398 of oats, 1,860 tons of hay, and 35,200 lbs. of butter. The county contained one church, and there were 115 pupils attending public schools. Value of real estate in 1856, $742,306. Capital, West Union.

DODDRIDGE, Philip, an American lawyer and politician, born in Brooke co., Va., in 1772, died in Washington, Nov. 19, 1832. His family were associated with the pioneer settlements on the Ohio river, and as a boy he worked with his own hands at the plough. But failing in health in consequence of severe physical exertion, he was placed at school when 16 years of age, and made rapid progress in his studies. A too close application to his books having rendered it necessary for him to intermit his educational pursuits, and having been invited to join two or three young men of his own age, who were going to New Orleans with produce, he embarked in a flat-boat, and floated down the Ohio and Mississippi. On reaching Natchez, then in the possession of the Spaniards, the young boatmen found the place under strict police regulations, which forbade the admission of strangers into the town; but Doddridge determined to take a walk around the environs, and actually began to ascend the hill. Here he was met by an officer who addressed him in Spanish. Doddridge replied in Latin, and the Spaniard, who proved to be the governor of the post, was so much struck with the learning manifested by a boy engaged in the management of an Ohio flat-boat, that he invited him to dine, and upon his departure gave him letters of introduction which admitted him into society at New Orleans. Upon his return home he commenced the study of the law, and having entered upon the practice of it soon gained a local reputation, especially as an advocate before a jury, hardly inferior to that enjoyed by Patrick Henry in the tide-water portion of the commonwealth. He entered public life as delegate from Brooke co. to the lower house of the Virginia legislature in 1815, and continued for several years at various times to represent that constituency. But it was not until the constitutional convention of 1829–'30 had commenced its sessions, that the full intellectual stature of the man was displayed. He was one of the members chosen for the district composed of the counties of Ohio, Tyler, Brooke, Monongalia, and Preston, and one of his colleagues was Alexander Campbell, the founder of the religious sect known as the "Disciples of Christ." Mr. Doddridge was the acknowledged leader in the convention of the party in favor of the white basis of representation, and maintained his ground in the great debate in which Randolph, Leigh, Upshur, Stanard, and Tazewell supported the other side. In this discussion and the innumerable debates which sprung out of it, Mr. Doddridge was, according to Mr. Grigsby, the historian of the convention, "a gushing fountain of facts and figures." He had few of the graces of the accomplished orator; his voice was not musical, and he had little skill in

its management; in person he was of a short and stout stature; his features were immobile, even heavy; and he was singularly negligent of the proprieties of dress; so that his success in parliamentary conflicts was due to a close ratiocination, a perfect knowledge of the subject, great energy of manner, and a wonderful command of terse, appropriate words. He was elected to congress soon after the adjournment of the convention, from the Wheeling district, but his career was brought to a close before his first congressional term had expired. At the time of his death he was engaged in codifying the laws for the District of Columbia as one of a committee appointed by congress for that purpose.

DODDRIDGE, Philip, an English divine, born in London, June 26, 1702, died in Lisbon, Oct. 26, 1751. He was of a pious dissenting family, and his earliest years were devoted to the acquisition of religious knowledge. Even before he could read, his mother had made him familiar with the history contained in the Old and New Testaments. Left an orphan at the age of 13 years, he was removed from London to a private school at St. Albans, where he made the acquaintance of a Dr. Samuel Clarke, who became interested in him for the love of learning which he displayed. Doddridge was at this time hesitating as to what profession he should follow. The duchess of Bedford offered to defray the expenses of his education at either university, a proposal which inspired him with gratitude, but which he declined, on account of the implied condition that he should become a clergyman in the church of England. Some of his friends dissuaded him from the ministry, and he purposed for some time the study of the law. At length, however, he determined to follow his own early inclinations, and in 1719, by the advice and assistance of Dr. Clarke, he entered a dissenting academy at Kibworth, under the charge of the Rev. Dr. Jennings, to prosecute his theological studies. From 1723 to 1729 he fulfilled pastoral duties at Kibworth and the neighboring town of Market Harborough, and in that retired district pursued his studies, reading frequently his favorite authors, Baxter, Howe, and Tillotson. In 1729, Mr. Jennings having previously died, Mr. Doddridge took charge of the dissenting academy where he had been himself educated, established it first at Market Harborough, where he then resided, and within a year removed it with him to Northampton, whither he had been invited as pastor. It was at this academy that the most distinguished dissenting ministers near the middle of the last century were educated. Dr. Doddridge presided over it for 20 years, and during the same time acquired a high reputation as a preacher and an author. It was his aim to revive the ancient fervor of the dissenting body, which seemed to him to be declining; hence all his pastoral intercourse was marked by spiritual earnestness, his sermons urged with zeal the practical duties of life and explained the realities of faith with simplicity, and his books have continued since his death among the most valued devotional literature of the religious community to which he belonged. In 1750 his constitution, always feeble, began to show signs of decline, and yielding to the advice of physicians that he should pass the winter in a warmer climate, he sailed to Lisbon, where he died 13 days after his arrival. His most popular and useful works are the "Rise and Progress of Religion in the Soul," which has been translated into several foreign languages, and his "Family Expositor," containing a version and paraphrase of the New Testament, with notes. He also published several volumes of sermons, the "Principles of the Christian Religion," a "Treatise on Regeneration," and several minor works. His "Course of Lectures on the Principal Subjects in Pneumatology, Ethics, and Divinity" was published posthumously (London, 1763), and gives the outlines of a system of metaphysics and divinity. His works were collected in 10 vols. (Leeds, 1802), and his "Private Life and Correspondence," by one of his descendants, appeared in 5 vols. (London, 1831). Accounts of his life were also published by his contemporary Job Orton, and his pupil Dr. Kippis.

DODGE, a S. E. co. of Wisconsin, intersected by Rock river and one or two smaller streams; area, 936 sq. m.; pop. in 1855, 34,540. There are prairies in various parts of the county, interspersed with oak-openings, and covered here and there with small clusters of burr and pin oaks. The valleys of the streams are occupied by extensive forests of oak, ash, elm, maple, &c.; the soil is calcareous and highly fertile. About 44 sq. m. of the surface are covered by an immense swamp or shallow pond, called Winnebago marsh. The staples are grain, potatoes, butter, and swine; and the productions in 1850 amounted to 327,936 bushels of wheat, 127,672 of Indian corn, 204,197 of oats, 158,228 of potatoes, and 331,246 lbs. of butter. There were 10 churches, and 3,243 pupils attending public schools. Value of real estate in 1855, $3,842,700. Limestone suitable for building is found in large quantities. The Fond du Lac and Chicago railroad passes through the county, and Rock river is navigable by small boats. Capital, Juneau.

DODINGTON, George Bubb, Baron Melcombe, an English politician, born in Carlisle in 1691, died July 28, 1762. He was educated at Oxford, and in 1715 was chosen a member of parliament for Winchelsea. His talents soon attracted attention, and he was appointed to accompany Sir Paul Methuen to Madrid, and not long afterward was made envoy extraordinary to Spain. In politics he was a whig, and joined himself to Walpole, but on the minister refusing him a peerage, which was the chief object of Dodington's life, and to which his vast wealth was his principal title, he went into opposition, and became a patriot. Patriotism not proving profitable, his relations with Walpole were resumed, and he received several valuable appointments.

He remembered the old refusal, however, better than the new appointments, and was conspicuous in those assaults on Walpole's ministry that finally worked its fall. He was not immediately rewarded, but at last got the post of treasurer of the navy. Again changing his views, he joined the prince of Wales's faction in 1749, and by Frederic he was permitted to kiss hands on the promise of a peerage and a cabinet office, to be conferred when the prince should become king. A reward hardly less shadowy was his appointment to the place of treasurer of the chambers in the prince's household, which was specially created for him. The prince and Dodington settled the former's first ministry; but in the middle of their scheming the prince died suddenly, much to Dodington's chagrin, his disappointment taking a pious form of expression. "Father of mercy," he wrote in his famous "Diary," "thy hand that wounds alone can save!" In 1755 he was once more appointed treasurer of the navy, but soon lost the office. In 1761, when he was 70 years old, he obtained the object of his life, being made Baron Melcombe of Melcombe Regis, shortly after the accession of George III., and through the favor of Lord Bute. This success, which gave him the most childish pleasure, he did not live long to enjoy, and on his death the title became extinct. His estates fell to Richard Grenville, Earl Temple, and his personal property was bequeathed to Thomas Wyndham. Mr. Wyndham died in 1777, and his relative, Henry P. Wyndham, published Dodington's "Diary" in 1784. This diary was kept from March 8, 1749, to Feb. 6, 1761, but there are some breaks in it. It affords a lively picture of the parties, politics, and public men of the last years of George II.'s reign, and the portrait he draws of his own selfishness and egotism is almost as frank as if it had been written in the palace of truth. His mind is, as it were, mirrored in its pages, and from the state in which it was left he evidently meant it for publication. There are attached to it several of the author's political papers. The volume, to which Mr. Wyndham attached the appropriate motto of *Et tout pour la trippe*, from Rabelais, has been frequently reprinted, and has some value as historical material. Dodington was a man of much wit, and some of his *mots* are still repeated. He was, however, a butt for ridicule in his own day, and is remembered chiefly as the type of the corrupt and inconstant politician.

DODO (*didus ineptus*, Linn.), a large bird of the island of Mauritius, at present placed in a subfamily of the order *columbæ*, or pigeons. It has become extinct within 2 centuries. This remarkable bird was discovered by Vasco da Gama in 1497, and was mentioned by various voyagers from the Dutchmen Jacob van Neck and Wybrand van Warwijk in 1598, to Captain Talbot in 1697. In the work of Messrs. Strickland and Melville on "The Dodo and its Kindred" (4to., London, 1848) are given many quaint descriptions and figures of the bird, which it appears was not uncommon in the 17th century, and was frequently used as food by the crews of vessels. In 1638 François Cauche says that he saw in Mauritius birds "larger than a swan, covered with a black down, with curled feathers on the rump, and similar ones in place of wings; that the beak was large and curved, the legs scaly, the nest made of herbs heaped together; that they lay but one egg of the size of a half-penny roll or of that of a pelican, and that the young ones have a stone in the gizzard." In the same year a living specimen was exhibited in London, and described by Sir Hamon Lestrange as a "great fowle, somewhat bigger than the largest turkey cock, and so legged and footed, but stouter and thicker and of a more erect shape, colored before like the breast of a young fesan, and the back of dun or deare color." In 1644 the Dutch began to colonize the island, and these birds were soon exterminated by the colonists, and by the dogs, cats, and rats which followed in their train, who devoured the eggs and the young in the nests; after the French took possession in 1715, and named it the Isle of France, the dodo is no longer mentioned as a living bird. This is a most remarkable and clearly proved instance of the extinction of an animal by human agency; and as yet the data for determining the species are less than those left by many animals which perished ages ago from geological causes. Beside the rude drawings of the early voyagers given in the work of Mr. Strickland, there are at least 6 oil paintings by eminent artists which are no doubt faithful copies of the living originals. The first of these paintings, the one copied in all books on natural history, and now in the British museum, is anonymous, but probably by one of the artists who painted the following ones; there are 3 pictures by Roland Savery, one at the Hague, another in Berlin dated 1626, and the 3d in Vienna dated 1628; a 5th painting is in the Ashmolean museum, by John Savery, dated 1651; and a 6th in the gallery of the duke of Northumberland, at Sion House, painted by Goeimare, and dated 1627. The principal remains of the dodo are a foot in the British museum, and a head and foot in the Ashmolean museum at Oxford, England, rendered familiar by numerous casts; the latter are all that is left of the specimen in Tradescant's museum, and all that was saved from the flames which consumed the decayed specimen by the order of the trustees; the head preserves the beak and nostrils, the bare skin of the face, and the partially feathered occiput; the eyes are dried within the sockets, but the horny end of the beak is gone. A cranium exists in the museum at Copenhagen; a collection of bones at Paris, much incrusted with stalagmite, carried there in 1830; and others sent by Mr. Telfair to the Andersonian museum at Glasgow and to the London zoological society in 1833. The latter included a tibia and the head of a humerus of large size, with a broad articulating surface and a sudden reduction of the size of the shaft. The generic charac-

ters are a strong bill, much longer than the head, with the culmen straight at first and then arched to the tip, which is acute and overlaps the lower mandible; the latter has the gonys short and suddenly curved upward; the nostrils are in the membranous portion (which occupies $\frac{2}{3}$ of the bill), oblique and exposed; the wings imperfect; the tail apparently a tuft of 5 feathers, broad and curved upward; the tarsi robust, moderately long, and scaled; the outer toe is shorter than the inner, and the anterior toes are all free at the base; the hind toe is long, on the same plane with the others, and scaled; the claws are short, strong, and blunt. From the imperfect materials at his command, Cuvier ranked the dodo with gallinaceous birds; others have traced out its analogies with the ostrich and with the penguin. Most writers, before the work of Mr. Strickland, considered it a modified form of raptorial bird, and among others De Blainville, Broderip (in the "Penny Cyclopædia"), and Owen. Prof. Owen, in a memoir read before the zoological society in 1846, and published in its "Transactions" (vol. iii. p. 331), from observations on the dissected foot and on the cranium of the Oxford specimen, thinks that the raptorial character prevails, though in an extremely modified form, and that the bird subsisted principally upon decaying organized matter, with such reptiles, fishes, and crustacea as it could seize by means of its well-developed toes and claws. Prof. Reinhardt of Copenhagen first referred the dodo to the pigeon family, and Messrs. Strickland and Melville followed out this idea in the book before alluded to; their conclusions can only be glanced at here. They consider it a frugivorous terrestrial pigeon, colossal and brevipennate, coming near in the bill to the genus *treron* (Vieill.; *vinago*, Cuv.). The chief external characters of resemblance are the soft, depressed, and vascular nature of the long basal portion of the bill; the extent of the bare skin around the eyes and forehead; the hooked and compressed corneous portion of the upper mandible, overhanging the lower; the position of the nostril in the middle of the beak, and near its lower margin; the sudden sinking from the forehead to the beak, and the rapid narrowing in front of the orbits; the short, robust tarsi, and expansion of the lower surface of the toes; the low plane of the hind toe; the relative lengths of the toes as compared with the ground pigeons, the absence of interdigital webs, and the short blunt claws. Among internal characters gathered from the narratives of voyagers and the paintings of the bird from nature, are the presence of a large crop, a very muscular gizzard, the palatableness of the flesh, and the laying of a single egg. Beside these characters are the absence of the vomer; the form and direction of the bones, processes, and foramina of the skull; the form of the metatarsal and tarso-metatarsal bones, processes, and canals; and especially the passage of these canals on the outside of the posterior tarsal ridge. Mr. Allis has detected the presence of only 11 sclerotic plates, as in the pigeons, no other birds having a similar or so small a number, the fewest in the raptores being 14. The few points in which the dodo differs from the typical pigeons, as in the non-development of the wings, the small size of the cranium compared to the beak, and the form of the nostrils, do not afford any ground for approximating it to the raptores. Its food was probably dates, cocoanuts, mangoes, and such other fruits as would fall from the tropical trees; their husks it would tear off with its beak, and even the hardest kernels it could digest with its muscular stomach. It must have been a clumsy bird, ungraceful in its form and motions, to use Mr. Strickland's words, like "a young duck or gosling enlarged to the dimensions of a swan; . . . a permanent nestling, clothed with down instead of feathers, and with the wings and tail so short and feeble as to be utterly unsubservient to flight." At the same time that Mr. Strickland was preparing his work in England, Dr. S. Cabot, jr., of Boston, published a paper in the "Journal of the Boston Society of Natural History" (vol. v. p. 490), entitled "The Dodo a Rasorial and not a Rapacious Bird;" in this he comes to the same conclusions as the first mentioned author, and without any knowledge of his views; he places the dodo among the pigeons, near *vinago*, and lays special stress on the high forehead, the bulging out of the lower mandible on its sides beyond the upper, the general shape and proportions of the foot, the arrangement of the scales, the shape of the claws, and the absence of callosities on the soles; beside, the bird was very fat, its flesh edible, and its stomach very muscular, which is not the case with any rapacious birds. He says "that the dodo was a gigantic pigeon, and that, as its general shape, feathering, &c., resemble more strongly the young than the adult pigeon, we may perhaps be allowed to surmise that it properly belongs to an earlier epoch than the present, and has become extinct because its time was run." Prof. Brandt of St. Petersburg, in 1848, maintained the affinity of the dodo to the *charadriadæ* or plovers, which he styles pigeon-formed or dove-like waders. The testimony, as at present collected, seems overwhelming in favor of the columbine affinities of the dodo.—In the island of Rodriguez lived another large brevipennate bird, the *solitaire*, allied to the pigeons.

DODONA, a city of Epirus, in the N. of Greece, celebrated as the seat of the most ancient oracle of Greece. It was one of the three greatest oracles, ranking with those of Delphi and Ammonium. Though so famous in its day, no vestige of either the city itself or its temple of Jupiter can now be discovered. It is the only place of great celebrity in Greece of which the situation is not exactly known. Before the erection of this temple the oracles are said to have been delivered from a large oak tree, from the whispering branches of which the mysterious sayings of the deity were uttered; and the

old poets have ascribed to the oak grove at Dodona the power of speech. The temple was destroyed by the Ætolians under Dorimachus, 219 B. C., but it was afterward rebuilt, and is mentioned by Pausanias as standing in the 2d century of our era. According to the account given by Lucretius, the fountain in the neighborhood of the temple at Dodona was inflammable.

DODSLEY, Robert, an English publisher and miscellaneous author, born in Mansfield, Nottinghamshire, in 1703, died in Durham, Sept. 25, 1764. He was originally a servant, but having produced in 1732 a volume of poetical pieces, under the title of the "Muse in Livery," and subsequently a dramatic piece called the "Toy Shop," which met with the approbation of Pope, and was acted with great success at Covent Garden theatre in 1735, he was soon in a position to abandon his humble vocation and embark in business as a bookseller. Patronized by Pope, his shop became in time one of the leading establishments in the British metropolis. In 1737 he brought out a farce styled "The King and the Miller of Mansfield," which was received with applause at Drury Lane; and a few years subsequently a ballad farce entitled the "Blind Beggar of Bethnal Green." In 1746 he projected "The Museum, or the Literary and Historical Register," which numbered among its contributors some of the most eminent literati of the day. In 1748 he started another periodical called the "Preceptor," the preface of which was written by Dr. Johnson, and in 1749 he paid the latter 15 guineas for his "Vanity of Human Wishes." In 1750 he published a work styled the "Economy of Human Life," which, though ascribed by some to Lord Chesterfield, was from the first generally supposed, and is now universally admitted, to have been his own production. In 1758 his tragedy of "Cleone" was represented at Covent Garden theatre, on which occasion Dr. Johnson declared that "if Otway had written it, none of his other pieces would have been remembered." In the same year, in connection with Edmund Burke, he projected and started the "Annual Register," which is still published. He was the first to collect and republish the "Old English Plays," by his selection of which (1st ed. edited by T. Coxeter, 1744; 2d ed. by Isaac Reed, 12 vols. 8vo., 1780) his name is now most frequently recalled. He retired from business in 1763 with a handsome fortune. A collected edition of Dodsley's dramas, in one volume, appeared in 1748, and a 2d volume, entitled "Miscellanies," in 1772.

DODWELL, Edward, an English author, born in the latter part of the 18th century, died in Rome, May 14, 1832. In 1819 he published in 2 quarto volumes "A Classical and Topographical Tour through Greece during the years 1801, 1805, and 1806." Dodwell made numerous drawings of ruins and scenery in Greece and Italy, and after his death a collection of some of them was published, entitled "Views and Descriptions of Cyclopean or Pelasgic Remains in Greece and Italy; with Constructions of a later Period, from Drawings by the late Edward Dodwell, Esq., F.S.A., &c., intended as a Supplement to his Classical and Topographical Tour in Greece," &c.

DODWELL, Henry, an Irish writer, born in Dublin about 1642, died in Shottesbrook, Berkshire, June 7, 1711. He was graduated at Trinity college, Dublin, and settled in London in 1674. He was for about 3 years Camden professor of history at Oxford, but lost this office on account of his refusal to take the oath of allegiance to William and Mary. He is known especially as a writer on classical and religious subjects. Among his works may be mentioned *Annales Thucydidei et Xenophontei; Annales Velleiani, Quintiliani, Statiani; De Veteribus Græcorum, Romanorumque Cyclis, obiterque de Cyclo Judæorum ac Ætate Christi, Dissertationes;* and "An Epistolary Discourse, proving from the Scriptures and the first Fathers, that the Soul is a principle naturally mortal, but immortalized actually by the pleasure of God, to punishment or to reward, by its union with the divine baptismal Spirit; wherein it is proved that none have the power of giving this divine immortalizing Spirit since the Apostles, but only the Bishops." This work, as might be supposed, raised a great outcry against the author, who would thus exclude the larger part of mankind from any future existence. See "Life of Dr. Henry Dodwell," by Francis Brokesby (London, 1715).

DOG, a digitigrade carnivorous mammal, belonging to the genus *canis*, and to the family *canidæ*, which also include the wolf, fox, and jackal. The species of this family are so nearly alike in structure that the genera *canis*, *lupus*, *vulpes*, &c., have been established on characters considered of inferior importance in other families; even the intellectual and instinctive faculties have been employed by F. Cuvier and others in distinguishing the species, the domestic dogs being regarded as derived from several distinct though nearly allied wild canines. Except in the size of the bones, there is nothing in the osteology of this family which can be made characteristic of the wild species or of the domestic races when compared with each other, though as a family group they are collectively quite distinct from other digitigrades. In the skulls, the different species of wolf differ more from each other than do many domestic dogs from the wolves; as a general rule, the cranial cavity bears a greater proportion to the face as the intelligence of the animal is more marked. The teeth of dogs, which are largest in the wild species, consist, in the upper jaw, of 6 incisors in the intermaxillary bones; 2 canines, strong, curved, and separated by an interval from the incisors; and 6 molars on each side, the first 3, in interrupted series, being small, but with cutting edges, and called also false molars; the 4th or carnivorous tooth is bicuspid, with a small tubercle anteriorly on the inner side; the 5th is less cutting, bicuspid, with a large internal tubercle; the 6th and last is small and tubercular. In the lower jaw there are 6 incisors; 2 canines, con-

tinuous in the series, and 7 molars on each side, of which 4 are false, the 4th being bicuspid; the 5th or carnivorous tooth has its tubercular 3d lobe entirely posterior; behind this are 2 tubercular teeth, the last being very small and frequently absent in the adult animal. The incisors are regular, the outer being the largest, and nearly perpendicular in the upper jaw; the lower canines shut in front of the upper; the tubercular character of the other teeth indicates a less carnivorous propensity than in the cat family, and that their natural diet is not exclusively animal, being better suited for carrion and broken bones than for the flesh of a living prey. In some species, as the buansu and the dhole, the 2d tubercular tooth is constantly wanting, according to Hamilton Smith. The brain cavity is comparatively small; the crests of the skull and the large temporal fossæ indicate powerful muscles of mastication; the eyes are directed forward; the nostrils are largely opened in a movable glandular muzzle; the tongue is soft, thin at the edges, and capable of considerable extension beyond the teeth, as is seen during rapid breathing in warm weather; the pupil is round, as in other diurnal *canidæ*. The fore feet have 5 toes, the hind feet 4 or 5; the 2 middle toes are the longest and equal; the 5th toe, when present, does not reach the ground; the claws are blunt, strong, not retractile, and formed for digging; the soles are furnished with tubercles, and in some arctic dogs with hair to protect them from cold. The hair is of 2 kinds, soft and woolly near the skin, longer and coarser externally; some of the dogs of India have the skin entirely naked, this condition originating probably from some mangy disease. The tail is generally long, and is curled upward; the number of mammæ varies from 6 to 10; the size, form, and color are different according to the variety. The young are born with the eyes closed, and open them on the 10th or 12th day; the 1st teeth begin to be shed at the 4th month, and the growth ceases at about 2 years of age; gestation is about 9 weeks, and the duration of life is about 10 years, though sometimes prolonged to 20. Though strong, they are not courageous in proportion to their strength; hearing is acute, and the senses of smell and vision are proverbially delicate, the former in the bloodhound, the latter in the greyhound; taste is so dull or perverted that even luxuriously fed pets will not disdain a meal of decaying flesh. Dogs are not so cleanly in their habits as cats; they drink by lapping, require water often, and turn round frequently before lying down; their habits of defecation and micturition are characteristic and well known; their bark is very different from the howl of wild canines, and expresses by its intonation fear, sorrow, anger, joy, and other feelings. Dogs, like all canines, seem to have a natural antipathy to the cat family. All canines, both wild and domesticated, and the nearly allied hyæna, are subject to the terrible disease, hydrophobia. They are spread over all parts of the earth, and all, even the wildest, are capable of some degree of domestication; as the companions of man, dogs are found under all circumstances of human existence.—It would be useless here to introduce anecdotes proving the sagacity, faithfulness, affection, gratitude, courage, velocity, and other useful qualities of the dog; these have been known from remote antiquity, and are recognized in the earliest systems of pagan theology and astronomy. From books, inscriptions, and monuments, we know that in the remotest historic period the domestic dogs were not unlike the present races; and anterior to written history there must have been a long period during which the wild originals were educated to be useful companions. What these wild originals were it is impossible to settle definitely. Some naturalists would make the wolf, others the fox, the stock from which our dogs have come; these opinions can now hardly be seriously entertained; the most that can be asserted with confidence is that no one animal can claim the exclusive paternity of these useful races. We know that there are several species of wild dogs in different parts of the earth, all of which may have been pressed into the service of man; the crossings of these with each other, with the wolf in the north, the jackal in the east, the aguara canines in the south, the fennec in Africa, and the fox everywhere, with the care of man to develop special breeds according to his wants, are sufficient, though they cannot be followed in their details, to account for all and more than the varieties of our domestic dogs. When restored to the wild state, they approximate more or less closely to their original type, whether it be wolf, fox, jackal, or other wild canine. Dogs differ in stature, in the shape of their ears and tails, and in the number of their caudal vertebræ; some have an additional claw on the hind foot, or an extra false molar tooth on one side; the hair differs in color, texture, and length; and all these differences may remain as permanent varieties, like some human races, as long as the circumstances which gave rise to them continue essentially the same. We shall see that there are several undoubted species of wild dogs, to say nothing of wolves, foxes, and jackals, and the capacity for variation within definite limits is certainly great in all domestic animals; and it may be true that, if we begin to make species, we shall not know exactly when to stop; still, the necessary complication of these only shows how vague is the meaning of the word species, and how difficult it is to draw the line between species and varieties, especially when the former are very nearly allied. If the wild original be a wolf, who will indicate what species of wolf is the true and only one? and so of the other assumed types. There is no other instance in the whole range of mammals where man has been able to develop and combine such different and opposite faculties and forms as are seen in domestic dogs, unless the typical species were in possession of the rudiments; neither food, nor

climate, nor human contrivances, could so widen or truncate the muzzle, elevate the frontal bones, diminish the delicacy of smell, and elongate the limbs, unless different types had furnished the properties which man has modified to suit his purposes. In the absence of positive proof, we have every reason to doubt that our domestic dogs can be referred to any single wild original; it is much more reasonable to admit several aboriginal species, with the faculty of intermixing, including, beside wild dogs (like the buansu, dingo, &c.), the wolf, jackal, and fox, as parents of our dogs; that a dhole or a thous may have been the father of the greyhound races; that a lost or undiscovered species, allied to *canis tricolor* or *hyæna venatica*, may have been the source of the short-muzzled, strong-jawed mastiffs. Hamilton Smith classes the dogs according to their apparent affinities with wild canines in corresponding latitudes; the arctic dogs with wolves; the dogs of the south with the jackal in the old world, and with the aguara canines in South America. The Indian dogs may be traced to the prairie wolf and the Mexican coyotl, and in Asia to the jungle koola. Whatever may have been their originals, it is altogether probable that the primitive dogs, like the other domestic animals, were very different from any of the present races, and perhaps from any now existing canines.—The first genus of wild dogs is *lyciscus* (Smith), embracing the prairie wolf and coyotl of North America, and the koola of India; the head is broad, the muzzle pointed, ears erect, fur short, tail bushy; stature about 26 inches; the disposition is more peaceable than that of the wolf; the voice barking; they are gregarious and live in burrows. It is probable that the aboriginal Indian dog is derived from the first two; the color is ashy gray, with some white on the tail and breast; and, when hunting in packs, these animals are hardly to be distinguished from domestic dogs. They are named *L. latrans*, *L. cagottis*, and *L. tigris*. The red wild dogs, forming the genus *chryseus* (Smith), are found in the warmer parts of Asia, Africa, and the Australian islands; the muzzle is less pointed than in *lyciscus*, and the tail less bushy; they are shy and fierce, seldom burrow, hunt in troops, and bark, and are about 24 inches high; they want the 2d tubercular tooth in the lower jaw, and are said to have the soles of the feet hairy; they destroy many of the young of the larger cats; they differ from wolves and jackals in their habits and instincts, and approximate the domestic dog in the small size of the anal glands. The presence of one of these species in Europe probably gave rise by their nightly hunting to the German legend of the wild hunter and his demon hounds. The buansu of Nepaul (*C. primævus*, Hodg.) is of a deep rust color above and yellowish below; it is intermediate in size between a wolf and jackal, hunting by day or night by the scent chiefly, in small troops; there are several varieties in the wooded mountains of British India. The dhole of India (*C. scylax*, Smith) is more slender than the buansu, higher on the legs, with a sharper muzzle, long close-haired tail, and large dark ears; the color is a light bay. The dhole of Ceylon (*C. Ceylonicus*, Shaw) is an allied, if not the same species. The pariah cur dogs of India are not merely degraded mongrels, but are the offspring of an indigenous wild species living in the jungles and in the lower Himalaya range; this resembles the jackal more than the wolf, but is more bulky in body and lower on the legs; the voice is yelping and howling. Other red wild dogs are found in Sumatra and Java. The New Holland dingo (*C. Australasiæ* of authors) is a wild dog which has been partially domesticated by the natives, and is no doubt an indigenous inhabitant, not introduced by man; in its native wilds it howls in a melancholy manner, and it is more than a match for a domestic dog of the same size; it hunts in small packs, sometimes in pairs, and is very active and fierce. It stands about 2 feet high; the color above is fulvous, spotted with white, paler on the sides and throat, and whitish below; it carries the tail horizontally, and runs with the head high and the ears turned forward. The genus *thous*, of which the typical species is the wild dog of Egypt (*C. anthus*, F. Cuv.), resembles the wolf on a small scale, being not more than 18 inches high, of a light structure, with rather short tail, close, ochry fur, barred or pencilled with black and white; the species do not burrow, and are not gregarious, seldom howl, and have no offensive smell; they all have the tip of the tail black, and prefer rocky, sandy districts, where there are bushes and water. Hamilton Smith is of the opinion that the greyhound of the desert was originally derived from one of the species of this section. It is found from Egypt and Arabia to the cape of Good Hope. South America, when first discovered by the Spaniards, had its indigenous canines, all with a tendency to elliptical pupils, though less so than in true foxes; among these are the aguara dogs, genus *dusicyon* (Smith). These are between the wolf and fox in form, with bulky body and short legs; they burrow and are more social and gentle than the aguara wolf (*C. jubatus*, Desm.). This group seems to represent the *thous* of the old world, though the forehead is more rounded, and the tail consists of an imperfect brush; the prevailing color is fulvous brown, often with a hoary tinge; the face looks like that of the fox; they are not very shy, and are capable of being domesticated; they are great thieves, with a propensity to conceal objects of no use as food; beside the usual articles of diet, they will eat fish, crabs, reptiles, insects, small birds, and even mollusks and berries; they are generally silent animals, and hunt by day or by moonlight; they are good swimmers. There are several species described, ranging from Surinam to the Falkland islands; the domesticated specimens differ but little from the wild originals, except in the tail being less bushy; the average height is from 14 to 16 inches; there are 5 toes to each foot,

and the gape of the mouth is large and wolf-like; they hunt pacas, agoutis, and wild gallinaceous birds. All these wild dogs cross with the domesticated ones of the country, forming the most complicated intermixtures.—Before proceeding to the proper domesticated dogs, it will be well to notice certain varieties which have relapsed into a wild state, and, subsisting for several generations by their own resources, have resumed most if not all of the original characteristics of that state. In Asia Minor there is a race of these feral dogs (as Hamilton Smith calls them), of nearly the size of the local wolf, and resembling the shepherd's dog except that they have a more bushy tail, sharper nose, and the fur rufous gray, and that they hunt in packs in open day. A smaller breed is found in Russia. In St. Domingo there is a large feral dog of the race of hounds formerly used by the Spaniards in their western conquests; this dog is of large size, about 28 inches high, with a head like a terrier, and the general color pale bluish ash; its scent is very fine, and it follows its prey with great speed, attacking it with ferocity when overtaken; flocks sometimes suffer from its depredations; it is believed that it was introduced into Spain from the north, such is its resemblance to the Danish dog. In the pampas of South America are troops of feral dogs, a mixture of all the breeds of the country; their ears are erect as in true wild canines; they are bold and cunning, destroying many of the young of the wild herds of cattle and horses; when redomesticated, they are remarkable for their courage, sagacity, and acute sense of smell. —Of the true domesticated races, the arctic dogs of both hemispheres are of large size, wolfish aspect, with pointed nose, erect ears, and long hair of mixed black and white colors; they are fierce in their dispositions, bold, and strong; they swim excellently, burrow in the snow, and will drag the native sledges for hours at a time several miles an hour. The recent arctic voyages in search of Sir John Franklin have made the reader familiar with the habits and valuable properties of the Esquimaux dogs, and even their appearance is well known from specimens brought home by the returned explorers. This species (*canis borealis*, Desm.) is probably the same as the Siberian dog. The Hare Indian dog (*C. lagopus*, Rich.), according to Sir John Richardson, is peculiar to the region of the Mackenzie river and Great Bear lake; it is intermediate in size between the wolf and fox, has erect ears, bushy tail, and a general gray color, with white and black markings; the hair is long, and at its base, as in all arctic dogs, is a thick wool; it is about 14 inches high, and is used for hunting and not for draught; it is playful and affectionate, though not very docile. These arctic canines, if not pure wild species, are probably the result of a mixture of the wolf and the lyciscan dogs before described. In the territory of the Hudson's bay company, in Canada, and in the Lake Superior mineral district, there is a mongrel race of dogs which take the place of horses during the winter season, travelling over the snow, attached to the dog train, transporting provisions, merchandise, and even the mails; they are hardy, easily managed, strong, bearing abuse, scanty food, and fatigue without murmur; they are invaluable to the hunter, Indian, half-breed, and traveller in these snow-clad regions; no particular breed is sought for, the only qualities valued being strength and endurance. The Newfoundland dog (*C. Terræ Novæ*, Smith) seems to be indigenous to America; it is longer than the Esquimaux dog, less compact, with a wider muzzle, drooping ears, and with long hair disposed to curl; it is a handsome and powerful dog, very intelligent and trusty, and of a kind disposition; the pure breed is almost semi-palmated, making them the best water dogs; crossed with the hound, they attain an enormous size; the general color is black, with some fulvous about the eyes, nose, throat, and joints, and white about the feet and end of the tail. Anecdotes of the sagacity of this well-known breed are innumerable. The Nootka dog (*C. laniger*, Smith) is noted for its thick and matted fur, which the natives mix with wool and make into garments; the describer of this species thinks that it indicates that the Esquimaux and Newfoundland races were derived from Asiatic originals, perhaps from the dog of Siberia. At the head of the list of the domestic canines of temperate Europe stands the shepherd's dog (*C. domesticus*, Linn.), still with the wolf-like stature, head, and hair; its appearance is rather unpromising; its shaggy hair is generally varied black and gray, the ears are short and erect, and the tail is bushy and curved; having been trained from time immemorial to the care of flocks, its peculiar faculties seem to be instinctive, and its sagacity, fidelity, and courage are not excelled by any species of dog; the height is not quite 2 feet, but the form is muscular. This breed is confined to temperate and southern Europe. The true shepherd's dog attends the flocks, keeps them together, and protects them from violence. A variety called the drover's dog, somewhat larger and more rugged, is of great assistance in driving sheep and cattle to market. The great wolf-dog (*C. Pomeranus?* Linn.) has all the sagacity of the shepherd's dog, with a strength which enables him to resist successfully the attack of a wolf; it is of large size, whitish clouded with brown, with pointed nose, erect ears, and long silky hair; it is most common in southern Europe. The Alpine or dog of St. Bernard is universally known for his services in discovering and assisting snow-bewildered travellers in the higher Alps; the old race resembled the Newfoundland dog, but the present dogs are short-haired, with very broad feet, and generally of a fawn color; their bark is uncommonly loud and deep. They are trained to carry food, wine, and warm coverings, attached to their bodies and necks; they depart in the morning, after violent snow storms, in search of buried travellers, and are followed by

the monks. Many lives have been saved through their instrumentality; but at the present time, when the roads are better and more easily followed, and the inhabitants in the upper valleys more numerous, their services are less frequently called for. In the subdivision of the watch dogs of F. Cuvier are found some of the largest canines, and especially the fierce races mentioned by ancient authors; they have short hair and a wide muzzle, but in their skulls they resemble the wolf; the typical color is rufous, which is more or less mixed with black and white; occupying the northern temperate zone, they are probably descended from the lycisean dogs, mixed toward the south with the mastiff race. They are less docile and sagacious than the former groups, but more watchful and noisy, and with considerable courage, and are therefore generally kept by the humbler classes to protect their farms; from this cause they are greatly crossed, and are doubtless the progenitors of the mongrel races of western Europe; from their moderate powers of smelling they are of little use in hunting. The Suliote dog (*C. Suillus*, Gmel.), sometimes called boar hound in Germany, is one of the largest and fiercest breeds; it has been known to be nearly 4 feet high at the shoulder. Resembling this is the Danish dog (*C. glaucus*, Smith.), but smoother, with shorter ears, and of a slaty blue color. The matin dog (*C. laniarius*, Linn.) has the head elongated and the forehead flat, the ears pendulous at the tips, the hair rugged, of a yellowish fawn color with blackish rays; the height is about 2 feet; being bold, strong, and active, it is valuable for a house and sheep dog. The Poe dog (*C. Pacificus*, Smith) seems to be indigenous to the South sea islands, and once was very abundant in the Sandwich group; the muzzle is pointed, the ears erect, the back long, the limbs crooked, and the hair smooth and tan-colored; its food is vegetable, with a little fish, and it is much esteemed by the natives as an article of diet; the aboriginal race is now lost, from mixture with the imported dogs of Europe. The dogs of Patagonia are as large as fox hounds, and wolf-like in appearance; those of Terra del Fuego are smaller, resembling a cross between the fox, shepherd's dog, and terrier; their dogs are of great value to the natives of these regions. In France and several other countries, especially Holland, dogs are frequently employed as draught animals, and in Kamtchatka and Greenland, almost exclusively for the same purpose.—From the above remarks it must be evident that the dogs are the most complete and useful conquest ever made by man; all their faculties have been rendered subservient to him, for his pleasure and profit, for his safety against his own kind and other animals. Cuvier has asserted that the dog was perhaps necessary for the establishment of human society; though this may not be apparent in the most highly civilized communities, a moment's reflection will convince us that barbarous nations owe much of their elevation above the brute to the possession of the dog. That man has been able to make such extensive use of this animal must depend on innate qualities in the races, as, for instance, keenness of scent and the desire to chase, in the hound; the impulse to seek objects, in the spaniel and pointer; the tendency to watch and guard, in the shepherd's dog and mastiff. The activity of their brain is shown by their proneness to dream, during which state they go through all the mental exercises they would use when awake. It is said that the ancients were fond of the flesh of dogs; it is well known that the Polynesians, Chinese, and American Indians consider it a great delicacy; when fed principally on vegetable food, it is palatable and nutritious, as many a traveller in the Rocky mountains and in the northwest territories has had occasion to experience.—The monuments of Egypt show that dogs, like men, were as distinct in their races thousands of years ago as at the present day; and it becomes interesting to inquire if there are fossil dogs. Fossil canines have certainly been found, but these have without examination been referred as a matter of course to wolves, foxes, and jackals, and not to dogs; these are chiefly met with in the pliocene caves, in the drift, and in the alluvium. It has been already mentioned that it is very difficult to distinguish the different species of *canidæ* by their skeletons, except by the size of the bones. The teeth of the domestic dog have the last tubercular tooth wider than that of the wolf, and the teeth of many of the cave dogs differ from those of the domestic races only in being larger. Dr. Lund discovered fossil dogs larger than any now living in the caves of Brazil, associated with an extinct monkey; a similar association has been found in a stratum of marl, under compact limestone, in the Pyrénées. Dr. Schmerling has described several fossils of the true dog, evidently belonging to 2 distinct varieties, differing in size from those of the wolf and fox found in the same locality. Cuvier says of the bones of a fossil *canis* from the cave of Gaylenreuth, that they resemble those of the dog more than the wolf, yet he does not positively declare them to belong to the former. Marcel de Serres has described 2 species of dogs found in a marine tertiary limestone, one resembling the pointer, the other much smaller. The frontal elevation in the skull of the dog is greater than that of the wolf, and the skull of a small canine with this character strongly marked, from a bone cave in England, was pronounced by Mr. Clift that of a small bull-dog or a large pug. Distinct traces of at least 4 types of dogs have been found in a fossil state, the Canary dog, the pointer, the hound, and the bull-dog, with a smaller one classed by Schmerling with the turnspit; and as many of these are known to be hybrids, the list must probably be further enlarged. The certain antiquity of these bones, whether they have been referred to the proper race of dogs or not, is sufficient to destroy the claims of the wolf, or

jackal, or fox, to the exclusive paternity of the domestic dogs. As there are undoubted wild canines which are true dogs, there is no improbability that some of these fossil remains may have belonged to such prior to their subjugation and domestication by man; and there is no more necessity of referring the fossil canines to a single species than the domesticated ones. The size of the fossil dogs is no greater than that of some living races mentioned in the text.—Those desirous of pursuing the subject of dogs more fully are referred to the writings of Buffon, Frédéric Cuvier, and Col. Hamilton Smith. (See also BEAGLE, BLOODHOUND, BULL-DOG, GREYHOUND, HOUND, MASTIFF, POINTER, SPANIEL, TERRIER.)

DOG DAYS (Lat. *dies caniculares*), among the ancients, the period of greatest heat in summer, so named because in the latitudes of the Mediterranean this period nearly corresponded with that in which the dog star rose at the same time with the sun. To this conjunction all antiquity, and all the later followers of judicial astrology, ascribed a malignant influence. The heliacal rising of the dog star is a very indefinite phenomenon; its precise dates cannot be determined, and owing to the precession of the equinoxes it does not now occur till about Aug. 10, when the greatest heat of the season is often over. So uncertain is the time that the ancients indiscriminately ascribe the evil influence to Sirius and Procyon (the largest stars respectively of Canis Major and Minor), though there is several days' difference in their heliacal risings. The modern almanac makers sometimes reckon the dog days from July 24 to Aug. 24, and sometimes from July 3 to Aug. 11.

DOG-FISH, a cartilaginous plagiostome, of the family *squalidæ* or sharks, and the genus *acanthias* (Risso), of the class selachians of Agassiz. This genus is characterized by 2 dorsal fins with a strong spine before each; the 1st dorsal is behind the line of pectorals, the 2d between the ventral and caudal spaces; no anal fin; temporal orifices large; skin rough in one direction, the scales heart-shaped with a central spine directed backward; teeth in several rows, sharp and cutting, with the points directed backward and outward. The common dog-fish (*A. Americanus*, Storer) has the upper part of the body of a slate color, deepest on the head and lightest on the sides, and white below; just under the anterior portion of the lateral line is a row of circular white spots, and a few similar ones are irregularly distributed on the back; the young are still more spotted; the length does not exceed 5 feet. The species is found from Davis's straits to New Jersey. Dog-fish in spring and autumn appear in large numbers in Massachusetts bay, and the residents of some towns on Cape Cod give up all other business at these times to fish for them; they are valuable for the oil from the livers, for the food of cattle, and for the polishing property of their skin. The weight varies from 8 to 25 lbs.; they remain in shallow water 3 or 4 days, at which time they are easily caught by the hook; they feed on garbage, and may properly be called the scavengers of the sea. The young are brought forth alive, and are often seen swimming about with the yolk bag attached. In the British provinces they are dried, and in the winter given to pigs, which thrive well upon them; the refuse parts are used for manure. The dog-fish (*acanthias*) of Europe is a different species; its flesh is eaten in Scotland. Along the east coast of England it is called the bone-dog; it is a great pest to the fishermen by cutting off their hooks; according to Mr. Couch, it bends itself into a bow for the purpose of using its spines, and then by a sudden motion causes them to spring asunder in opposite directions. Three species of *scyllium* (Cuv.), of a reddish-brown color with numerous spots, are called dog-fish in Europe. There is another shark (*mustelus canis*, Mitch.), also viviparous, called dog-fish. In this genus the teeth are blunt, forming a close pavement in each jaw; the first dorsal is in advance of the ventrals; there are no spines; the body is cylindrical and elongated, of a uniform slate color on the back and sides, and dusky white below; the head is flat between the eyes. This shark grows to a length of 5 feet, and is very common in Long Island sound, where it is taken in nets spread for other fish; from the form of the teeth it is probable that the food consists principally of crustacea and mollusks; it is not common on the coast of Massachusetts, but is abundant on the shores of New Jersey, where it is very troublesome to the fishermen by stealing their baits and driving away other more eatable species; its flesh is coarse, rank, and unpalatable, though occasionally eaten. In Europe the species of this genus are often called hound-fish; the *M. lævis* (Cuv.) is called the smooth hound from the softness of the skin, and ray-mouthed dog-fish from the peculiar conformation of the teeth. These sharks are called dog-fish probably from their hunting for prey or food in large packs, like hounds. The dog-fish of the great lakes of North America is a soft-rayed bony fish, generally placed in the herring family, and the genus *amia* (Linn.); the spotted *lota*, one of the cod family inhabiting fresh water, is also incorrectly called dog-fish by Lesueur.

DOG GRASS. See COUCH GRASS.

DOG STAR, or SIRIUS, the brightest and in appearance the largest of the fixed stars, named from the constellation Canis Major in which it appears. It is the Sothis of the ancient Egyptians, and is one of the 6 fixed stars which Ptolemy enumerates in his catalogue as of a fiery red (*ἱπποκίρρος*) color. Seneca also calls it (*Nat. Quæst.* i. 1) redder than Mars. It has at present a perfectly white light, and furnishes the only example of a historically proved change of color in the appearance of a star. It was undoubtedly already white in the time of Tycho Brahe, but of the period of its change there is little evidence. The Arabic astronomer El Fragani (Alfraganus), of the 10th century, invari-

ably follows Ptolemy, and, if Sirius had then been white, would hardly have failed to notice and remark upon the change. The Egyptians reckoned their year from one heliacal rising of the dog star to another, which was therefore called the "Sothic year."

DOGE (Lat. *dux*, a leader), the title of the elective chief magistrate in the republics of Venice and Genoa. The dignity or office was called *dogato*. The doges of Venice were elected for life. The first of them was called to the dignity in the year 697, when Venice had scarcely risen to the importance of a city, and he and his successors ruled it as sovereigns, with nearly absolute power. But when the state grew mightier, both on land and sea, through commerce and conquests, its proud and wealthy nobles continually strove to check the power and influence of their elective head, and the government became more and more oligarchical, its form more and more republican, the dogate a magistracy, and finally a mere title. A great change in the constitution toward the end of the 12th century put the whole legislative power into the hands of the council of 470; this elected the executive council of 6, and the 60 *pregadi*, and the doge was elected by 12 electors, chosen by 24 members of the great council. The first chief magistrate thus elected was Sebastiano Ziani (1173), who, in order to make his dignity, now stripped of every power, at least popular, distributed money among the people at his installation; an act adopted by his successors as one of the ceremonies of inauguration. Another ceremony, introduced by the same doge, was that of marrying the sea, by a ring thrown into the waves of the Adriatic, which emblem of power over the mighty element was bestowed upon him with many other marks of dignity by Pope Alexander III., whom he supported in his long and bloody struggle against the emperor of Germany, Frederic Barbarossa. A new council of 40, established in 1179, and vested with supreme juridical power, also served to circumscribe the prerogatives of the doge. It was in vain that many a chief magistrate covered his office and the state with glory; in vain that Enrico Dandolo, the nearly blind octogenarian, led the victorious fleet of the 4th crusade to Constantinople (1202–'4), that he was, at both attacks, among the first to storm it, that he refused the conquered imperial crown; the growing and grasping might of the nobility was incessantly bent on the humiliation of the so-called chief of the state, which was completed in the 2d half of the 13th century, and at the beginning of the next, by the new and last election law, the most complicated instrument of indirect exercise of sovereignty that has ever been framed, by the introduction under Gradenigo of the hereditary nobility and its golden book, and the establishment of the terrible council of 10, supreme in power, irresponsible, and judges of the doge himself. Stripped of nearly all his prerogatives, the power of the doge was confined to the command of the army and the opportunity of profiting by the frequent strifes and contentions of the different councils and classes; and the office became so burdensome, that a law had to be framed (1339) prohibiting any one from laying it down, and that, in 1367, Contarini had to be forced to accept it. The doge was now but the president of the council, the mouthpiece of the republic; he received ambassadors, but could give them no answer of his own, and their letters he opened in the presence of the senate; money was struck in his name, but without his stamp or arms. He was not allowed to leave the city, to announce his accession to any but princes of Italy, to accept presents, to possess estates in foreign countries, or to marry his daughters to foreigners. His children and relatives were excluded from every important office. He was surrounded by spies, fined for every transgression, and his conduct scrutinized after his death by a tribunal of 3 inquisitors and 5 correctors. The chief magistrate was powerless, while the republic was mighty from its conquests in Greece, rich from the commerce of the East, and glorious in the sciences and art; he remained powerless when the republic, stripped of its eastern possessions by the Turks, of its commerce and wealth by the new maritime discoveries, languished and decayed. The office was destroyed with the state in 1797, by the French, under Bonaparte.—In Genoa, the first doge was elected for life in 1339, after the victory of the popular party over that of the nobility, and voluntarily shared his power with a council of state consisting of 12 members, 6 from the nobility, and 6 from the people. But during the long internal and external contentions of this republic, almost continually agitated by schemes of conquest and party struggles, the dogate was often modified, and sometimes even abolished. Andrea Doria, the great admiral, and the deliverer of the republic from the yoke of the French in 1528, reorganized it, and his constitution remained, but slightly altered, till the time of the French conquest (1797). According to it, the doge, who must be a noble, and 50 years of age, was elected for 2 years; he presided in the 2 legislative councils, of 300 and of 100; had the right of proposing and vetoing laws; exercised the executive power with 12 secret councillors; and resided in the palace of the republic. The ceremonies and restrictions connected with his election and dignity were similar to those in Venice. Napoleon, having founded the republic of Liguria, restored this ancient dignity (1802), and abolished both when elected emperor of the French (1804).

DOGGER, the name of a small vessel used by the Dutch fishermen, especially in fishing on the Doggerbank. It has 2 masts, and is not unlike a ketch.

DOGGERBANK, an extensive shoal in the centre of the North sea. The water on this bank where it is most shallow is 9 fathoms in depth, and abounds in fish. An obstinate naval battle was fought there on Aug. 5, 1781, between the

Dutch and English fleets, in which both were much crippled, and neither could claim the victory.

DOGS, Isle of, or Poplar Marshes, a peninsula in the river Thames, 3 m. below London, and opposite Greenwich. It is bounded on the north by the West India docks, and is rapidly filling up with establishments for heavy manufacturing, iron ship building, gas works, &c. The name is derived from its having been formerly the place where the king's hounds were kept.

DOGWOOD (*cornus*, Linn.), a shrub or tree of the order *tetrandria monogynia*, under the middle size, deciduous, a native of Europe, Asia, and North America, of which there are several varieties. *C. alternifolia* (Linn.), the alternate-leaved dogwood, is a small deciduous tree indigenous to North America, and is found in shady woods or by river banks in every latitude. It frequently attains a height of 15 to 20 feet. The leaves are alternate, ovate, and acute; flowers white, May to July; fruit purple, ripening in October. Of all the species of the genus the florida dogwood (*C. florida*, Linn.) is the most beautiful, and in its native soil under favorable circumstances attains a height of 30 to 35 feet. The specific name *florida*, from *floreo*, to blossom, was bestowed because of the profusion of the flowers it puts forth. Specific characters: branches shining; leaves ovate, acuminate, pale beneath; flowers umbellate, protruded after the leaves; leaves of involucre large, roundish, retuse; pomes ovate; flowers white and very large. It is found as far north as New Hampshire, but particularly abounds in New Jersey, Pennsylvania, Maryland, and Virginia, where the soil is moist; in Florida and the Carolinas it deserts the barrens and is found only in swamps. In Ohio, Kentucky, and Tennessee, it is not found in the forests except where the soil is gravelly. It was first described in Ray's *Historia Plantarum*, published in 1680, and afterward by Catesby in his "Natural History of Carolina." William Bartram, in his "Travels in Carolina and Florida," published in 1791, describes a remarkable grove of dogwood trees in Alabama, extending for 9 or 10 miles. The trees were about 12 feet high, spreading horizontally, their limbs meeting and interlocking with each other so as to form one vast, shady, cool grove, so dense and humid as to exclude the sunbeams and prevent the intrusion of almost every other vegetable. The wood of this tree is hard, fine-grained, and susceptible of a high polish. It enters into the construction of many articles of ornament and utility, such as the handles of mallets, toys, harrow teeth, hames for horse collars, and the shoeing of sleds. The inner bark of the tree is very bitter, and has proved an excellent substitute for Peruvian bark in intermittent fever. Dr. Walker of Virginia, in a dissertation on the comparative virtues of the bark of these 2 plants, says that a summary recapitulation of the experiments made by him shows that the *cornus florida* and the Peruvian bark possess the same constituents, that is, gum, mucilage, and extracts, which last contain the tannic and gallic acid, though in different proportions. Their medicinal virtues appear similar and equal in both forms. The extract and resin possess all their active powers. The bark may likewise be substituted for galls in the manufacture of ink. From the bark of the roots the Indians extract an excellent scarlet dye. The florida dogwood is often cultivated as an ornamental tree, its large flowers, which rival the whiteness of snow, affording a pleasing contrast with the deep green of the surrounding foliage.—The name dogwood is improperly given in some parts of the United States to the *rhus venenata*, a species of poisonous sumach.

DOHNA, a German family of counts (*Burggraf*), who trace their origin to the times of Charlemagne, and many of whom have occupied high positions in the military and civil service of Prussia.—Karl Friedrich Emil, born March 4, 1784, president of the military department in the Prussian cabinet and general of cavalry in 1854, when he retired from active service, died in Berlin, Feb. 21, 1859.

DOKOS, or Dokoes, a race of negroes said to inhabit a region of tropical Africa, S. of Abyssinia, near the river Gojeb. They were first fully described by the missionary Dr. Krapf, on the credit of a Galla slave who had visited their country, and whose relation was thought to bear every mark of truth, and was corroborated by other native accounts. According to this man, the Dokos are 4 feet high, of a dark olive complexion, and perfectly wild. They go naked, feed on ants, snakes, mice, and fruits, evince considerable intelligence, and are in great request by the people of Kaffa as slaves. They have no government, no laws, no priority of rank, no national feelings, no idea of marriage, and very little sense of religion. The mother abandons her child as soon as it is able to procure its own food. Their country is subject to almost incessant rains, and on account of the hostility of the surrounding nations is difficult of access. It is rarely visited except by slave dealers, who surround the wretched savages in their thick forests, entice them down from the trees in which they take refuge, and drive them into the plains, where immense numbers of them are captured. They have a horror of slavery, but easily become attached to their masters. They are supposed to be the "pigmies" whose existence has been a favorite belief since the days of Homer.

DOL, a French town, capital of a canton of the same name, in the department of Ille-et-Vilaine; pop. 4,181. It is wretchedly built, but contains a fine cathedral, and possesses considerable historical interest. During the middle ages it was again and again besieged, and passed into many different hands. In 1793 it was garrisoned by the Vendeans, and successfully resisted an attack of the republican troops. The old fortifications of the town are still standing. Its trade is principally in corn, hemp, and cider.

DOLABELLA, Publius Cornelius, a Roman

general, celebrated for his profligacy, born about 70 B. C., died 43 B. C. Notwithstanding his debauched character, he became the son-in-law of Cicero, and enjoyed several high offices of state. After the death of Cæsar, Dolabella, although the former had always been his friend, professed the utmost contempt for his memory, and, being supposed a good republican, obtained the consulship, and afterward from Antony the administration of the province of Syria. On his way thither, however, he committed such atrocious extortions and crimes that the senate declared him an enemy of the republic, and he was killed by one of his soldiers at his own order, to avoid falling into the hands of his enemies.

DOLCI, or Dolce, Carlo, or Carlino, an Italian painter, born in Florence, May 25, 1616, died there, Jan. 17, 1686. His father, grandfather, and uncle were all painters, and after the death of his father, his mother placed him at the age of 9 with Jacopo Vignali. Under Vignali's tuition Carlo's genius developed itself with such remarkable rapidity that after a few years he was able to attempt successfully a full-length figure of St. John. He next produced a picture of his mother, and the delicacy and tenderness which marked these early productions attracted much attention, and procured for him employment at home and abroad. Pietro de' Medici was among his earliest patrons, and brought him into notice at court. He devoted himself almost exclusively to sacred subjects, a branch of the art in harmony with his devout disposition. His works are deficient in imaginative genius, but they are all distinguished by agreeable coloring, a remarkable relief produced by his skilful management of chiaroscuro, a singular delicacy of composition, and a finish in which he approached almost the consummate patience and industry of the great Dutch masters. Although he was proverbially slow in the execution of his paintings, he amassed sufficient wealth for the honorable support of his family of 8 children. The sameness of expression in most of his pictures facilitates copies and imitations, which consequently abound all over Europe. He excelled most in small pictures, and the themes in which he was most successful are borrowed from the New Testament. Among his best works are the "St. Anthony" in the Florentine gallery, the "St. Sebastian" in the palazzo Corsini, the "Four Evangelists" in the palazzo Ricardi at Florence, and "Christ Breaking the Bread," in England, in the marquis of Exeter's collection at Burleigh. Dresden possesses several of his works, including "Herodias with the Head of John the Baptist" and "St. Cecilia, or the Organ Player." Another of his chief productions, "Christ on the Mount of Olives," is at the Louvre in Paris. —Agnese, one of his daughters, who married a merchant named Carlo Baci, was one of his best pupils, and the most successful copyist of his works.

DOLE, a town of France, capital of an arrondissement of the same name, in the department of the Jura; pop. of the town in 1856, 9,443, and of the arrondissement 72,185. It is neat and well built, and situated on the slope and at the foot of a hill on the right bank of the river Doubs, near the canal that joins the Rhone and the Rhine. The railway from Dijon to Besançon, which passes the town, gives it some importance as a place of transit between Paris and Switzerland. It is of great antiquity, having been founded by the Romans, and is situated on the old road leading from Lyons to the Rhine. Some remains of this work, as well as of an ancient aqueduct and theatre, are still to be seen. It was for a time the capital of Franche Comté, and the seat of a parliament. After having been taken once or twice previously, it was captured and dismantled by the French in 1674.

DOLET, Étienne, a French scholar and printer, born in Orleans in 1509, burned as a heretic in Paris, Aug. 3, 1546. He was very fond of classical studies, and was one of the especial admirers of Cicero, who were ridiculed by Erasmus, and warmly defended by Dolet and others. He was of a rash, impetuous disposition, which made him many enemies, who lost no opportunity of persecuting him. Having been often accused of cherishing heretical sentiments, he was at last adjudged an atheist by an ecclesiastical court at Paris, in consequence of an expression which he made use of in his translation of the *Axiochus* of Plato, which was not to be found in the original; and for this he was condemned and burned.

DOLGORUKI, the name of a princely Russian family, whose origin is carried back to Rurik, and several members of which occupy a place in the history of their country. I. Grigori, distinguished himself by the valiant defence of a monastery near Moscow against the Poles under Sapieha and other generals (1608–'10). II. Maria, was married in 1624 to Czar Michael, the first of the house of Romanoff, but died 4 months after. III. Yuri, a general in the reigns of Alexis and Fedor, was killed in the revolt of the Strelitzes after the death of the latter czar in 1682, while defending the right of the young Peter the Great to the throne. IV. Mihail, son of the preceding, and minister of Fedor, perished with his father. V. Yakob, a senator of Peter the Great, noted for his boldness and frankness toward his master, died in 1720. It is said that one day, having torn to pieces an imperial ukase in full council of the senate, he appeased the wrath of the czar, who threatened to kill him, by the words: "You have but to imitate Alexander, and you will find a Clitus in me." VI. Ivan, was the friend of Peter II., to whom his sister Catharine was betrothed; but the young czar having died on the day fixed for the marriage (1730), he was exiled to Siberia with all his family by Biron, duke of Courland, the favorite of the empress Anna. Recalled from exile, he was accused of a conspiracy against the life of the empress, and executed at Novgorod in 1739, other members of the family being beheaded or exiled. VII. Vasili, commanded the army of Catharine I.

in the war against Persia, was made field marshal in 1728, banished to Siberia in 1739 as an accomplice of the preceding, recalled by the empress Elizabeth, and died in 1755. VIII. VASILI, nephew of the preceding, commander-in-chief of the army of Catharine II., conquered the Crimea in a short campaign in 1771, and received from the empress the surname of Krimskoi. IX. VLADIMIR, resided for 25 years as minister of Catharine II. at the court of Frederic the Great, whose friendship he gained. X. YURI, commanded in the wars of Catharine II. against the Turks and Poles, signalizing himself by his valor. XI. IVAN, one of the classical poets of Russia, was born in 1754, and died in St. Petersburg in 1823. XII. PAVEL, was the author of a *Notice sur les principales familles de Russie* (Brussels, 1843), an English translation of which, with annotations and an introduction, appeared in London in 1858.

DOLLAR, the monetary unit in the United States and several other countries, both of coined money and money of account. All values in the United States are expressed in dollars and cents, or hundredths. The term mill, for the $\frac{1}{1000}$ of a dollar, is rarely employed. The dollar unit, as a money of account, was established by act of congress of April 2, 1792, and the same act provides for the coinage of a silver dollar "of the value of a Spanish milled dollar as the same is now current." The silver dollar was first coined in 1794, weighing 416 grains, of which 371¼ grains were pure silver, the fineness being 892.4 thousandths. The act of Jan. 18, 1837, reduces the standard weight to 412½ grains, but increases the fineness to $\frac{900}{1000}$, the quantity of pure silver remaining 371¼ grains as before; and at these rates it is still coined, in limited amount. The smaller silver coins are not of equal weight proportionally. (See COINS.) The act of March 3, 1849, directs the coinage of gold dollars. They were issued the same year, weighing $25\frac{8}{10}$ grains, $\frac{9}{10}$ fine, $23\frac{22}{100}$ grains being pure gold. All other coins of the United States are either multiples or subdivisions of the dollar. The term dollar is of German origin. During the years 1517–'26 the counts of Schlick, under a right of mintage conferred by the emperor Sigismund in 1437 upon their grandfather, Casper Schlick, caused to be struck a series of silver coins of 1 ounce weight, and worth about 113 cents of our money. These pieces were coined at Joachimsthal (Joachim's valley), a mining town of Bohemia, and came to be known in circulation as *Joachimsthaler*, and then for shortness *Thaler*; and this name for coins and money of account has been widely used in the German states ever since. Some German scholars, however, derive the term *Thaler* from *talent*, which was used in the middle ages, designating a pound of gold. In Norway and Sweden we find the *daler*, and in Spain the *dalera*, the famous Spanish dollar which for centuries figured so conspicuously in the commerce of the world. It was the Spanish pillar dollar (called also the milled dollar for its milled edge) that was taken as the basis of the United States coinage and money of account. By the act of April 2, 1792, 371¼ grains of pure silver and 24¾ grains of pure gold were declared to be equivalent one to the other, and to the dollar of account. At that time, as now in Great Britain, 113 grains of pure gold were the equivalent of the pound sterling. The value of £1 in federal money, therefore, was $4 56.5. Prior to this date, and during the confederation, the dollar of account, as compared with sterling currency, had been rated at 4*s.* 6*d.*, which was an exaggerated valuation of the Spanish dollar; and in precise accordance with this valuation the congress of the confederation had established $4 44.4 as the custom house value of the pound sterling. The effect of the act of 1792 was really to reduce the value of our dollar of account, but apparently to increase the value of the pound sterling about 2¾ per cent. By the act of June 28, 1834, the weight of fine gold to the dollar was reduced from 24.75 to 23.20 grains; and 3 years later, Jan. 18, 1837, it was fixed at 23.22 grains, where it now remains. Comparing this latter weight with the pound sterling of 113 grains, we find an apparent increase in the value of £1 to $4 86.6, an advance of exactly 9½ per cent. upon the old valuation of $4 44.4. We have here the explanation of the existing practice in this country of quoting sterling exchange at 9½ per cent. premium, when it is really at par. A much more simple and intelligible method would be to state in dollars and cents the ruling rate per pound sterling for bills on London, *e. g.* $4 84, $4 87, $4 90, &c. Spanish dollars were chiefly coined in the Spanish American colonies. The best known variety was the pillar dollar, so called from the 2 pillars on its reverse, representing the "Pillars of Hercules," the ancient name of the opposite promontories at the straits of Gibraltar. The rude imitation of these pillars in writing, connecting them by a scroll, is said to have been the origin of the dollar mark ($), now universally familiar. A more plausible explanation is that, as the dollar consisted of 8 *reals*, 8 R. being stamped upon it, the mark was designed to stand for the "piece of eight," as the dollar was commonly called. The two vertical lines distinguished it from the figure 8. The Spanish American dollars ceased to be coined when the colonies became independent, and since 1822 their place in commerce has been supplied by the dollars of Mexico, Bolivia, and Peru. (For values, &c., see COINS.)

DOLLART BAY, or THE DOLLART (Lat. *Sinus Emdanus* or *Dollarius*), an arm of the German ocean, about 10 m. in length from N. to S., and 7 m. in breadth. It lies between Hanover and the Netherlands, and extends to the estuary or mouth of the river Ems. It is supposed to have been formed by a terrible inundation in 1277, which destroyed nearly 50 villages. The sea has since receded in some measure from the Hanoverian shore, and several thousand acres of land have been recovered.

DÖLLINGER, IGNAZ, a German physiologist, born in Bamberg, May 24, 1770, died in Munich,

Jan. 14, 1841. He was professor of physiology at Bamberg, and afterward, when this university was dissolved, at Würzburg. In 1823 he became a member of the academy and a professor of medicine in Munich, and in 1826 professor of anatomy. Among his principal works is *Grundriss der Naturlehre des menschlichen Organismus* (Bamberg, 1805).

DOLLOND, John, an English optician, born in Spitalfields, June 10, 1706, died in London, Sept. 30, 1761. He was descended from a French refugee family, and was originally a silk weaver, but conceiving a passion for the science of optics, he went into partnership with his son as an optical instrument manufacturer. He commenced a series of experiments on the dispersion of light and other subjects connected with the improvement of telescopes and microscopes, the results of which were communicated to the royal society in a series of papers, which appeared in its "Transactions" during the years 1753, 1754, and 1758. These papers were deemed so important by the council of that learned body, that it awarded to Dollond the Copley medal, and in 1761 sanctioned his election as a member of the society. He was the discoverer of the laws of the dispersion of light, and the inventor of the achromatic telescope.—Peter, eldest son of the preceding, born in Spitalfields in 1730, died in Kennington in 1820. Soon after entering into partnership with his father he removed his business from Spitalfields to St. Paul's churchyard, where he met with great success. He made several important improvements in optical instruments, and contributed some valuable papers to the "Transactions" of the royal society, one of which was a vindication of his father's claim to the discovery of the true theory of the refrangibility of light, which appeared in the "Transactions" for 1789. The "Dollond optical establishment" is still flourishing.

DOLOMIEU, Déodat Guy Silvain Tancrède Gratet de, a French geologist, born in the village of Dolomieu, in the department of Isère, June 24, 1750, died in Châteauneuf, Saône-et-Loire, Nov. 26, 1801. While yet very young he killed in a duel a knight of Malta, of which order he was himself a member. He was condemned to death, but the sentence was commuted to imprisonment, and in his dungeon he devoted himself with ardor to the study of the natural sciences. On recovering his liberty he obtained a commission in the army, but did not relinquish his scientific investigations, of which the first fruits appeared in 1775 in his essay *Sur la pesanteur des corps à différentes distances du centre de la terre*, and in two translations into Italian on the subject of mineralogy and of volcanic substances. Made a corresponding member of the academy of sciences, he quitted the military profession and devoted the rest of his life to science. For a series of years he was engaged in exploring Portugal, Spain, Italy, and afterward Egypt, whither he went with Napoleon's expedition. After having completed his survey of the valley of the Nile, he was on the point of exploring the Libyan desert when his failing health compelled him in 1799 to return to France. While on his way to Marseilles, his ship was overtaken by storm and driven into the gulf of Taranto. Seized by the Neapolitans, who at that time were at war with France, he was, in consequence of his former offence against the order of Malta, detained in prison, while the other passengers were after a short time restored to liberty. In the prison of Messina he wrote on the margin of the Bible, with a bone sharpened against the walls for a pen, and the black of his lamp smoke mixed with water for ink—the only writing materials at the prisoner's command—his *Traité de philosophie minéralogique*, and his *Mémoire sur l'espèce minérale*. He recovered his liberty, March 15, 1801, with impaired health; and died soon afterward, while on a visit to his sister. The results of his researches are embodied in his contributions to the *Journal de physique*, *Journal de l'institut*, *Journal des mines*, &c. More than 50 distinct memoirs, many of which contain valuable additions to the knowledge of geology and mineralogy, can thus be traced to his pen, beside his contributions to the *Dictionnaire minéralogique* and the *Nouvelle encyclopédie*. His most interesting essays are: *Mémoires sur le tremblement de la terre en Calabrie; Voyage aux îles de Lipari; Mémoires sur les îles Ponces, et Catalogue raisonné des produits de l'Etna;* and on the nature of leucite, anthracite, pyroxene, &c. The *Journal du dernier voyage du citoyen Dolomieu dans les Alpes* was published by Brunn-Neegaard at Paris in 1802.

DOLOMITE, a mineral species named in honor of the French geologist Dolomieu. It occurs crystallized in rhombohedral forms, and also as a rock of granular and crystalline structure. The mineral species includes several varieties, as brown spar, pearl spar, &c. Its hardness is 3.5–4; specific gravity, 2.85–2.92. The weight of a cubic foot of the rock is consequently about 180 pounds. Dolomite is a magnesian carbonate of lime, consisting of one equivalent of carbonate of magnesia and one of carbonate of lime, or, in 100 parts, 45.65 of the former and 54.35 of the latter. It is usually white, but is also found of various colors. The geological position of the rock is in the primary and metamorphic group. Of these it is an important member, being extensively used for the manufacture of lime, and also as a building stone. It is found abundantly along the eastern part of the middle states, its range extending through the gold region of the southern states, northward, passing near Washington, Baltimore, Philadelphia, thence crossing northern New Jersey, and to the south of the highlands across the Hudson, through western Massachusetts and Vermont into Canada. The rock also occurs at many localities to the eastward of this metamorphic range. The lime made from dolomite varies in quality, not only with the purity of the rock, but also with its tex-

ture, and the manner of burning it. No lime is more highly prized by masons than that made of the close, compact dolomite called the "hard jointer" of Smithfield, R. I. It is perfectly white, is very strong, taking a great deal of sand, and sets quickly. But the same kind of rock of other localities, if burned in the common anthracite kiln, finds little favor with masons from its not slacking uniformly. Lumps of it remain without slacking until after it has been laid upon the walls, where they form blotches, which by the masons is called "pitting out." This is in great measure obviated by a proper method of burning, and particularly by the use of wood or a blazing coal instead of anthracite. Lime of very superior quality has thus been made of the white crystalline dolomite found on the Hudson at Hastings and Sing Sing. Its strength was such as to take about $\frac{1}{3}$ more sand than other limes in use of the best qualities. For agricultural purposes magnesian lime is not in good repute, though the fact of its inferiority does not appear to be well established. As a building stone, dolomite ranks among the best, possessing in a high degree the properties of durability and ease of working. It is obtained in large blocks of sound and uniform texture, with good grain for splitting, and unmixed with foreign matters. But different layers in the same quarry vary greatly in quality, so that care is required in selecting them. The softness of the stone admits of its being easily sawn into ashlar and carved into ornamental mouldings. It forms a considerable part of the white marble used in the construction of the capitol at Washington. The custom house in New York city is built of this stone from the Tuckahoe quarries on the Harlem railroad, and the new custom house at Charleston, S. C., is built of the same from the quarries at Hastings on the Hudson. In England, dolomite has proved so durable and excellent a stone, that a variety of it found at Bolsover moor was selected by the commissioners appointed by the British parliament for investigating the qualities of the various building stones of the kingdom, and choosing from them the best for the new houses of parliament. The choir of Southwell church, which was built of this variety of stone in the 12th century, was found by the commissioners to be in so perfect a state that "the mouldings and carved enrichments were as sharp as when first executed." After describing other examples illustrating the durability of this rock, the commissioners say: "We may here remark, that as far as our observations extend, in proportion as the stone employed in magnesian limestone buildings is crystalline, so does it appear to have resisted the decomposing effects of the atmosphere; a conclusion in accordance with the opinion of Professor Daniell, who has stated that, from the results of experiments, he is of opinion that 'the nearer the magnesian limestones approach to equivalent proportions of carbonate of lime and carbonate of magnesia, the more crystalline and better they are in every respect.'" The following analyses of some of the best of the American dolomites show how near they correspond in composition to the requisite of Professor Daniell:

Marble of	Analyzed by	Carbonate of lime.	Carbonate of magnesia.
Hastings, N. Y..	J. W. Draper, M.D..	52.82	45.78
Sing Sing, " ..	Lewis C. Beck, M.D.	53.24	45.89
Tuckahoe, " ..	" "	61.75	38.25
Roxbury, Vt....	T. S. Hunt.....	53.90	44.04

DOLPHIN (*delphinus*, Cuv.), a cetacean mammal, carnivorous in its habits, and found in most of the seas of the world. The dolphins, as generally restricted, have a convex forehead, and a beak or snout, armed with teeth, separated from the forehead by a well-marked furrow; they do not acquire the dimensions of the whales, being rarely more than 9 feet long. The body is fusiform in shape, without evident neck, and terminated by the horizontal tail common to all cetaceans; the head is not disproportionately large, and both jaws are toothed; there are 2 pectoral fins, and toward the middle of the back there is a fold of the skin which may be called a dorsal fin; the eyes are small, with bare lids; the external opening of the ear is small; the tongue is thick, soft, and but slightly movable; the skin is naked and soft, covered only by a thick mucosity. The teeth are simple, conical, and numerous, varying in number even in individuals of the same species. The cranium is very small compared with the face, concave, and much elevated in front and arched behind; the snout is narrow and elongated from the prolongation of the maxillaries and intermaxillaries, which are not curved forward above; the upper jaw is a little shorter than the lower; the maxillaries extensively overlap the frontals; the tubercles which represent the nasal bones are above the intermaxillaries, resting on the frontals; the parietals are below the maxillaries, and quite on the side; the symphysis of the lower jaw is extensive, and the bone is light and hollow. The cervical vertebræ, 7 in number, are very thin, and united together in the different genera; the dorsals are 13, with as many pairs of ribs, their articular processes becoming effaced by age, commencing posteriorly, and the transverse being about as long as the spinous processes; the lumbar vertebræ are 18, with very long transverse and spinous processes; a sacral vertebra can hardly be said to exist, as the pelvis consists of a rudimentary bone on each side suspended in the muscles; the caudal vertebræ are about 28, gradually decreasing in size, the transverse processes disappearing about the 16th, and the spinous about the 20th; exclusive of the cervicals, there are about 60 vertebræ in all; the V-shaped bones on the under surface of the bodies begin about the 6th caudal. The breast bone is composed of 3 bones, the 1st very wide, grooved in front, and usually pierced with a hole; the shoulder blade is fan-shaped, slightly concave; the clavicle is absent; the pectoral fin is composed of a very short humerus, with a large

upper tuberosity, its lower extremity compressed antero-posteriorly, and uniting by a cartilaginous articulation on an irregular line with the bones of the forearm; the latter are almost rectangular, short and flat, the radius in front and the widest; the bones of the wrist, 6 or 7 in number in 2 rows, form a flat pavement-like surface united by cartilage to the radius and ulna; there is a mere vestige of thumb, according to Cuvier, the index finger being the longest and having 9 articulations with its metacarpal bone and phalanges, the 3d with 7, the 4th with 4, and the 5th a mere tubercle. This anatomical description will answer generally for dolphins and porpoises, and the allied genera. Dolphins are among the swiftest of cetaceans, and their speed is owing to the strokes of the powerful tail; the pectoral fins serve merely to balance and guide the body, and to carry the young. The eye and ear are constructed on the mammalian type; the nasal passages seem destined only for the expulsion of water from the mouth and for the introduction of air into the lungs, and are generally considered as not endowed with an average sense of smell; the allied sense of taste must be very imperfect, and the sensibility of the naked skin low. The teeth are formed only for seizing and retaining prey, which is swallowed whole. Authors differ as to the stomach, some making it single, but most dividing it into 3, 4, or 5 compartments more or less complicated; the intestine is simple, 10 or 11 times as long as the body, and gradually diminishing in size from the stomach to the anus. As the dolphin, like the other cetacea, is not a fish but an air-breathing mammal, warm-blooded, viviparous, and suckling its young, its respiration must be carried on by the usual mechanism of lungs, diaphragm, ribs, and respiratory muscles. Though shaped like fishes, inhabiting the water exclusively, and moving in the same manner with them, it must come to the surface by means of its horizontal tail, and take in air through the single spiracle on the top of the head, which it can do when the mouth is full of water by means of the upward prolongation of the larynx into the nasal passages, and the shutting off of its cavity by muscular action from the mouth and œsophagus; the external opening of the spiracle is guarded by a valve, which prevents the entrance of water when the animal plunges beneath the surface. The water which is taken into the mouth with the food can be made to pass out in a jet from the spiracle, by the closing of the pharynx, and the forcing of the liquid into the nose through the passage in which the larynx is elevated during respiration. Under the skin, in front of the nostrils, are 2 large cavities covered with muscles; into these the water is sent, and remains until the animal chooses to eject it; then, closing a valve at their entrance, the water is sent forth by the contraction of the muscles. The dolphin family make a feeble moaning or plaintive noise, which has often been noticed when they have been stranded alive. The circulation is carried on as in other mammals; only, in order to enable them better to remain under water, there is a plexiform arrangement of the arteries within the chest and near the spine, which serve as reservoirs of pure blood during immersion; these do not communicate directly with veins, and their contents can be taken into the circulation as circumstances require. The reproductive organs are the same as in other mammals, and their functions are similarly performed; the testes are within the abdomen; the prostate gland is large, but the seminal vesicles are absent; the mammæ are 2, with the nipples concealed in a fold of skin, except during lactation, when they protrude on each side of the genital opening. The kidneys are made up of many small glands united. The brain is very wide, the hemispheres however covering only a portion of the cerebellum; the convolutions are numerous and complicated, but narrow; the olfactory lobes seem to be wanting; the cerebellum is well developed, with distinct median and lateral lobes. This great cerebral development affords some ground for the ancient belief in the superior intelligence of the dolphin; the history of this animal, sacred to Apollo, though encumbered with fabulous and superstitious accounts, doubtless contains much truth which whale-hunting moderns have not cared to examine.—As the dolphin family till recently included all ordinary cetaceans with small heads, the divisions which have since been made are very numerous, and no system of classification as yet offered can be called natural; in this condition of cetology, it would be out of place to attempt here to introduce order into this class of animals; such only, therefore, as would not come more properly under whales, porpoises, and other popular titles, will be briefly alluded to; those who wish to pursue the subject into its details can consult the writings of Lacépède, the Cuviers, De Blainville, Lesson, Eschricht, Gray, and others. At the head of the list is the common dolphin (*D. delphis*, Linn.); this, from the shape of the beak, is vulgarly called the "goose of the sea;" it was the *hieros ichthys* (sacred fish) of the ancients, the favorite of Apollo (whose most famous oracle bore its name), and the supposed benefactor of man; it is seen on very ancient coins and medals, and formed a conspicuous object on the coat of arms of the princes of France; from it was named the province of Dauphiné, which gave the title to the heir apparent to the French throne. It attains a length of from 6 to 10 feet, and its proportions are admirably adapted for the speed which is its characteristic. The color is dark on the back, grayish on the sides, and satiny white underneath. The geographical range of this species is extensive, embracing the seas of Europe, the Mediterranean, and the northern and temperate Atlantic; other species are found in the seas of America, Asia, and Africa. Vessels frequently meet them in large numbers, shooting under the bows, springing out of the water, and playfully racing with their

fellows; their speed is such that the swiftest sailing vessel seems stationary beside them. The dorsal fin is about 9 inches high, a little behind the middle of the back; the pectorals, about 2 feet from the snout, are somewhat longer than the dorsal, narrow and rounded; the tail is crescent-shaped, with a notch in the middle, and about a foot wide; the jaws have from 32 to 47 teeth on each side, according to age, simple, conical, largest in the middle of the series. During rapid motion the tail is bent under the body, and then suddenly brought into a straight line. The dolphin is voracious, living principally upon fish, which it boldly pursues, even into the midst of the fishermen's nets. F. Cuvier is inclined, with the ancients, to consider it an intelligent and docile animal; seeing in the fabulous stories of antiquity the symbols of hidden truth, he thinks an examination of the habits of the dolphin will disclose to naturalists a foundation in fact for the supposed intelligence of this species. In former times the flesh of the dolphin was as much esteemed for food as it is now neglected; in the 16th century its price was so high that it was only seen on the tables of the rich; in the time of Dr. Caius, the founder of the college of that name at Cambridge, a dolphin was thought a worthy present for the duke of Norfolk, who in turn distributed it to his friends, who roasted and ate it with porpoise sauce; in France, the dolphin could be eaten by Roman Catholics, especially during Lent, without sin; at that time all cetaceans were considered fish, though really their flesh was as much meat as that of the ox or sheep; the meat is dark-colored, palatable and nutritious, and is now often eaten by seafaring men on long voyages. The *D. tursio* (Fabr.), the *nesarnak* of the Greenlanders, has a thick body, a flattened, short beak, obtuse teeth, a dorsal fin, and a blackish color, except a small part of the abdomen, which is whitish; it attains a size of 9 to 15 feet, has from 88 to 100 teeth, and inhabits the Atlantic from the shores of Europe to those of Greenland; it is less active than the common dolphin. Another name for it is the bottle-nosed dolphin or whale. Other dolphins are the lead-colored dolphin (*D. plumbeus*, Dussumier), about 8 feet long, of a leaden-gray color, rather sluggish in its movements, with about 136 teeth, found on the coast of Malabar, near the shore, where it pursues the pilchards; the bridled dolphin (*D. frenatus*, Duss.), less than 6 feet long, having on the ash color of the cheeks a black band extending from the angle of the mouth below the eye, found in the neighborhood of Cape Verd; the eye-browed dolphin (*D. superciliosus*, Lesson), about 4 feet long, of brilliant blackish-blue color above, silvery below, with a white streak over the eye, found in the neighborhood of Cape Horn; the *funenas* of the Chilians (*D. lunatus*, Less.), about 3 feet long, with a slender beak, fawn-colored above, white below, with a dark brown cross on the back, in front of the dorsal fin, numerous in Conception bay. Among the *delphinidæ* which would not be better described elsewhere, is the genus *delphinapterus* of Lacépède, having no dorsal fin, and a slender transversely flattened beak, separated from the cranium by a deep furrow. Péron's dolphin (*D. Peronii*, Cuv.) is about 6 feet long, elegant in form and proportions, of a deep bluish-black color above, with the snout, sides, pectorals, abdomen, and part of the tail silvery white; the teeth are about 39 on each side of each jaw; like the rest of the genus, it is found in high southern latitudes. The allied genus *beluga* (Bon.) has an obtuse, conical, and rounded head, without prominent beak, and without dorsal fin. The whitefish, or white whale (*B. borealis*, Less.), is a very swift dolphin, of a beautiful cream-white color and symmetrical shape, not unlike in its general outline the new steamship of the Messrs. Winans of Baltimore, that is, a double cone, of which, however, one end is shorter and less sharp than the other in the cetacean; the length varies from 12 to 20 feet; the teeth, according to Cuvier, are $\frac{9\text{-}9}{9\text{-}9}$; being well covered with fat, it is sometimes chased by coast whalers, especially about the mouths of rivers, where it feeds upon the cod, haddock, flounder, and other fish; it is essentially an arctic species, though it descends to the temperate regions of both hemispheres; it has been seen in the river St. Lawrence as high up as Quebec. The genus *globicephalus* (Less.) includes the *D. globiceps* (Cuv.), commonly called the deductor, social, bottle-head, or howling whale; it resembles the *beluga* in the shape of the head, but differs from it in having a dorsal fin; the length is from 16 to 24 feet, and the general color of a shining jet black; the teeth are from 20 to 28 in each jaw; its favorite resort is the northern temperate ocean, in both hemispheres; it is included by Dekay in the fauna of New York; it is remarkable for its sociable disposition, herding together in great numbers, apparently following a leader, and easily driven upon beaches; the proper name is *globicephalus melas* (Less.); some species of the genus have been found in the Mediterranean. The grampus and the porpoise will be described under their respective titles. The heterodons of De Blainville, in which the teeth are absent or very few, though belonging to the *delphinidæ*, are generally called whales, and will be better introduced with them; they include the genera *diodon* (Linn.), or 2-toothed whales, *hyperoodon* (Cuv.), with protuberances on the palate, *aodon* (Less.), the toothless whale (by Gray considered synonymous with the last), and *monodon* (Linn.), or narwhal. The long-beaked dolphins (*delphinorhynchus*, Lacép.) are distinguished by having a prolonged snout, thin and narrow, not separated from the cranium by a furrow; the straight jaws are furnished with numerous sharp teeth, and the dorsal fin is single; some of the species attain the length of 36 feet. The best known species (*D. micropterus*, Cuv., and *D. Sowerbyi*, Desm.) is remarkable for the snout being 4 times the length of the cranium,

and for the curvature upward and forward of the posterior part of the intermaxillaries, carrying with them the maxillaries, frontals, and occipital; it is a northern species, and has been found stranded on the English and French coasts. There are 2 remarkable genera of fresh-water dolphins, one of which, the dolphin of the Ganges (*platanista Gangetica*, Gray.), will be described under Soosoo, the Bengalee name. The other is the Bolivian dolphin (*inia Boliviensis*, D'Orb.), found in the tributaries of the Amazon and the neighboring streams and lakes, even to the foot of the Andes; the beak is long like that of the dolphin, but cylindrical, bristled round with strong hairs, and obtuse at the end; the teeth are about 134, resembling incisors in front and molars behind; the body is short and slender, the pectorals large, the dorsal small and behind the middle of the back; the skin is fine and smooth; the average length of the adult is about 7 feet; the color varies from a pale blue to a blackish color above, and is rosy beneath. It comes frequently to the surface, and is comparatively slow in its movements; its food consists almost entirely of fish, which are devoured with the snout above water; it is killed by the natives for its oil. This curious animal seems to form an intermediate type between the carnivorous and the herbivorous or sirenoid cetaceans. The *delphinidæ* are of little value to the whaler, as they are difficult to catch from their speed and strength, and their covering of fat is much less than in the whales. Near the mouths of rivers and on the coasts herds of them are occasionally hunted with profit for their oil and their skins, and in high northern regions even for food. Many genera of *delphinidæ* inhabited the seas during the tertiary epoch, some very like the present dolphins, others very different from them. Their fossil remains are found abundantly in the miocene, pliocene, and diluvial strata of America and Europe. —The name of dolphin was long ago given by Dutch navigators to a scomberoid fish of the genus *coryphæna* (Linn.), inhabiting the Mediterranean and the seas of warm and temperate regions. The genus has no detached finlets, no isolated dorsal spines, and no armature on the tail; the body is moderately long, more or less compressed, and covered with small scales; there is a single dorsal fin, with flexible rays, extending from the head to near the caudal; the ventrals are thoracic. The generic name is derived from κορυφη, summit, in reference to the elevated shape given to the forehead by a bony crest of the interparietal and frontal which rises between the intermaxillaries and extends to the occiput; this gives a trenchant aspect to the head, with a very convex facial profile; the eyes consequently seem low. The mouth is large, having card-like teeth on the jaws and palatal bones. The dolphin of the Mediterranean, so famous for the beauty of its colors when dying, is the *C. hippurus* (Linn.). Most writers, and especially the poets, have followed the Dutch error as to the name of this fish, and the term dolphin by sailors is taken away from the cetacean and given to the scomberoid. This species grows to the length of about 5 feet; the colors are bluish green above, with azure and golden reflections, and citron yellow below, with pale blue tints; the pectorals are partly leaden and partly yellow, the ventrals yellow below and black above, the anal yellow, and the iris golden. In the Atlantic is the *C. equisetis* (Linn.), with a shorter body and more elevated head. On the coast of South America is the *C. dorade* (Val.), from the name given to the genus by the Portuguese. About a dozen other species are described in different parts of the globe. They are exceedingly active, strong, and voracious, pursuing the flying fish, forcing them to leave the water, and seizing them as they descend into it again. Their beauty is not confined to the dying state; when following vessels, as they often do, nothing can be more beautiful in a calm sunny day, in the clear water of mid ocean, than to see these brilliant creatures darting around the vessel, displaying their ever-varying tints of golden, blue, and green, with every movement. They gather around any floating object, and are readily caught by a hook or harpoon; when brought upon deck the beautiful play of rapidly changing colors commences, which has caused the poet to say:

> Parting day
> Dies like the dolphin, whom each pang imbues
> With a new color as it gasps away,
> The last still loveliest, till 'tis gone, and all is gray.

These colors are produced, as in the chameleon and the cuttle-fish, by changes in the surface by muscular action, as may be seen by the constant undulation of the long dorsal fin. (See Chameleon.) The flesh of this fish is considered good food; it is white, though rather dry. Sailors have an idea, which is probably true, that it is sometimes unwholesome and even poisonous, and they are in the habit of boiling a piece of silver money with the fish to detect the fact; if the piece be tarnished by the boiling, the fish is rejected; if it remain bright, it is considered fit for the table.

DOMAIN, or Demesne (mediæval Lat. *domanium*, the dominion of the lord), in England, lands retained by the great landed proprietors for their own use; the *terræ dominicales* or demesno lands being occupied by the lord or *dominus manorii;* the other or tenemental lands being distributed among the tenants. The demesne lands of the king, *terræ dominicales regis*, which were at an early period very large, and to which additions were made by forfeitures and otherwise, had been, at the time when Blackstone wrote, almost entirely alienated; but as a portion of them were not conveyed absolutely in fee, but upon long leases, they will revert to the crown upon the expiration of those leases. The principal importance of the royal demesne lands grows out of certain incidents that at an early period attached to the estate of the tenants of those lands. The tenure by which such estates were held is designated by old writers as ancient demesne; and to some extent it still continues to

exist. Strictly, lands so held were copyhold, and as such were excepted by the statute 12 Charles II. c. 24, by which military tenures were abolished. One incident, showing that the tenure was originally a species of villenage, is that the lands do not pass by the common conveyances, but by surrender to the lord in the manner of copyhold estates, for certain uses mentioned in the surrender, and a new grant by the lord in pursuance thereof to the *cestuy que use*.—The public domain of the United States is almost beyond calculation. According to the report of the secretary of the interior, made in Dec. 1858, there were on Sept. 30, 1858, on sale at the different land offices over 80,000,000 acres of land, and an additional amount of nearly 62,000,000 acres had been surveyed, and was ready to be brought into market. Prior to the same period more than 55,000,000 acres had been selected and reported as inuring to the several states under acts of congress of 1849 and 1850, granting to such states the swamp and overflowed lands within their respective limits, to enable said states to reclaim them for cultivation.—In France, the term domain is applied to all public property, whether personal or real, which is classified as follows: 1, *domaine de l'état*, which includes highways, harbors, fortifications, forfeited estates, &c.; 2, *domaine* or *dotation de la couronne*, to which belong palaces, gardens, forests, farms, crown jewels, and the like; these constitute the separate property of the crown, but are inalienable; 3, *domaine privé*, the private estate of the sovereign, which he holds and can dispose of the same as any subject, by will or otherwise; but if not disposed of at his death, it is merged in the domain of the crown and passes to his successor.

DOMAT, or Daumat, Jean, a French jurist, born in Clermont-Ferrand, Nov. 30, 1625, died in Paris, March 14, 1696. For 30 years he was king's advocate at Clermont. His great work was published in 1694, under the title of *Lois civiles dans leur ordre naturel* (English translation by W. Strahan, 2 vols. fol., London, 1737; edited by L. S. Cushing, 2 vols. 8vo., Boston, 1850). Domat is called by Victor Cousin "incomparably the greatest jurisconsult of the 17th century," and by Boileau "the restorer of reason to jurisprudence." The intimate friend of Pascal, and his associate in many of his experiments in natural philosophy, he was distinguished for his taste for mathematics and philosophical pursuits as well as for his legal attainments.

DOMBROWSKI, Jan Henryk, a Polish general, born in Pierszowice, Aug. 29, 1755, died in Winagora, June 26, 1818. He entered the army under Prince Albert of Saxony in 1770, afterward joined the Polish forces commanded by Prince Joseph Poniatowski in the campaign against the Russians in 1792, served with distinction in 1793, took part in the insurrection of 1794 under Kosciuszko, but was compelled to surrender after the fall of Warsaw. Having rejected flattering offers from both Russia and Prussia, he accepted a commission from the French directory in 1796 to enroll a Polish legion at Milan, and after serving with honor in the Italian campaigns under Napoleon, Gouvion Saint Cyr, and Masséna, entered the service of the Cisalpine republic in 1802. In 1806 he joined Napoleon at Berlin, published a famous proclamation calling upon the Poles to rise, and soon entered Warsaw in triumph at the head of two national divisions. In the battle of Friedland, to the favorable issue of which he greatly contributed, he was wounded; in 1809 he fought with Poniatowski against the Austrians; in the Russian campaign of 1812 he commanded a division of the grand army; in 1813 his Poles fought bravely in Germany, particularly at Leipsic; and on the creation of the kingdom of Poland he was raised by the czar Alexander to the rank of general of cavalry and senator palatine. He left his memoirs to the society of the friends of science at Warsaw. His name is inscribed on the *arc de l'étoile* at Paris.—His son, Bronislaw, took part in the Polish insurrection of 1848 in the duchy of Posen.

DOME (Gr. δομος, δωμα, building; Lat. *domus*, a house; mediæval Lat. *doma*, a cupola), a concave covering to a building or part of a building. The Italians apply the term *il duomo* to the principal church of a city, and the Germans call every cathedral church *Dom;* and it is supposed that the word in its present English sense has crept into use from the circumstance of such buildings being frequently surmounted by a cupola. Some writers on architecture restrict the term dome to the convex surface of the roof, and cupola (It. *cupo*, deep) to its concave part. The dome may be a segment of a sphere, spheroid, ellipse, polygon, or any similar figure, but in all cases every horizontal section should have a common vertical axis; it is called surmounted when it rises higher than the radius of its base, surbased or diminished when its height is less than the radius of its base. The thickness should increase toward the base, where the structure is weakest, and where the spreading force of the superincumbent weight tends to burst the dome outwardly. To counteract this pressure, iron hoops or chains are often employed. When built of stone the dome is stronger than the arch, as the tendency of each of its parts to fall inward is resisted not only by the parts above and below it, but also by those on each side. The constituent pieces are formed somewhat like the frustum of a pyramid, so that when placed in their positions their 4 angles may point toward the axis of the dome. Each course is thus self-supporting, and not only may the whole be constructed without centring, but an aperture, called the eye, is frequently left in the top without damage to the security of the structure.—The dome seems to have been invented by the Romans or Etruscans, and in the time of Augustus was a common feature in Roman architecture. There is no proof that the Greeks or Egyptians had any knowledge of it, nor is it found in any of the early monuments of Hin-

dostan, but after the Mohammedan invasion of India it was generally adopted in that country. The grandest dome that has remained to us from antiquity is that of the Pantheon at Rome, which, though nearly 19 centuries have passed over it, retains all its stability and magnificence of proportions. Its exterior presents the appearance of a truncated segment of a sphere, considerably less than a hemisphere, and has a circular opening in the top 28 ft. 6 in. in diameter. The base consists of a large plinth, with 6 smaller ones above it. It appears that originally there were flights of steps at intervals all around the dome leading up to the eye, but only one such means of ascent is now visible, the others having been covered with lead. The interior is a hemisphere of about 71½ ft. radius, and the distance from the floor to the top of the dome is equal to the diameter. The thickness is 17 ft. at the base, 5 ft. 1½ in. at the top of the highest plinth, and 4 ft. 7 in. at the eye. The ceiling is ornamented with 5 rows of quadrilateral compartments converging toward the top, each large compartment having 4 smaller ones sunk one within another, which were probably once ornamented with plates of silver or covered with bronze. The dome is built of brick and rubble, and rests on a circular wall 20 ft. thick. The baths of ancient Rome afford many examples of this kind of roof: those of Diocletian had 3 domes, 2 of which remain; and those of Titus are crowned by 2, each 84 ft. in diameter. Near Pozzuoli may be seen an ancient circular building with a dome of volcanic tufa and pumice stone, and the temple of Minerva Medica had a polygonal dome of 10 sides, constructed of pumice stone and brick. That of the famous church of St. Sophia at Constantinople was built in the reign of Justinian, with the professed design of rivalling the glory of the Pantheon. The plan of the church was a cross, and at the angles of the square where the transepts cut the nave, the architect placed 4 columns at a distance of about 115 ft. apart, and over them threw arches. The triangular spaces at the corners were then filled up to a level with the extradoses of the arches, and on the ring thus formed the dome was built. In ignorance of the principle of hooping, the builder resorted to various expedients to resist the lateral pressure of the superstructure, and after it had twice fallen in, was obliged to fill up the large arcades on the N. and S. sides with 3 tiers of small arches. This dome was destroyed by an earthquake a few years after its completion. The present one is of nearly the same diameter (115 ft.), 40 ft. high, supported by corbellings at the angles of the square, and encircled by a row of windows with exterior columns. It is surmounted by a lantern. The church of St. Mark at Venice, built about 973, has 5 domes; the central one, which is much larger than the others, was hooped with iron in 1523. The dome of San Vitale at Ravenna consists of a hemisphere resting on an octagon with 8 piers at its angles, and a window on each face. The great dome of the church of Santa Maria del Fiore, the cathedral of Florence, was begun by Arnolfo di Lapo or Arnolfo di Cambio da Calle about 1298, but after the death of the original architect about 1300 no one could be found for 120 years to finish his work; it was finally undertaken by Filippo Brunelleschi, who brought it nearly to completion. He improved somewhat upon the original design by carrying up perpendicular walls in the shape of an octagon to a height of 175 ft., and upon these placing 2 concentric domes, the internal one being 138 ft. 6 in. in diameter and 133 ft. 6 in. high, from the top of the internal cornice of the supporting walls to the eye of the lantern. This is the first double dome with which we are acquainted. That of St. Peter's at Rome, the grandest in the world after that of the Pantheon, is also double. It stands upon 4 piers, each 61 ft. 11 in. high and 30 ft. 10 in. thick, from which spring arches supporting corbellings finished by an entablature. The entablature upholds a plinth, circular within and octagonal without, and on the latter rests a circular stylobate 28 ft. 6½ in. thick and 12 ft. 4½ in. high, divided into 3 parts by passages, forming flights of steps communicating with 4 spiral staircases in the thickness of the wall of the drum, which rises immediately from the stylobate. The drum is pierced with 16 windows, between which are a corresponding number of solid buttresses 51 ft. 6 in. high. Above it is placed a circular attic 19 ft. 2½ in. in height, and on this rests the great double dome, the internal diameter of which at the base is 138 ft. 5 in. and the external 148 ft. To the height of 27 ft. 8 in. the dome is solid. Its curve describes externally the arc of a circle whose radius is a little over 84 ft., and its height from the attic to the top of the internal dome is 83 ft. 10 in. It is pierced outwardly by 3 rows of small windows and strengthened by 16 projecting vertical bands. The whole is crowned by a lantern resting on a platform surrounded by an iron railing and having a cross on the top, the height from the external plinth of the dome to the cross being 263 ft. The top of the cross is 430 ft. above the ground line. This great work was planned by Michel Angelo, who died before its completion, and was finished under the pontificate of Sixtus V., who caused the exterior to be covered with lead, and the bands with bronze gilt. Owing to the haste with which the work was pushed forward the domes settled vertically in many places, and the band of iron around the inner dome was broken. Six iron circles were consequently placed around the outer dome, secured in their places by iron wedges, and the fractured hoop was repaired. The dome of St. Paul's, London, built by Sir Christopher Wren, is double, and rests on an attic and a drum placed on 4 great arches over the intersection of the 4 naves. The external dome is of wood, covered with lead, and ornamented with panels formed by projecting ribs. It is surmounted by a lantern supported on a conical tower terminated by a spherical dome. The height of the tower

is 86 ft. 9 in., and that of the whole structure from the ground line is 365 ft. The diameter of the dome is 145 ft., and its internal height from the springing 51 ft. The dome of the Pantheon (or St. Geneviève's) at Paris is entirely of stone, and is supported by 4 triangular piers rising from the centre of a Greek cross. It is triple, having beside the inner and outer vaults an intermediate structure built for the purpose of carrying the lantern. The internal dome is 66 ft. 8½ in. in diameter at the springing; the external 77 ft. 8¾ in. The height of the edifice above the ground line is 190 feet. The new reading room of the British museum, opened in May, 1857, is covered by a magnificent dome 140 ft. in diameter and 106 ft. high. It is built principally of iron, with brick arches between the main ribs supported by 20 iron piers. Between the vaulting and the exterior covering of copper a space is left for the equalization of the temperature, and between the vaulting and the inner decorated ceiling there is a similar air chamber for purposes of ventilation. There are 20 large windows around the base of the dome, and an eye in the top 40 ft. in diameter. The new cast-iron dome of the capitol at Washington has a height of about 55 ft., and an internal diameter of 94 ft. 9 in. The height of its ceiling from the floor of the building is 200 ft. The exterior of the structure presents a peristyle 124 ft. 9½ in. in diameter, with columns 27 ft. high, from which springs an attic 44 ft. high, supporting the great dome of a semi-ellipsoidal form, the top of which is 230 ft. above the pavement. Above this rises a lantern, 52 ft. high and 17 ft. in diameter, crowned with a bronze statue of Freedom 18 ft. high. In the interior there is a vertical wall raised upon the cornice of the rotunda, with a panel 9 ft. high richly sculptured; above this is a series of attached columns and large windows, and above these springs a dome which, contracting to a diameter of 65 ft., permits a second dome, 73 ft. in diameter, resting also on a colonnade, to be seen through the opening.—Domes are sometimes made convex below and concave above, in which form they take the name of Moresque, Turkish, or Hindoo. In Russia they are very frequently built of a bulbous shape, somewhat like an onion. The Isaac's church at St. Petersburg, built by the czar Nicholas, is surmounted by an iron dome covered with gilded copper, with a small rotunda rising from its centre.

DOMENICHINO, or Domenico, Zampieri, an artist of the Bolognese school, born in Bologna in 1581, died in Naples, April 15, 1641. His first master was Dionysius Calvart, from whose tyranny he took refuge in the school of the Carracci, of which, in spite of a natural timidity and a slowness which his fellow pupils attributed to stupidity, he was eventually considered the most distinguished pupil. Nicolas Poussin even ranks him next to Raphael. He lived apart from men, and rarely went abroad save to make studies for future use. After studying the works of Correggio at Parma, he joined his master, Annibale Carracci, at Rome, and assisted him in decorating the Farnese palace. He soon after received commissions from Cardinals Borghese, Farnese, Aldobrandi, and others, for whom he painted works which increased his reputation, but unfortunately raised about him a host of enemies whose bitter persecutions rendered his life miserable. His celebrated picture of the "Communion of St. Jerome," now in the Vatican, which has been called second only to Raphael's "Transfiguration," was discovered to bear a slight resemblance to a composition on the same subject by Agostino Carracci, and Lanfranco, a former fellow pupil, took advantage of the fact to decry the picture and the artist. Domenichino was finally compelled by the jealousy of his rivals to retire to Bologna, whence he was recalled by Gregory XV. in a few years to become principal painter and architect in the pontifical palace. He here renewed his triumphs, and at Naples, whither he was invited to paint the chapel of St. Januarius, increased his reputation. His enemies, however, left him no peace, and he died before the completion of his work, not without suspicion of poison. Among his chief works are the "Four Evangelists," in S. Andrea della Valle at Rome; "Adam and Eve," the "Martyrdom of St. Agnes," and "Diana and her Nymphs." His fresco paintings, of which the scenes from the life of the Virgin in the Duomo at Fano are the best specimens, are admirable. His landscapes, although of rather a decorative character, are uniformly good. He never wholly freed himself from the mannerism of his school, and was defective in invention; but in artlessness, in the free conception of nature, and in the expression of emotion, he approached nearer Raphael and his contemporaries than any of the eclectics. Many of his works have been engraved by Raphael Morghen and others.

DOMESDAY (or Doomsday) BOOK, or Book of Winchester, a register of the lands of England, framed by order of William the Conqueror. According to some historians it was begun in 1080 or 1083, according to others at the close of 1085; the book itself records its completion in 1086. Persons called the king's justiciaries visited in person or by deputy the greater part of the kingdom, and obtained the required particulars on oath from the sheriffs, lords of manor, parish priests, reeves of hundreds, bailiffs, and villeins of each vill. The record contained a list of the bishops, churches, religious houses, great men, king's manors, king's tenants *in capite*, and under tenants; the particulars of the name of each place, its holder, its extent, the extent of wood, meadow, and pasture, the ponds and mills, the quantity of live stock, the value of the whole, the homages of each manor, the number of villeins, *cotarii*, *servi*, and freemen, and how much each freeman or soc-man had. Three estimates of the estates were made, viz.: as they were in the time of Edward the Confessor; as they were bestowed by William; and as they were at the time of the survey. The jurors were, more-

over, required to state whether any advance could be made in the value. The returns of the justiciaries were sent to Winchester, and being there digested were entered in 2 volumes, which were carried about with the king and great seal, or deposited in a chapel or vault of the cathedral called *Domus Dei*. From the last circumstance the name Domesday is thought by some to be derived. Others ascribe it to a parallel drawn between the decisions of the book and those of the day of doom. The first volume, called the "Great Domesday," consists of 382 folio pages closely written on vellum, and contains the survey of 31 counties; the second, or "Little Domesday," is in quarto, of 450 pages, and comprises the returns from Essex, Norfolk, and Suffolk. It has also a list of "invasions," or lands possessed without royal authority. Neither Northumberland, Cumberland, Westmoreland, nor Durham appears in the record, for which various reasons are assigned. Other counties are described, either wholly or in part, under adjacent divisions. No account is given of Winchester or of London. As a census of the population the Domesday book is of no value, but with regard to the ancient tenure of lands its authority is supreme. It names only 1,400 tenants *in capite* and 8,000 under tenants, and mentions a total population of 282,242. The book is now preserved in the chapter house at Westminster. A facsimile of it was published by order of government in 1783, having been 10 years in passing through the press, and in 1816 the commissioners on public records published 2 supplementary volumes, one containing a general introduction to the survey with indexes, and the other the 4 similar records called the "Exon Domesday," the *Inquisitio Eliensis*, the *Liber Winton*, and the "Boldon Book," or survey of Durham. The last of these was made by Bishop Hugh Pudsey in 1183; the *Inquisitio Eliensis* is of the 13th century; the others are contemporary with the Domesday book. In the exchequer office there are 2 other large volumes under the latter title, which are merely abridgments of the original register. Many interesting particulars relating to the survey are found in Kelham's "Domesday Book illustrated" (8vo., London, 1788); and a work on the same subject has lately been published by Mr. James F. Morgan ("England under the Norman Occupation," London and Edinburgh, 1858).

DOMICILE, the place where a man is deemed by law to reside, which is not always the place of his actual residence. There has been much confusion and even conflict of judicial opinion as to what constitutes a domicile. The difficulty has arisen from the application of the term in various relations involving diverse considerations of public policy. Instead, therefore, of attempting to institute a general rule which shall comprehend all the different senses in which the term is used, which is clearly impracticable, we shall limit ourselves to an exposition of the principles by which the question is determined in different cases.

1. It is recognized as a general rule that a person who is residing in a foreign country for commercial purposes will be deemed a subject of that country in respect to all the incidents of that relation, as regulated by the laws of nations, in time of war, whether the country of his residence be belligerent or neutral. Thus, if he reside in a country which is at war with another, his property will be lawful prize as belonging to a belligerent; or if the country be neutral, he is entitled to the privileges of a neutral in respect to *bona fide* trade. The residence which gives this neutral right is sometimes spoken of as a domicile, but it is obvious that the term as thus used has no other meaning than actual residence and engagement in business, which it will be seen will not *per se* constitute a domicile in respect to other legal incidents. A single exception is made in the case of a person who leaves his own country *flagrante bello*, it being thought inconsistent with his natural allegiance that he should be permitted to enter into neutral relations with the enemy after war had actually commenced. Upon the same principle greater strictness would probably be insisted upon in regard to the nature of the residence when the question was between the emigrant and his native country, even if he went abroad before the breaking out of hostilities; yet it is difficult to see how it could even in that case be required that a domicile should have been acquired other than results from actual residence abroad for *bona fide* business purposes.
2. In the class of cases where the question is as to the civil rights of a foreign resident, or the legal rule applicable to his property, it becomes necessary to ascertain with certainty the domicile. Thus, in case of intestacy, the distribution of his property will not be according to the laws of the place where he may be temporarily abiding, but will be determined by the law of the place of his domicile; and the best test where that is to be found is by assuming it to be where it is shown to have been at any former period until a new domicile is proved to have been substituted. The cases are often exceedingly difficult of distinction, and it is more usually a question of fact than of legal construction. The intention is what must determine, but this is for the most part to be got at only by incidental circumstances, and the reported cases have been decided, each upon their own circumstances, without furnishing any positive test of general application. The rule of the civil law that a man may have two domiciles, as where he resides a part of the year in one place and a part in another, or where he is carrying on business in two places, is repudiated in England and in the United States, though it was said by Lord Loughborough in the case of Bempde *vs.* Johnstone (3 Vesey, 198), that if the question were an open one, it admitted of a good deal of argument, whether in case of a person dying intestate and leaving property in two different places, it would not have been the better rule that the law of each place should control in the distribution of the property situated there. Nor is

the definition of domicile in the civil law of much practical use in the present changed relations of business and habits of life, although still retained by continental European jurists, and often quoted in English and American cases: *Ubi quis larem rerumque ac fortunarum suarum summam constituit, unde non est discessurus si nihil avocet, unde cum profectus est peregrinari videtur, quo si rediit peregrinari jam destitit.* (Cod. 10, 39, 1; Dig. 50, 1, 27.) It should be remarked that the law of the domicile is to be understood as affecting only personal property; real estate is subject to the law of the place where it is situated. So also the law of the domicile applies to the disposition of property by testament or otherwise, as well as to distribution upon intestacy. If a testament is executed according to the law of the place where a man is domiciled, it is sufficient to dispose of his personal property in another country, although not executed in the form required by the law of such country. In cases of insolvency, the distribution of assets will also be according to the law of the domicile; or rather the assets will be transmitted to the country of the domicile for distribution, except that the domestic debts, that is to say, such as are due in any place where the property of the insolvent is situated, will be first provided for; but it is not entirely settled whether they shall be preferred for the full amount, or shall be entitled only to the distributive share allowed by the law of the domicile. 3. In respect to what may be called statutory non-residence and the remedies given to creditors in such case, there is a good deal of confliction. Thus, in the state of New York an attachment may be issued against the property of any person not a resident of the state for the purpose of making distribution among the creditors generally. (2 Rev. Stat. 3.) Again, by the code an attachment may be issued in a suit against a defendant not a resident of the state, in which case it inures to the sole benefit of the plaintiff in the suit. (Code, § 227.) The apparent intention in both these cases was to provide a remedy where from the absence of the debtor there was none by the usual course of proceeding, and the question of domicile does not seem to be involved. Yet it has been held by some of the courts that a man who is daily in the city of New York attending to business, but goes at night to an adjoining state, and has his family there, is a non-resident within the meaning of the statute.

DOMINANT, in music, a name sometimes given to the 5th note or tone of any scale. The term is also used for dominant chord, or the common chord of which the 5th of any key or scale is the fundamental tone.

DOMINIC DE GUZMAN, a saint of the Roman Catholic church, founder of the order of preaching friars, born in Calavega, in Old Castile, in 1170, died in Bologna, Aug. 6, 1221. His lineage was illustrious. At the age of 14 he was sent by his uncle, the archpriest of Gumiel de Izan, to the school of Palencia, where he remained 10 years in the practice of strict asceticism. Martin de Bazan, bishop of Osma, summoned the young scholar to assist him in the reform of his diocese. Nine years were spent by him in preaching, exhortation, and correction of irregularities. This charge did not, however, confine Dominic to one place. He executed numerous missions, taught theology and hermeneutics in the university of Palencia, and in the quality of archdeacon visited the various churches in his province. In 1203 he was the associate of the bishop Diego, successor of De Bazan, in a diplomatic mission. The king of Castile, wishing to marry his son to the daughter of a northern prince, sent the bishop of Osma to negotiate the matter. The mission was successful, and on their return to Spain the same parties were designated to conduct the bride and her party to her new home. Her unexpected death defeated the plan, and instead of leading in a bridal journey, Diego and his friend could only follow a funeral. The course of their journeys had taken them through the land of the Albigenses, of whose number and obstinacy they had frequent evidence. So deep was their sense of danger to the church from this source, that when the death of the princess of Lusignan had rendered their mission fruitless, instead of returning directly to Spain they went to Rome to solicit from Innocent III. leave to remain in France and convert these erring brethren. This was readily granted, and a 2 years' dispensation from his episcopal duties was permitted to the bishop of Osma. Stopping at the abbey of Citeaux on their return, to consult with the monks upon the best way of destroying the heresy, they proceeded to Montpellier, where, in conjunction with the appointed Cistercian dignitaries, they commenced their work. The method of conversion at first followed was public conference. For 8 days Dominic and his friends disputed with the Albigensian teachers near Montpellier, 8 days more at Béziers, and 15 days at Montréal, converting some in every place, and in the last named place 150. According to the Dominican writers, miracles aided them. At Faureau, a writing of Dominic in defence of the Catholic faith, thrice cast into the fire, is said to have been thrice withdrawn uninjured; while a writing of the heretics, thrown in at the same time, was instantly consumed. In 1207 the joint mission of the Spaniards and Cistercians was closed by a conference in the castle of Count Raymond of Foix, whose wife and sisters were Albigenses. Various eminent converts were made; and then the bishop Diego returned to his diocese, and the Cistercian monks went back to their monastery, leaving Dominic in sole charge of the mission. The connection of Dominic with his Cistercian companions had not been altogether harmonious. His method had differed from theirs, and with the violent and sanguinary temper of the legate Peter of Castelnau he had no sympathy. This man was quite ready to employ the secular power in the extermination of heretics, and

when, in Jan. 1208, he was assassinated by a servant of Count Raymond of Toulouse, there were more to applaud the crime than to aid the avengers. The attempt to punish this crime was the signal for a bloody religious war. A new crusade was preached; Innocent urged the kings of France and England to forget their quarrels and combine against the Albigenses; and into the doomed region armies marched such as those which had fought in Syria against the Saracens. Raymond of Toulouse, protector of heretics, was stigmatized as a murderer, and his hereditary foe, Simon de Montfort, was allowed to ravage the province, to hale to death its tenants, and to ruin the heritage of this lukewarm son of the church. How far Dominic took part in these religious wars, is vehemently disputed. According to Sismondi, he directed these persecutions from the beginning. His latest biographers, on the contrary, offer documents to prove that Dominic had nothing to do with any acts of violence. The public opinion of several centuries has assigned to Dominic the fame of founding the inquisition, but his name is not mentioned in the decree of the inquisition which bears the date of 1215, and the special charge of the holy office was not intrusted to the Dominicans until 1233, 12 years after his death. This first crusade against the Albigenses lasted 7 years, from 1208 to 1215, when the surrender of Toulouse and the opening of its gates to the crusaders seemed for a time to close the war. A permanent memorial of Dominic in this period is the institution of the rosary, which has been of universal use among Catholics since his day. More than one before him had prescribed similar methods of prayer and meditation, but his method is the earliest of the kind that still remains in use. The great event of 1215 in the history of the church is the foundation of the order of preaching friars. When Dominic entered Toulouse with 4 associate priests, a rich citizen, Peter Cellani, offered his house for the use of the brethren, and with another citizen, Thomas by name, joined himself to their band; so that there were 7 in all, vowed to labor together for the conversion of souls. When the plan was submitted to the pope, he rather advised the reform of orders already existing. Finally, however, Dominic received permission to make rules for his desired order, although one of the canons of the 4th council of Lateran forbids the creation of any new religious order. The difficulty was evaded by the adoption for the new monastic body of the rules of St. Augustine, modified by the rule of the Premonstratensian convents, and on Dec. 26, 1216, two papal briefs formally established the order of preaching friars. The pope also now created the office of master of the sacred palace, to which he appointed Dominic. It is the duty of this functionary to take charge of all theological matters in the papal mansion, to nominate the preachers, to authorize the books, and to decide all minor questions of doctrine or discipline which may come up in the domestic circle of the pontiff. The duties of this office did not keep Dominic in Rome. He made journeys into Languedoc, into Spain, and as far as Paris, attending everywhere to the consolidation of his new brotherhood. In 1219 he preached in Paris, and so charmed the rude king of Scotland, at that time sojourning in the French capital, that at the request of this monarch, that northern land was added to the field which the preaching friars might occupy. In the same year his most important acquisition was made in the gift of the church of St. Nicholas at Bologna, and the enrollment of a large number of professors and dignitaries as members of the order. Henceforth Bologna became the chief Dominican centre, as it has ever been the goal of pilgrimage to all of the fraternity. Here the alternate general chapters of the order were held. The second chapter (1221) was the last meeting of the order that Dominic attended. His health now began to fail, and after returning from a visit to Venice, he was seized with a dysentery and fever from which he died. His body was buried under the pavement of the church of St. Nicholas, and in 1233 the remains, which were found to be perfect, were transported into the new church and interred in the south transept. The decree of canonization was passed July 4, 1234, and his anniversary is celebrated on Aug. 4. Nicolo di Piso decorated the tomb with bass-reliefs representing the miracles of the saint. Alfonso the Lombard added to them in the 16th century another series, and Michel Angelo crowned the gorgeous monument with a statue of St. Petronius. The church which covers this tomb now bears the name of St. Dominic. In the sacristy is a statue of the saint, carved from the wood of a cypress, which, according to the legend, the hand of the saint himself had planted.—The character of Dominic has been differently judged, according as it has been viewed from a Catholic or a Protestant standpoint. By the one party he is eulogized as a pattern of every virtue; by the other he is condemned as bigoted, cruel, and tyrannical. Commonly regarded as the founder of the inquisition, all the excesses of that tribunal have been imputed to him for guilt. There can be no doubt that he allowed bloodshed which he might have prevented, and that he loved orthodoxy more than peace. His consistency cannot be questioned. He was industrious, frugal, and temperate in his habits, and had a singular faculty of winning and holding the love of his brethren. Of his sermons and commentaries none are preserved, and all that now testifies to his literary or theological powers is the system of rules prescribed to the order, and a few epistles. Frequent allusions are made in the writings of the biographers to his notes upon the psalter, the epistles of Paul, and the Gospel of Matthew, but these are lost beyond recovery.—The life of St. Dominic has been written in Latin by D'Apolda, in Italian by Bottoni, in Spanish by Juan Lopez, in French by Father Touron (Paris, 1739), by the Bollandists, and by several others. See also *Vie de Saint Domi-*

nique, by Lacordaire (Paris, 3d ed. 1844), and *Saint Dominique et les Dominicains*, by Elme Marie Caro (Paris, 1853).

DOMINICA, a British West India island, one of the Lesser Antilles, Leeward group, 29 m. S. of Guadeloupe, in lat. 15° 18′ N. and long. 61° 32′ W.; length from N. to S. 29 m.; breadth 16 m.; area, 291 sq. m.; pop. 22,469 (according to the "American Almanac" for 1859), of whom only a small number are whites, the majority being emancipated slaves. It is of volcanic origin, and when viewed from the sea presents the appearance of a confused mass of mountains. The highest summit has an elevation of 5,300 feet. Dominica is well watered, having upward of 30 rivers and numerous rivulets. It has also sulphurous and thermal springs, and a deep lake on a high mountain 6 m. from Roseau. Interspersed among its mountains are many fertile valleys, with a black and rich soil well adapted for raising every tropical production. In 1850 the imports were valued at £57,656, and the exports at £58,265. The principal exports in 1853 were 65,788 cwt. of sugar, 35,794 gallons of rum, 81,016 of molasses, 67,594 lbs. of coffee, 69,296 of cacao, 3,525 of arrow root, 3,250 of cotton wool, 5,062 gallons of lime juice, and 1,354,020 oranges. The revenue amounted to £7,336 in 1855, and to £12,918 in 1856. The expenditures in the year ending Dec. 1, 1855, were £9,245, and in that ending Dec. 31, 1856, £10,487 (comprising £800 for educational purposes). There are about 10 free schools, but the bulk of the population being Roman Catholics, education is chiefly controlled by the clergy of that persuasion. The property annually created on the island has been estimated at £250,000, and the aggregate movable property at £1,500,000. The woods of Dominica swarm with bees, which produce great quantities of wax and honey. This is the European bee, much larger than the native bee of the West Indies, and must have been transported thither.—Dominica was discovered by Columbus in 1493; and being equally claimed by England, France, and Spain, it was considered a neutral island by those 3 powers till 1759, when it was captured by the English; and it was ceded to England by France in 1763. It was recaptured by the French in 1778, and again restored to England in 1783. Its government is administered by a lieutenant-governor, a council of 12 members appointed by the crown, and an assembly of 19 representatives chosen by the people. Capital, Roseau, on the S. W. side of the island; pop. about 4,000.

DOMINICAL LETTER, the letter denoting Sunday for a given year. The council of Nice, A. D. 325, established the rule that Easter Sunday should be the first Sunday after the full moon which happens upon or next after March 21. For the purpose of determining when Easter falls, and for other similar problems concerning the day of the week and the day of the year, it was early found convenient to place the first 7 letters of the alphabet in succession against the days of the months, putting A to Jan. 1, and repeating the 7 letters as often as necessary until Dec. 31. The letter which falls against the first Sunday in January will fall against every Sunday in the year, and this is the dominical letter for that year, unless it be leap year; and then, as Feb. 29 as well as March 1 is marked D, the dominical letter for the last 10 months of the year will be the preceding letter of the alphabet. To find the dominical letter will manifestly enable you to find what day of the week a given date in the year is. But the dominical letter, being known for any one year, can be found for any other, by simply remembering that an ordinary year is 52 weeks and one day, a leap year 52 weeks and 2 days, so that the dominical letter will go backward from G toward A, one letter for a common year and 2 for a leap year. This gives rise to an arithmetical rule for finding the dominical letter, which may be thus expressed: To the number of the year add ¼ of itself, neglecting fractions, and divide the sum by 7; then for the 19th century subtract the remainder from 8, or, if it is 0, from 1, and the new remainder will indicate the place of the dominical letter in the alphabet; for the 18th century subtract from 7; for the 17th century and back to 1582 subtract from 6, or if the remainder is more than 6, from 13; for dates previous to 1582 subtract from 3 or 10. (But it must be remembered that the dominical letter thus obtained for a leap year belongs to the time after Feb. 29, and that for the preceding 2 months the dominical letter was the succeeding letter in the alphabet.) This new remainder is also the date of the first Sunday in January for that year. The same date in February will fall on Wednesday; in March, on Wednesday; in April, on Saturday, &c.; as may easily be seen from the fact that the first days of the 12 months have annexed to them in the calendar the initials of the words: At Dover Dwell George Brown, Esquire, Good Christopher Finch, And David Friar. For example, the day of the week on which New York was incorporated, June 12, 1665, is thus found: $(1665+416)\div 7=297$, with a remainder of 2; and, it being the 17th century, $6-2=4$, which shows the dominical letter for that year to have been D. Then, as June begins with E, it is plain that June 1, 1665, was Monday, and the 12th was Friday.

DOMINICAN REPUBLIC, the eastern portion of the island of Hayti, comprising nearly ⅔ of the island. Its name is derived from the ancient Spanish appellation of the island, San Domingo. Its area is estimated at 17,500 sq. m. Its population is about 136,000, of whom one-tenth claim to be whites; the rest are of African descent, or of mixed African and European. The boundary between it and the Haytian republic is an irregular line drawn from the mouth of the river Massacre on the north coast of the island to the river Anses-à-Pitre or Pedernales on the south coast. The interior of the republic consists of mountain ranges, rising to an elevation of 6,000 to 8,000 feet, and covered with magnificent tropical forests. From the

base of these mountains large plains, watered by numerous streams, stretch toward the coast. Of these plains the Vega Real (Royal plain), and those of the Jayua, the Azua, and the Neybo, are the most densely populated. Among the rivers, most of which bear the character of mountain torrents, the Great Yaqui, emptying into the bay of Monte Christo, the Yuma, whose embouchure is in the bay of Samana, the Higuey, the Gaboon, Soco, Socaris, Brujuelas, Ozoma, Jayna, Nisao, Bani, and Neybo deserve to be mentioned. The harbor of San Domingo city is one of the best; next to it the bay of Samana offers an excellent roadstead. Of the lesser islands on the coast belonging to the republic, Beata and Saona are the most considerable. The climate, though tropical, is less unwholesome than elsewhere in the West Indies. The soil is exceedingly fertile, but the industry of the inhabitants is not equal to the immense resources of the country. Gold, silver, and iron abound in the mountains, but no mines are worked. Cattle-raising in the level country, and ebony-cutting in the mountainous regions, are the principal occupations of the people, agriculture being mainly confined to the raising of the manioc root, which is used as a substitute for grain. Politically the republic is divided into 5 provinces, viz.: Azua de Compostella, San Domingo, Santa Cruz del Seybo, Concepcion de la Vega, Santiago de los Caballeros. These are also the names of the provincial capitals, of which Santiago de los Caballeros is, next to the city of San Domingo, the most important. The inhabitants are Roman Catholics; an archbishop resides at the city of San Domingo. The army is nominally about 20,000 strong. The navy consists of 2 corvettes, 1 brigantine, and 4 schooners. The seal of state represents a cross, supporting an open Bible, surrounded by arms and the motto: *Dios, Patria, y Libertad.* The language of the people is Spanish. The constitution, like that of most Spanish American republics, is modelled after that of the United States. It provides for a president, to be elected for the term of 4 years, a senate of 5, and a house of representatives of 15 members. The municipalities into which the provinces are subdivided are organized on the basis of self-government. The conditions upon which foreigners may be naturalized are very liberal, and no distinction is drawn in favor of colored persons. Free farms, farming utensils, and provisions for 6 months are offered to settlers. The commerce of the country is as yet limited, owing partly to the deranged state of the circulation and exchanges. The exports from this republic into the United States during the fiscal year ending June 30, 1858, amounted to $109,370, and the imports from the United States to $112,427. The coins are gourdes (piastres, dollars), half gourdes, gourdins (quarters), escalins (eighths), and half escalins (sixteenths).—The present Dominican republic was a Spanish colony until 1795, when, by the treaty of Basel, the whole island was united under French rule. When, after terrible struggles, the colored population of the island had become independent of France, the tyranny of Dessalines drove the Dominicans back into the arms of Spain, which thus regained possession of its former colony in 1808. The next year the Dominicans declared their independence, abolished slavery, and remained in an unsettled state until 1822, when the whole island was united under a republican form of government, and Boyer, the president of Hayti, was chosen president for life. But in 1844, the negroes of Hayti having succeeded in elevating Gen. Rivière to the presidency, the Dominicans, encouraged by the friendly assurances of the French consul-general Moges, again formed a separate government (Feb. 27), under the auspices of the "liberator" Pedro Santana, who defeated Rivière near Santiago (April 9), thus securing the independence of his country. Recognized by France, a treaty of friendship and commerce with which power was concluded, Oct. 22, 1848, and by Great Britain (treaty of amity, commerce, and navigation concluded in May, 1850), the Dominican republic upheld her independence successfully against repeated efforts of Soulouque, the ruler of Hayti. The presidential term of Santana having ended in 1849, Jimenes was elected his successor. Though of Caucasian blood, the latter secretly conspired with Soulouque, who invaded the territory of the republic at the head of 20,000 men, and defeated the Dominicans in some skirmishes near Azua and Las Matas. In this extremity Santana was recalled by the people. He dispersed the Haytian army, April 22, near Savanna Numero, so completely that the war for the time being was at an end. Jimenes sought a refuge with Soulouque, who made him one of his dukes, while Santana resigned his dictatorship in favor of the newly elected constitutional president, Buenaventura Baez. In 1850 Soulouque once more invaded the country unsuccessfully. Baez, having during the latter part of his administration favored the policy of the clerical party, was rejected by the people in 1853, and Santana reëlected president. He compelled the archbishop to swear allegiance to the constitution, and endeavored to free himself from French influence. His sympathies with the United States induced him to enter into negotiations with a secret diplomatic agent of President Pierce, Gen. Cazneau, and to negotiate with him a treaty (Oct. 5, 1854), the secret stipulations of which provided, it is believed, for the cession to the United States of the bay of Samana. But this treaty was never ratified, nor has the Dominican republic ever been recognized by the United States. It is probable that the failure of Santana to obtain this recognition facilitated the efforts of the French and British agents to render him unpopular and once more elevate Baez, now the recognized leader of the clerical party, to the presidency (Feb. 1857). But his triumph was short-lived. Dissatisfac-

tion with his rule spread so rapidly that Santana was enabled to head a revolutionary movement (Sept. 1857), which eventually led to the expulsion of Baez (1858), and the restoration of the liberal rule. In consequence of the downfall of Soulouque in Hayti (Jan. 1859), Santana offered his hearty congratulations to President Geffrard, and it was generally expected that a close alliance would again be established between the two republics.

DOMINICANS (preaching friars, *fratres prædicatores*), a monastic order of the Roman Catholic church, founded in 1215 by Dominic de Guzman, on the rule of St. Augustine and a part of the statutes of the Premonstratenses. Its main object was to labor by preaching for the advancement of the Catholic church and the extermination of heresies, especially of that of the Albigenses. The order received the papal ratification in 1216. At its first general chapter in Bologna in 1220, it renounced the possession of all property, and decreed that none of its convents should receive lay brothers. The constitution which it adopted is strictly monarchical, like that of all the other mendicant orders. The convent is governed by a prior; a combination of several convents, called a province, by a provincial; the whole order by a general, the last to be elected by the general chapter, which is to meet once every year. The extension of the order was very rapid. At the 2d chapter in 1221, France, Italy, Spain, Germany, Hungary, and England were represented. In 1278 the number of convents amounted to 417. The influence and the reputation of the order increased greatly, when in 1233 the pope placed them at the head of the inquisition, which, in Italy, Spain, and Portugal, became gradually their exclusive domain. Though endowed in 1272 with all the privileges of the mendicant orders, they acquired in 1425 the right of receiving donations, and many of their convents became very rich. A new period in the history of the order commences with the establishment of a Dominican professorship of theology at Paris in 1228, which in 1230 was followed by a second. As the Franciscans soon succeeded in securing theological chairs for their order also, that grand theological emulation sprang up between these 2 orders, the history of which is almost equivalent to that of theological literature in general during the latter part of the middle ages, and in which the Dominicans distinguished themselves as Nominalists, Augustinians, Thomists, and opponents of the immaculate conception of the Virgin Mary. Their missionary activity commenced as early as the 13th century in Asia, and, especially in Armenia, many schismatics were converted by them to the Catholic church. In America they protected the natives from being enslaved, and here as well as in the East Indies they exceeded all other orders in power, number, and wealth. They had a controlling influence over the literature of the Catholic church through their prescriptive possession of the office of master of the sacred palace at Rome, and the supreme censorship of books, which is connected with that office. But great losses were inflicted on them by the reformation. In the countries where Protestantism became predominant they lost more than 400 convents, and at many Catholic courts and universities their influence was supplanted by that of the Jesuits. But they still counted in the 18th century more than 1,000 convents of monks and nuns in 45 provinces, 11 of which were out of Europe. By the French revolution they lost all their convents in France and Belgium, nearly all in Germany, and many in Italy. They have since also been suppressed in Spain, Portugal, and Sardinia, but maintained their ground in Sicily, and to a great extent in Hungary and Switzerland. In France they reappeared during the reign of Louis Philippe. The order early relaxed the strictness of its ancient rule. Several attempts to restore it were made in the 15th and 16th centuries, but with only partial and transitory results. On the other hand, there was never a permanent schism in the Dominican order as in that of the Franciscans. When Pius IX. declared the reformation of the religious orders to be one of the principal cares of his pontificate, the Dominicans were among the first with regard to whom the purpose of the pope was put in execution. The efforts of the pope were effectively seconded by the small number of convents which Father Lacordaire, by far the most distinguished member of the order in the present century, had founded in France. The pope suspended temporarily the right of the general chapter to elect a general, and appointed one of the French disciples of Lacordaire, Father Jeandel, vicar-general of the order. Since then the reformation has been carried through in many convents, in some cases not without a violent opposition. In Austria it was commenced in 1857, with the coöperation of the bishops and the government, in the convent of Vienna. The order has also made preparations to enlarge its missionary territory in Asia Minor. There are at present convents in Italy, Austria, France, Belgium, Holland, Ireland, Poland, Russia, Turkey, Asia Minor, India, China, North and South America. In South America the order is on the decline, but it makes progress in North America, and, though slowly, in France. It has given to the church a large number of bishops and archbishops, 66 cardinals, and 4 popes, Innocent V., Benedict XI., Pius V., and Benedict XIII. Among its most illustrious members were Albertus Magnus, Thomas Aquinas, Master Eckard, John Tauler, Henry Suso, Savonarola, Las Casas, Vincent Ferrier, Vincent of Beauvais, and, at the present day, Lacordaire. The habit of the order consists of a white gown, scapular and calotte, and black cloak and pointed hood.—An order of Dominican nuns was established by St. Dominic, in 1206, at Prouille, near Toulouse. The first members were mostly converts from the Albigenses. This order counted at the time of its greatest prosperity about 400 convents in Europe and America, and abandoned the strictness

of the original discipline even sooner than the monks. They took part in the various reforms of the latter, and split into a number of similar congregations. At present they have convents in Italy, France, Belgium, Austria, Bavaria, Switzerland, Poland, North and South America. East Tonquin, in Further India, had, at the beginning of the present century, 25 convents of native nuns, following the rule of St. Dominic, with about 600 inmates; but a great number of them have been dispersed by a cruel persecution. There was also a third order (tertiarians) of St. Dominic, which was called the militia of Jesus Christ, but it is doubtful if they owe their origin to St. Dominic himself. Later, they appear in history under the name of brothers and sisters of penitence of St. Dominic. St. Catharine of Sienna and St. Rosa of Lima were members of this order.

DOMINIS, Marc' Antonio de, a theologian and natural philosopher, born in Arbe, on the coast of Dalmatia, in 1566, died in Rome in Sept. 1624. He was a relative of Pope Gregory X., studied at Loretto under the direction of the Jesuits, and became a member of their order. He taught mathematics and philosophy with great success in several of the large cities of Italy. After being for 20 years a member of the society of Jesus, he left it in order to become a bishop, and was appointed in 1602 to the archbishopric of Spalato, and to the primacy of Dalmatia and Croatia. He now began to oppose some of the measures of the court of Rome, and his writings were condemned by sentence of the inquisition. This gained for him the sympathies of Protestants, by whom he was induced in 1616 to pass into England, where he became useful to James I. He embraced Protestantism, was made dean of Windsor, and though his avowed aim was to effect a reunion of the 2 great divisions of Christendom, he wrote and preached with vehemence against Roman Catholicism. In his work *De Republica Ecclesiastica*, which he published in England, he maintained that the papacy was a human institution, a temporal monarchy, and was not the divinely appointed Christian church. This book was immediately censured by the theological faculty of Paris, and burned by order of the inquisition. Loaded with tokens of friendship and esteem by the king and clergy of England, he suddenly reverted to his former theological views; and wishing to signalize his return to Catholicism by a brilliant action, he ascended a pulpit in London, and retracted all that he had ever written against the Roman Catholic church. He was immediately banished from England, and repairing to Rome abjured his apostasy before a public consistory. His inconstant humor did not long leave him in repose, and it was soon discovered that he had repented his last conversion, and was meditating a return to Protestantism. He was imprisoned by Pope Urban VIII., and his sudden death soon after caused the report that he was poisoned; being convicted of heresy, his body was disinterred and burned along with his writings. His chief philosophical work is entitled *De Radiis Visus et Lucis*. Newton ascribes the first suggestion of the true explanation of the rainbow to this work.

DOMINO (It.), a hood and cloak enveloping the entire person, and worn at masked balls as a disguise. It originally designated the camail, which was the ordinary robe of ecclesiastics in the winter, and the name was borrowed by the maskers from the resemblance of their disguises to the clerical attire.

DOMINOS. This game has been traced by some authors to the Greeks, Hebrews, and Chinese. Its first appearance in western Europe, however, is not ancient, it having been introduced into France from Italy about the middle of the last century. It is now played in all the *cafés* of France, and less commonly in the taverns of England and America, and is a favorite pastime of small social circles. The domino is a small flat oblong of ivory or bone, divided on one side by a line into 2 compartments. Each of these is marked with a certain number of dots, from 1 to 6, or is left a blank, so that upon each domino there is a different combination of numbers. The game is played with 28 dominos, the reverse sides of which are unmarked and all alike. This side being up, each player takes an equal number of the dominos. The person who has drawn the one which has the highest number of points puts it down; the next domino played has to be one with a number the same as one of the 2 numbers presented by the first, and the 2 similar ends are joined. The third player may match the remaining number of either the first or the second domino, and thus the game continues till one of the players has put down all his pieces. The combinations of this game are neither very varied nor intricate, and yet it requires, though in a less degree than many other games, memory and calculation.

DOMINUS (Lat. lord, master), an ancient title of honor prefixed to the name of the person who bore it, who was usually either a knight or a clergyman. It was, however, sometimes given to gentlemen who were not knights, especially if they were manor lords. The title is applied at the present time in Holland to ministers of the Reformed church.

DOMITIAN, Titus Flavius Augustus, a Roman emperor, born Oct. 24, A. D. 51, murdered Sept. 18, 96. He was the younger son of Vespasian, and narrowly escaped death at Rome by concealing himself when his father was proclaimed emperor by the legions of the East. On the fall of Vitellius he ruled the capital as Cæsar till the return of his father. Having exhibited in that short period a sanguinary and licentious temper, he was excluded both by Vespasian (69–79) and Titus (79–81) from all share in public affairs, and spent his time on an estate near Rome, in effeminate pleasures, as well as in writing and reciting poetical compositions. On the death of Titus, which was ascribed to him by the people, he was hailed emperor by the sol-

diers. At the beginning of his reign he concealed his vices, and even displayed some firmness in the regular management of affairs; but this was of short duration. An outbreak in Germany brought his bloodthirsty disposition into full activity, and from that time the victims of his fear or wounded vanity were numberless. In his wars he was personally unsuccessful against the Chatti and other German tribes, as well as against the Dacians, whose king Decebalus compelled him to purchase peace on humiliating terms. These reverses, however, did not prevent him from triumphing and decorating himself with the names of Germanicus and Dacicus. Government officials, says a historian, were busy in keeping the people of Rome from laughing on such occasions. Games were employed to amuse them. Agricola, the heroic commander in Britain, was recalled because of his victories, and the jealousy of his fame probably caused his subsequent death. War having been terminated by an ignominious peace with Decebalus in 89, Domitian satiated his thirst for blood at home, until, as Tacitus says, silent fear reigned at Rome. This historian, the son-in-law of Agricola, has branded the memory of Domitian in eloquent terms. After many conspiracies which were discovered, one succeeded in ending the reign and life of the tyrant.

DOMRÉMY, or Domrémy la Pucelle, a French village, in the department of Vosges, 7 m. from Neufchâteau, on the Meuse, the birthplace of Joan of Arc. The cottage in which she was born has been repaired at the expense of the government and a free school for girls established in it. A chapel has also been dedicated to her and a monument raised in her honor, to which Louis Philippe contributed a cast of the statue of the maid of Orleans executed by his daughter, Princess Marie.

DON, a title of honor, chiefly used among the Spaniards. The corresponding title among the Portuguese is *dom*, the right to which is considered as an especial privilege which no one can assume without the consent of the sovereign. Dom is also sometimes employed in France as a clerical title. The word is derived from the Latin word *dominus*, lord or master. The old English form of the word is *dan*, frequently occurring in Chaucer.

DON. I. A river of Russia, the Tanais of the ancients, and the Tuna, Doona, or Dana of the Tartars. It is one of the largest rivers of Europe. It rises in a small lake in the government of Toola, flows S. E. and S. W., passes Voronezh, Pavlovsk, Novo Tcherkask, Tcherkask, Nakhitchevan, Rostov, and Azof, and, having separated into 3 branches, enters the sea of Azof through channels so shallow that only flat-bottomed boats can pass through them. Its length in a direct line is 468 m., but including windings it is 995 m. In the summer, navigation on the Don is difficult, but in winter the water is high enough for vessels of great size. The course of the river lies through a low country, covered with vast forests of oak and pine. The current is sluggish, and sand banks, over which there are often only 2 feet of water, are of frequent occurrence. The principal tributaries of the Don are the Sosna and the Donetz on the right, and the Voronezh (or Voronetz), the Khoper, the Medvieditza, the Sal, and the Manitch on the left. II. A river of Aberdeenshire, Scotland, next to the Dee in size, but of little commercial importance. It rises on the declivity of Ben Aven, flows S. E. 62 m., and enters the German ocean near the town of Aberdeen. It is navigable for a very short distance from the sea. Near its mouth stands the celebrated one-arched Gothic bridge of Balgounie, mentioned by Byron in one of his early poems. A handsome new bridge of 5 arches has been built a little below the old structure. The salmon fisheries of the Don were lately rented for £2,000 per annum. III. A river of Yorkshire, England, 55 m. long, rising near the borders of Cheshire, and flowing into the Ouse. It is navigable from Sheffield, 40 m., and communicates by canal with the Trent and the Calder.

DON JUAN, a mythical personage, a type of licentiousness and dissipation, accomplished and wicked, represented with all the graces which win woman's heart, and at the same time with all the snares which beguile woman's virtue. According to tradition, the patrician family Tenorio of Seville was the first to produce a Don Juan of sufficiently remarkable character to become the representative man of the order. His life is placed by some legends in the 14th century under the reign of Pedro the Cruel, and by others in the 16th century in the era of Charles V. He is represented to have been in the act of abducting a daughter of the governor of Seville when caught by her father; a duel ensued, in which the governor was the victim. A statue having been erected to the deceased in the family vault in the convent of San Francisco, Don Juan enters the vault, and invites the statue to join him in his revels. The stony guest appears at the banquet to the great amazement of Don Juan, and terminates the festivity by consigning his godless entertainer to the infernal regions. The story was first dramatized at the beginning of the 17th century by the Spanish poet Gabriel Tellez, commonly called Tirso de Molina, under the title of *El burlador de Sevilla, ó el convivado de piedra*. This drama was soon after its publication adapted for the Italian stage, and thence found its way to Paris, where it became the basis of several French adaptations, of which Molière's *Don Juan, ou le festin de pierre*, and Thomas Corneille's production, modelled after Molière's play, are the most celebrated. In England a play written by Shadwell, called "The Libertine," and treating the same subject, was performed in 1676. The subject was not produced on the Spanish stage in its present form till about 1675, when it was rewritten by Antonio de Zamora. This version of Zamora furnished the groundwork of the modern treatment of the

theme. Goldoni published his *Giovanni Tenorio* in the first half of the 18th century. Gluck followed with a ballet in 1765, Vincenzo Righini with an opera in 1777, and Lorenzo da Ponte with the text to Mozart's opera in 1787, which appeared in the same year. This is the masterpiece of this great composer, and at the same time the most remarkable production to which the legend of Don Juan has given rise. Apart from the opera and the drama, the Don Juan literature has found in the present century a new field in the sphere of romance and poetry in Spain and France; while in England the name of Don Juan was adopted by Byron as a congenial title for his famous poem. The 2 characters of Faust and Don Juan are blended in one and the same personage in a German drama by Grabbe, while a great number of plays, novels, and translations from the Spanish on Don Juan abound among German books of the present day. Scheible's *Kloster* (vol. iii., part 2, Stuttgart, 1846) contains a full account of the tradition and literature of the subject.

DONARIUM, a metal discovered by Dr. Bergman in a mineral from Brerig in Norway, and named for the Scandinavian god Donar. The mineral contained a yellowish red substance giving a light orange powder, of hardness between 4 and 5, and specific gravity 5.397. Heated in a glass tube, it gives off watery vapor, and in the flame of a lamp decrepitates. It does not melt before the blowpipe on charcoal; with borax it gives a bead, yellow while hot, colorless when cold. It is decomposed by acids. By analysis it proves to be a silicate of the oxide of the new metal, containing 71.247 per cent. of the oxide, 17.695 of silicic acid, 69 of water, and 4.042 of carbonate of lime. The metal is obtained as a black powder by treating the oxide with potassium. It takes fire in a flame, burns with a reddish light, and is converted into the red oxide. The specific gravity is nearly 7.35.

DONATELLO, or properly Donato di Betto di Bardi, one of the revivers of sculpture in Italy, born in Florence in 1383, died in 1466. He was of the family of Donato, which has counted many learned men among its members, and which after the middle of the 16th century gave several doges to the republic of Venice. He was educated under the care of a rich relative, and found in Cosmo de' Medici, the chief of the Florentine republic, a patron able to perceive and to reward his merits. The "St. Peter" and "St. Mark" which adorn the church of St. Michael in his native city were his first 2 great works. He afterward studied in Rome, and occupied himself particularly with repairing the injuries that had been wrought upon the ancient productions of sculpture. The natural tendency of his mind led him toward an imitation of the antique; yet his manner was bold and independent, and his success was such that his contemporaries thought that nothing was wanting to the proportion of form and vivacity of expression which he gave to marble. The sudden progress which the art of sculpture made under his labors challenged the utmost exertions, even if it did not excite the jealousy, of the first painters of the age. He particularly excelled in works in *rilievo*, among which were his "Nativity and Burial of Christ," and the "Assumption of the Virgin." His most celebrated statues, the group of "Judith and Holofernes," executed in bronze for the community of Florence, that of "St. George," the finest ornament of the church of St. Michael, and his "Zuccone," his own favorite piece, representing an old man in the costume of a senator, all yet remain, and have met with the uniform approbation of succeeding times. Donatello was buried according to his desire in the church of San Lorenzo, by the side of his friend Cosmo de' Medici. His liberality and disinterestedness were such, that he kept his money in an open basket hung on the wall of his room for the free use of his workmen. Nothing irritated him more than to see his works sold to persons unable to appreciate them; he sometimes broke a finished piece to fragments to save it from such a destiny.

DONATISTS, the name given to a schismatical and afterward heretical party in the African church. Connected with this party were several persons named Donatus, 2 of whom, Donatus of Casæ Nigræ, in Numidia, and Donatus of Carthage, were eminent. From one, or perhaps both of these men, the schism received its designation. Its first outbreak was in the opposition of the Numidian bishops to the confirmation of Cæcilianus as successor to Mensurius (A. D. 311) in the episcopal see of Carthage. It was alleged as an offence both of Mensurius and Cæcilianus that they had received back into the church, and admitted to full fellowship, some of those *traditores* whom the discipline of the church had strictly condemned. *Traditores* was the designation of a class of Christians who, in the recent persecution under Diocletian, had obeyed the imperial order, and had given up their Bibles and their sacred vessels to be destroyed by the pagan officers. A rich lady of Carthage, whose excessive reverence for relics Cæcilianus had rebuked, lent to the discontented the weight of her influence. The Numidian priests, complaining that they had not been summoned to the election of the bishop, as they should have been, met in council at Carthage, and sent for Cæcilianus to appear before them and explain his conduct; and on his failure to do so declared his deposition, on the double ground of heresy in the matter of the *traditores* and of illegality in the election. Majorinus, the domestic chaplain of the noble lady Lucilla, above mentioned, was chosen as bishop in the place of Cæcilianus. An appeal was made by Cæcilianus to Constantine, and the emperor referred the matter to a council, which was held at Rome in 313, and which, under the direction of Miltiades, bishop of Rome, declared Cæcilianus innocent, and reinstated him in his bishopric, while it regretted, rather than condemned, the acts of the schismatic party.

The Donatists did not obey this sentence, and a new and more imposing council held at Arles in 314 was equally barren of result, except to inflame partisan wrath. Appealing to Constantine, the Donatists found no help; the emperor favored the moderate party, and consented to the decision of the council. The death of Majorinus in 316 did not open the way to a reconciliation. The Numidian party chose in his place another Donatus, a man of large scholarship, pure character, singular benevolence, and incorruptible firmness. The new bishop at once devoted himself to the organization of the schism. He encouraged his followers to maintain the position they had taken. He counselled them to a more austere morality, and a more strict observance of the Christian ritual. They were fined, imprisoned, expelled from the churches, driven to the mountains; but they constantly rallied, returned, and drove out their rivals. In a great council at Carthage of 270 bishops, they affirmed that theirs was the only Catholic church, and that the churches of Europe were schismatic. Constantine at last, weary of the fruitless effort to silence them, ceased to molest them. The episcopal life of Donatus of Carthage seems to have continued, in varying fortunes, for more than 30 years, in which time the Donatist party had grown to be the dominant church of Africa, numbering more than 300 bishops. In the towns and cities, the members of the sect confined themselves mostly to the milder measures of preaching and writing to defend their cause. But about the year 347 a fanatical party appeared in the mountains, who delivered themselves to the wildest excesses, going about the country plundering, burning, even murdering, and courting martyrdom as a joy and a privilege. These Circumcelliones (for such was the designation of this party) resorted often to suicide as a substitute for legitimate martyrdom, and sometimes compelled strangers, whom they met on the roads, to murder them. These excesses found, if not a defender, at least an apologist, in Donatus, who would not lend himself as an instrument of the emperor's vengeance, contending that it was an affair of the church and not of the empire. Paul and Macarius, the envoys of the emperor, were forced to employ the army to disperse and destroy these ignorant fanatics. These violent measures only strengthened the hatred of the Donatists against the Catholics. The sympathy of the civil power was drawn to them, and not bishops only, but governors and judges, took the side of the schism. The reign of Julian was still more favorable to their cause. They dared to defend the outrages committed in the name of a pure religion. Parmenian, successor of Donatus in Carthage, wrote an apology for the sect. This was answered by Optatus, and afterward by Augustine, to whom, more than any other writer, the downfall of the schism is due. Half a century longer the contest between the 2 parties continued to rage, the issue gradually turning against the schism. In the beginning of the 5th century the emperor Honorius attempted a new persecution; and in 411, in a conference between the Catholics and Donatists at Carthage, the latter were condemned and severe laws passed against them. A few bishops of the Donatist party succumbed and were received into the church; but most of them resisted, and were driven and hunted into the interior region, and forced to hide themselves in the mountains and the desert. A few ineffectual attempts at union were made by the party under succeeding emperors, but before the close of the century the sect had become virtually extinct, existing only in fragments in parts remote from the coast. The Vandal invasion overwhelmed at once Catholic and heretic, and in its great ruin made the church forget all minor strifes.—The heresy of the Donatists was twofold, a heresy of theory and of practice. The theoretical heresy consisted in asserting that the character of the minister influenced his ministration, and that the sacraments from the hand of one not properly ordained for the work were of no value, whatever the spirit of the recipient. The practical heresy consisted in rebaptizing those who came from the Catholic churches into their communion, and consecrating anew the sacred edifices which they took from their rivals. The ground of their condemnation was that they were exclusive and bigoted, and that they treated the Catholics as no better than Jews or idolaters. Donatus and others of his party, indeed, were accused of denying the Trinity; but from this charge they are expressly absolved by Augustine, who shows that they differ from the Arian party in recognizing but one divine substance. The Arians sought in vain to unite the Donatists to their party.—An account of the Donatists may be found in the works of St. Optatus; in Tillemont, vol. vi.; in the "Dissertation" of Collina (Bologna, 1758); in Ballerini's history; in De Potter's "History of Christian Churches," vol. ii. (Paris, 1836); in Villemain's *Tableau de l'éloquence Chrétienne au V^e^ siècle* (new edition, 1854); and in Ribbeck's *Donatus und Augustinus* (Elberfeld, 1857).

DONCASTER, a parish and handsome market town of England, in the county of York, West Riding; pop. in 1851, 12,052. The town is pleasantly situated on the river Don, here navigable and crossed by 2 stone bridges. It is in the centre of a populous and highly cultivated district, but is indebted for its celebrity to its horse races, which have an almost unrivalled reputation in the sporting world. They were established in 1703, and the list of winners since that time includes the best horses that have been bred in England. The famous St. Leger stakes were founded in 1776. The race course is 2 miles in length, and one of the finest in the kingdom. The expense of improving it since 1777 is said to have amounted to £20,000. The races are held annually in the 3d week of September, and continue for 5 days. Doncaster is the *Danum* mentioned in the itinerary of Antoninus; hence its Saxon name *Dona Castre*, and its pres-

ent name. It was, prior to the reformation, the seat of several convents of Carmelites, and white, black, and gray friars. It is the birthplace of Richard Plantagenet, of Conisburgh, and Sir Martin Frobisher. A new parish church finished in 1858, at a cost of £52,000, is said to be the finest in England. Roman antiquities are frequently found in the city and vicinity.

DONEGAL, a maritime county of Ireland, bounded on the N. and W. by the Atlantic, on the E. by the counties of Londonderry, Tyrone, and Fermanagh, and on the S. by the counties of Fermanagh and Leitrim, and by Donegal bay; area, 1,865 sq. m.; pop. in 1851, 255,160. The shores are deeply indented by bays, the principal of which are Sheephaven, Gliddore, Gnybarra, and Lochrus bays. There are numerous islands off the coast, and several lakes within the limits of the county. The general aspect of the surface is mountainous. Nearly ⅔ of the land consist of bogs or sterile hills, incapable of cultivation. The chief rivers are the Swilly and the Leenan, and the principal towns Ballyshannon, Letterkenny, Ramelton, Donegal, and Killybegs. Oats, barley, flax, and potatoes are the staple agricultural productions. The total extent of land under crops comprised 232,353 acres in 1854, and 228,683 in 1855. The fishery districts employ about 2,000 vessels and 9,000 hands. The linen manufacture is actively carried on in several parts of the county, and there are also many corn mills, but the export trade is chiefly carried on through the port of Londonderry. Capital, Donegal.

DONETZ, or Donets, a river of Russia, principal affluent of the Don, about 400 m. long. It rises in the government of Koorsk, pursues a S. E. course through the government of Kharkhov and the country of the Don Cossacks, and joins the Don on the right. Its banks are generally fertile, and its channel is wide and deep. The Oskol, the Aidar, the Kalitva, and some smaller branches join it on the N.; and it is navigable from its mouth to Zmiev.

DONGOLA, a province of upper Nubia, on the Nile, between lat. 18° and 19° 30′ N.; length, about 150 m.; breadth equal only to the strip of alluvial land lying between the river and the desert, and varying from 2 to 6 m. It contains the towns of New Dongola, or Maraka, Dongola Agous, or Old Dongola, Debbah, and Korti. It was a Christian country until the 14th century, was ravaged and subdued by the Sheygia Arabs in the 18th century, and is now subject to the pasha of Egypt, and governed by a bey who resides at New Dongola. The inhabitants are black, but not negroes, and resemble the people of lower Nubia. The productions are indigo, durra, barley, beans, sheep, goats, cattle, and horses, which rival in beauty and surpass in size the best breeds of Arabia.

DONIPHAN, a N. E. co. of Kansas, bounded N. by Nebraska, and separated from Missouri on the E. by the Missouri river; area, about 312 sq. m.; aggregate pop. of 12 principal towns in 1859, 4,700. It is well watered by the Missouri and several small streams, is well timbered with cottonwood, elm, sycamore, &c., abounds with building stone, and is the 3d co. of the territory in wealth and population. The surface consists in part of rolling prairies, somewhat broken near the streams, but gently undulating in the interior. The river bottoms have a rich soil, generally timbered. The old overland route to California crosses the county, and the Hannibal and St. Joseph railroad terminates at St. Joseph, Mo., opposite Elwood. Five newspapers are published in the county. Capital, Troy.

DONIZETTI, Gaetano, an Italian composer, born in Bergamo, Sept. 25, 1797, died there, April 8, 1848. He was originally destined for the law, but showing an unusual taste for art, he was placed at the musical institute of Bergamo, then under the direction of Simon Mayer, and subsequently studied at Bologna, under Pilotti and Mattei. At the age of 20 he had composed some short pieces of religious and instrumental music, evincing the severity of his studies and the direction of his taste, when the brilliant career of Rossini captivated him, and he determined to write for the stage. His father opposed his plans, and in a fit of pique Donizetti entered the Austrian military service, and while in garrison with his regiment in Venice produced in 1818 his first opera, *Enrico di Borgogna*. Several other works followed, and in 1822 his *Zoraïde di Granata*, produced in Rome, procured him his discharge from the army, with which he had become heartily disgusted. His works now began to succeed each other with great rapidity, and in 1827 he accepted an engagement with Barbaja, the director of the theatres at Naples, to write 4 operas a year, 2 serious and 2 buffo, for 4 years. In 1830, when his *Anna Bolena* was produced at Milan, he had written 31 operas, nearly all of which were successful, but short-lived. At this time Bellini appeared, and Donizetti, who had hitherto been a professed imitator of Rossini, modified his style by borrowing somewhat of the tenderness and pathos of his young contemporary. He even went to Paris in 1835 to compete with him, but without success, his *Marino Faliero* being eclipsed by Bellini's *Puritani*. He returned at once to Naples, and in 6 weeks composed his *Lucia di Lammermoor*, the success of which repaid him for his disappointment. It was produced throughout Europe and even in Paris in the succeeding year with a success which seems undiminished at the present day. In 1840 he returned to Paris, and immediately brought out *Les martyrs*, *La favorita*, and *La fille du régiment*, the last 2 of which are still universal favorites. The reputation acquired by these and other works procured him the appointment of professor of counterpoint at the royal college of music in Naples, and of chapelmaster and composer to the court of Vienna. His last operas were *Don Sébastien* (produced at Paris in 1844, and which he wrote out in 2 months, remarking at the close of his labors: "*Don Sébastien* will be the death of me"), and *Catarina Cornaro*, produced at Naples in

1844. Soon afterward a mental affection, the result of early habits of dissipation and of excessive application, compelled him to abstain from work of every description, and for the last few years of his life he was the inmate of a lunatic asylum. In addition to the works specified, he composed *Lucrezia Borgia* (Milan, 1833), *Linda di Chamounix* (Vienna, 1842), *Don Pasquale* (Paris, 1843), and *Maria di Rohan* (Vienna, 1843), all of which are constantly performed in Europe and America. Donizetti produced upward of 60 operas in the course of his life, most of which, however, in consequence of the haste and carelessness with which he wrote, have sunk into obscurity. In the fulness and variety of his melodies, and in his appreciation of dramatic fitness in single or concerted scenes, he stands almost unrivalled, and some of his works are likely to long retain their hold upon popular favor. His facility was such that he is known to have written out the score of an opera in 2 days. Toward the close of his life his operas showed a marked improvement.—His brother GIUSEPPE officiated for many years as director of the military music of the sultan, and died in Constantinople in Feb. 1856.

DONNE, JOHN, an English poet and theologian, born in London in 1573, died in 1631. He was of a Roman Catholic family, studied both at Oxford and Cambridge, and though designed by his parents for the law, relinquished it in his 19th year for theology, which was the chief interest and passion of the time. He abandoned the Roman Catholic church for the Anglican, and travelled and tarried some time in Spain and Italy. On his return to England he was appointed secretary to Sir Thomas Egerton, keeper of the great seal, which post he held for 5 years; but having secretly married Anne, the daughter of Sir George More, and the niece of Lady Egerton, he was dismissed from his situation and for a time imprisoned in the tower. He was reconciled to Sir George by the mediation of Sir Francis Wooley. He afterward accompanied Sir Robert Drury to Paris, and returning to England was presented to James I., by whose command he wrote the "Pseudo-Martyr" to prove that Roman Catholics might conscientiously take the oath of allegiance. At the age of 42 he entered into orders, and having at once distinguished himself as a preacher he was made by the king his chaplain in ordinary and dean of St. Paul's, and received from the university of Cambridge the degree of doctor of divinity. His failing health obliged him to desist from preaching, but a calumnious whisper having reached him that his sickness was feigned because he chose to be idle, he ascended the pulpit and preached what his biographer has called his own funeral sermon, which was afterward printed with the significant title of "Death's Duel." He died soon after, admired and almost reverenced for his holiness. He left sermons and devotional and controversial works, but he is best known as a poet. His poems consist of satires, elegies, epigrams, and religious and complimentary verses. His subtle and vivid imagination, and his great simplicity and tenderness of character, are manifest amid his vast learning and the abounding vicious conceits of his style. He was the first of the series of English poets characterized by Dr. Johnson as metaphysical. His rugged numbers and laborious faults made him little esteemed during the last century, but lately the scattered gems of poetry and melody in his books have recalled something of his first reputation, and his works have been republished under the editorial care of the Rev. Henry Alford (6 vols. 8vo., London, 1839). His life was written by a contemporary and very congenial spirit, the angler Izaak Walton, whose admiration of him was unbounded.

DONNYBROOK, or ST. MARY'S OF DONNYBROOK, a parish and village of Ireland, co. of Dublin. The parish contains the villages of Irishtown, Donnybrook, Merrion, Ringsend, and Sandymount; area, 1,689 acres; pop. in 1851, 11,177.—The village, 2 miles S. E. of Dublin, of which it is a suburb, is situated on the Dodder, here crossed by a handsome bridge, and contains a fine church, several chapels, a Magdalen asylum, a dispensary, a lunatic asylum, classical and other schools, a hat manufactory, and a number of mills. It is celebrated for its fair, granted by King John, and formerly held during 15 days from Aug. 26, but now lasting only a week, and being merely a pleasure fair. It was originally for the sale of horses and black cattle, but became notorious by frequent scenes of riot, bloodshed, and debauchery. The magistrates have succeeded of late years in repressing such disorders.

DONOSO CORTES, JUAN FRANCISCO MARIA DE LA SALUD, marquis de Valdegamas, a Spanish writer and statesman, born in Valle de la Sarena, in Estremadura, May 6, 1809, died in Paris, May 3, 1853. At the age of 12 he had finished his classical studies, and entered upon a course of law at the university of Salamanca. He was entirely prepared to receive his degree at the age of 16, but the rules not permitting it until the age of 25, he went to Seville, and employed the intervening years in the study of philosophy, history, and literature. He commenced his public career as professor in the college of Caceres. During the divisions which took place in Spain in 1832, with regard to the right of succession to the throne, Donoso presented a memoir to Ferdinand VII., in which he pleaded the liberal cause with great eloquence. The king rewarded him by a distinguished place in the ministry of justice. After the death of Ferdinand he warmly defended the cause of Queen Isabel and her mother. He was elected to the cortes, and afterward appointed secretary to the ministerial council. Differing essentially from Mendizabal, who was at its head, he resigned his post, and devoted himself zealously to the tribune and the press. Defending a middle ground between absolute power and revolutionary government, he was at this period one of the foremost representatives of liberalism. He was for some

time the editor of the *Revista*, and a leading contributor to the *Piloto*, a newspaper founded by himself. At the same time he gave at Madrid a course of lectures on political rights. During the dictatorship of Espartero, Donoso defended the interests of Maria Christina. In this contest he was vanquished, and shared the exile of the queen mother to France as her private secretary, and also accompanied her on her return to Spain in 1843. He was afterward appointed secretary to Queen Isabel, and director of her studies; he was reëstablished as member of the cortes, and the post of minister was offered him, but he declined it. Shortly afterward he was appointed minister plenipotentiary to the court of Berlin. The death of a brother made a great impression on Donoso, and from that time his writings acquired a strong religious tendency. In his speech in the cortes, Jan. 4, 1849, he renounced all liberal ideas, which he designated as sterile and disastrous to human society, whose peace had been disturbed by them for 3 centuries. This discourse made a great sensation in France and Spain. A work of his in French, entitled *Essai sur le Catholicisme, le libéralisme, et le socialisme* (1 vol., Paris, 1851), maintained that theology is the proper basis of politics. It was attacked by both radicals and Gallicans. Its author answered by sending it to Rome, condemning in anticipation whatever Rome should condemn; but hitherto Rome has not spoken, and the congregation of the Index has not interdicted the book. Among his principal writings may be mentioned *Consideracions sobre la diplomacia, y su influencia en el estado politico y social de Europa* (Madrid, 1834); *La ley electoral, considerada en su base y en su relacion con il espiritu de nuestras instituciones* (Madrid, 1835); and a collection of his speeches and early writings (Madrid, 1849–'50). The 3d and last volume of a complete French edition of his works appeared in Paris in 1859.

DONOVAN, Edward, an English popular writer upon subjects of natural history, died Feb. 1, 1837. His first publication was a "Natural History of British Insects" (16 vols. royal 8vo., London, 1792–1813); of a similar character to which were his "Natural History of British Birds" (10 vols. royal 8vo., 1794–1818); "Fishes" (5 vols. royal 8vo., 1802–'8); "Shells" (5 vols. royal 8vo., 1803–'4); and "Quadrupeds" (3 vols. royal 8vo., 1820). In 1798 he published in 4to. an "Epitome of the Natural History of the Insects of China," which was followed by works on the insects of India (1800), and of islands in the Indian and South Pacific oceans (1805). He also published a little book of instructions concerning the collection and preservation of subjects of natural history. His later works were a narrative of "Excursions through South Wales and Monmouthshire" (2 vols. 8vo., London, 1805); a periodical publication, entitled the "Naturalist's Repository;" and an "Essay on the Minute Parts of Plants." The works of Mr. Donovan were not designed for the instruction of men of science, but they have been serviceable in creating a general interest in the subjects of which he wrote.

DOOLY, a S. W. co. of Ga., with a level surface, well watered by many small creeks, bounded W. by Flint river; area, 530 sq. m.; pop. in 1852, 9,321, of whom 3,483 were slaves. Pine forests occupy much of the land, but the soil is fertile, and the cultivated tracts produce excellent crops of grain, cotton, sugar cane, and potatoes. In 1850 the county yielded 5,962 bales of cotton, 289,378 bushels of Indian corn, and 94,645 of sweet potatoes. There were 225 pupils in the public schools. Value of real estate in 1856, $1,205,575. The county, organized in 1821, was named in honor of Col. John Dooly, a revolutionary officer. Capital, Vienna.

DOOLY, John Mitchell, an American lawyer, born in Lincoln co., Ga., about 1772, died May 26, 1827. His father, Col. John Dooly, emigrated from North Carolina at the beginning of the American revolution, and did good service throughout that struggle. In 1802 John M. Dooly was appointed solicitor-general of the western circuit, to fill a vacancy, and in 1804 he was elected to the same office by the legislature. He was elected judge of the western circuit in 1816; and in 1822 was elected the first judge of the newly made northern circuit, to which office he was reëlected in 1825. Though a man of vigorous intellect and one of the most successful lawyers of his day, he is more widely known as a wit and humorist than in any other capacity, and probably a greater number of anecdotes are related of him than of any other man who ever lived in Georgia.

DOON, a lake and river of Scotland, in Ayrshire. Loch Doon is about 8 m. in length, and at no place exceeds ¾ of a mile in breadth. It is enclosed by the Star mountains of Kirkcudbright, from the base of which the river Doon takes its rise, while from their opposite side the river Dee starts. The lake abounds in trout, and has an islet on which stands an old castle, reputed to have once been the residence of Edward, brother of Robert Bruce. The river Doon issues from the lake, and after pouring impetuously for about a mile through a wild and rocky ravine, called Ness Glen, passes into gentle and sylvan scenery, and after a N. W. course of 16 m. falls into the frith of Clyde, 2 m. S. of Ayr. About a mile from the sea, close by the side of the river, stands a monument to Burns, who sang of the "banks and braes o' bonny Doon."

DOOR (Sax. *dor*), a movable shutter, usually of framed timber, placed upon hinges, or sliding in grooves, and employed for closing an opening termed a doorway. Doors are of various materials, sizes, patterns, and forms. Those used by the ancient Egyptians in their domestic architecture were of wood, usually native, though often stained to resemble rare foreign woods. In the mansions of the wealthier classes it was customary to build porches or porticos in front of the outer doors; these were about 12 or 15 feet in height, slightly exceeding that of

the cornices of the doors, and the columns supporting them were often decked with banners or ribbons. Above the door was sometimes inscribed a sentence, as "The good house," or the name of the king under whom the owner had perhaps held office. The doors were either of one or two leaves, turning on pins of metal, and secured within by a bar or bolts; the folding doors had bolts in the centre, sometimes above as well as below, and a bar was placed across from one wall to the other. According to Hamilton, no vestiges of doors have been discovered in the temples of Egypt, though in some cases holes have been observed in the stone lintels and floors, in which they might have turned, as well as those for the bolts and bars, and the recess for receiving the opened leaves; it seems highly probable that doors were employed, and perhaps of bronze, as the Egyptians possessed the art of working in metals much earlier than the time of Herodotus, who describes the door of the temple of Belus at Babylon as made of metal, which is supposed to have been bronze. Wood was used for constructing the doors of Solomon's temple: "And for the entering of the oracle he made doors of olive tree; the lintel and side posts were a fifth part of the wall. The two doors also were of olive tree; and he carved upon them carvings of cherubims and palm trees and open flowers, and overlaid them with gold, and spread gold upon the cherubims and upon the palm trees." (1 Kings, vi. 31, 32.) The doors of the Egyptians, and of the Romans, opened inward in all cases, and the latter were expressly forbidden to make a street door open outward without a special permission; the custom of the Greeks was exactly the reverse, and they were consequently obliged to strike on the inside of the street door before they opened it, in order to warn persons passing by. The Roman and Grecian doors were often elaborately ornamented with ivory and precious metals. Those of the middle ages were frequently constructed with skill, and embellished with ornamented handles, knockers, locks, and tracery; but the existing examples are not numerous, on account of their fragility as compared with the materials of the buildings to which they belonged.—The proportions of doors vary according to the size and intention of the building; as a general rule, for large doors the breadth may be $\frac{1}{2}$ the height, and in small doors $\frac{2}{3}$. In buildings of any magnitude, the principal entrance should be in the centre, both as producing greater symmetry of appearance, and as communicating more readily with all portions of the interior; in the principal rooms the door should be at least 2 feet from the return of the wall, to admit of furniture being placed in the corner if desired.

DOOR, a N. E. co. of Wis., consisting of a narrow peninsula between Green bay and Lake Michigan; area, 625 sq. m.; pop. in 1855, 739. It was formed in 1851 out of a portion of Brown county. Value of real estate in 1855, $120,000. Capital, Gibraltar, or Bailey's Harbor.

DOOSTEE, Dustee, Dusee, Doost, Doust, or Dust, a river of Beloochistan, the position of whose source is unknown. Flowing from the interior, it traverses the province of Mekran, and enters the Indian ocean in lat. 25° 15′ N., long. 61° 50′ E. Its total course under various names is supposed to be about 1,000 m., but it is generally shallow, and is of little commercial importance.

DORAT, Claude Joseph, a French poet, born in Paris, Dec. 31, 1734, died April 29, 1780. He was intended for the bar, but at the age of 20 commenced a literary career by producing an unsuccessful tragedy. He then turned his attention to light poems, tales, and sketches, which he threw off with great rapidity, and by which he acquired considerable reputation, although the extravagant profuseness with which he illustrated his most trifling works involved him in pecuniary ruin. He wrote several more pieces for the stage, which exposed him to ridicule from contemporary wits. He failed to obtain admission to the academy, and but for the charity of Beaumarchais and Mme. de Beauharnais he might have died of starvation. He expired in the act of correcting a proof sheet. His works fill 20 vols., but are not highly esteemed. His tales are humorous but indecent.

DORCHESTER, a S. E. co. of Md., bordering on Delaware and on Chesapeake bay, bounded N. and N. W. by Choptank river, and S. E. by the Nanticoke, both of which are here navigable; area, 640 sq. m.; pop. in 1850, 18,887, of whom 4,282 were slaves. It has a level and partly marshy surface, with a soil sandy in some places and clayey in others. The productions in 1850 were 55,000 bushels of Indian corn, 137,470 of wheat, 8,496 of oats, and 84,816 lbs. of butter. There were 2 coach factories, 1 hat factory, 2 newspaper offices, 26 churches, and 798 pupils attending public schools. Organized in 1669. Capital, Cambridge.

DORCHESTER, a township of Norfolk co., Mass., on Dorchester bay, an arm of Boston harbor, contiguous to South Boston; pop. in 1855, 8,340. It is a fertile, highly cultivated, and diversified part of the county, laid out in numerous villages, and a favorite residence for the business men of Boston. It communicates with that metropolis by the Old Colony and the New York and Boston central railroads, and by a horse railroad. In 1855 it contained 1 iron furnace, 1 forge, 1 manufactory of britannia ware, 1 of starch, 1 of cordage, 3 of railroad cars, carriages, &c., 2 of soap and candles, 3 of tin ware, 1 of refrigerators, 3 of chocolate, 3 paper mills, and 1 gas manufactory. In 1859 it had 2 banks, 1 insurance office, 2 libraries, 11 churches, an industrial school for girls, a literary association, and a historical and antiquarian society in Dorchester village. The township contains 4 post offices, viz.: Dorchester, Neponset, Harrison Square, and Mattapan. It was first settled by a party of English Puritans, headed by the Rev. John White of Dorchester, England, who landed at Nantasket, June 11, 1630, and

established themselves within the limits of the present township on the 17th of the same month. They soon erected a church, but no trace of it now remains, and no one can point out where it stood. The first water mill in America was built here in 1633, and Dorchester has the honor of having originated about the same time the New England cod fishery. In 1804 the N. E. part of Dorchester was annexed to the capital under the name of South Boston. Washington village was incorporated with Boston in May, 1855, and that part of Dorchester called Squantum was added to the town of Quincy at the same time. Edward Everett was born in this town.

DORCHESTER, a decayed village at the head of Ashley river, Colleton district, S. C., 18 m. N. N. W. from Charleston. It was distinguished during the revolutionary war as a military post, both of the Americans and the British, and as the theatre of a variety of interesting incidents. It was settled originally in 1696 by the members of a Congregational church from Dorchester, Mass., under the spiritual charge of the Rev. Joseph Lord, and in its palmy days held a permanent population of 300 or 400 inhabitants. By an act of the assembly in 1723, and while it was yet a frontier post, it was established as a "fair and public market," and was therefore a place of gathering for the people of the borders, white as well as red. It was garrisoned by the Americans and British during the revolution, as each party had possession, and an old fortress still remains, one of the few evidences of the old settlement. Several brisk actions took place in and about the precinct.

DORCHESTER, a municipal and parliamentary borough, market town, and the capital of Dorsetshire, England, near the river Frome, 141 m. S. W. from London by the London and Southwestern railway; pop. in 1851, 6,394. It contains 3 churches, several schools and charitable institutions, a theatre, large cavalry barracks, and a county museum. It has considerable trade in beer, butter, sheep, and lambs. It was fortified by the Romans, who surrounded it with a wall. Athelstan made it the seat of 2 mints, and during the civil war it witnessed many severe battles. In the vicinity are the remains of a Roman ampitheatre and camp, and of a British station called Maiden castle.

DORCHESTER, a river port, and the capital of Westmoreland co., New Brunswick, on the left bank of the Petticodiac river, a little above its mouth in Shepody bay. A valuable, brilliant black inflammable mineral, containing a large quantity of gas of high illuminating power, is found in the vicinity. It is called by some jet coal, and by others is thought to be pure asphaltum.

DORDOGNE, a S. W. department of France, composed of portions of the ancient provinces of Guienne, Agenois, Périgord, Limousin, and Angoumois; area, 3,492 sq. m.; pop. in 1856, 504,651. It is divided into 5 arrondissements, 47 cantons, and 585 communes. Capital, Périgueux. A large part of the land is occupied by marshes; nearly $\frac{2}{3}$ are considered unfit for cultivation, but the department is very rich in minerals. Iron, copper, lead, coal, manganese, lithographic stones, and marble are found in large quantities. The surface is hilly, and covered in many places with extensive forests. Chestnuts are abundant, and are cultivated to a considerable extent. Game is plentiful, but cattle, owing to the poorness of the pasture lands, are raised in very small numbers. Red and white wines of good quality are produced; the crops of grain are fair, and the truffles of Dordogne are esteemed the best in France. The principal manufactures are iron, paper, brandy, and liqueurs. The largest rivers are the Dordogne (from which the department is named) and the Vezère, both of which are navigable.

DORÉ, Paul Gustave, a French artist, born in Strasbourg in Jan. 1833. He received his education at the *lycée Charlemagne* in Paris, and since 1848 has been constantly before the public as a painter of landscape and *genre*, and as a designer for illustrated editions of Balzac, Rabelais, and other authors. His series illustrating the legend of the "Wandering Jew" (1856) possesses a remarkable grotesqueness and power. The vividness of his imagination frequently, however, leads him into exaggeration.

DORIA, a family of Genoa, celebrated in history for the great number of distinguished men which it has produced since the 12th century. The influence which this family and that of the Fieschi, the Grimaldi, and the Spinolas exerted upon the destinies of Genoa was so powerful, that the 4 families were called *Magnæ quatuor Prosapiæ*, the Dorias and the Spinolas siding with the Ghibelline party, and the other two with the Guelphs. As early as the 12th century many high offices in the state were held by members of the Doria family, and 4 of them were distinguished admirals before the 14th century. Their fame, however, was eclipsed by Andrea Doria, the celebrated ruler of Genoa, and admiral, born in Oneglia, Nov. 30, 1468, died in Genoa, Nov. 25, 1560. In early life he was successively employed in the service of Pope Innocent VIII., of the duke of Urbino, of Ferdinand and Alfonso II. of Naples; and having passed some time in the Holy Land, where he became a member of the order of St. John, he distinguished himself after his return to Italy by his exploits against Gonsalvo de Cordova and the Corsicans. At the beginning of the 16th century he was placed at the head of the navy of Genoa, and soon displayed the remarkable naval abilities for which he was distinguished, especially by clearing the waters of Genoa of pirates and corsairs. When the political troubles in Genoa induced him to remove to Monaco, he showed as much public zeal in his retirement as he had while in power, and fitted out at his own expense 12 galleys which he had taken from the corsairs. When the war between Francis I. and Charles V. broke out, he accepted the command of the French galleys. After defeating the imperial

fleet at Marseilles in 1524, and rendering various other signal services to the cause of France, he took umbrage at the attempt of Francis to injure Genoa, by setting up a rival for her in fortifying the city of Savona, and, displeased at the same time with the personal treatment to which he was subjected, he left the French service to join that of Charles V., with whom he stipulated for the freedom of Genoa as the price of his services. By going over to the Spanish Austrian party he paralyzed the progress of the French arms in Italy, and became the deliverer of his country by expelling the French from Genoa. This happened in 1528. After the conclusion of peace on Aug. 5 of the following year, Doria was invested with the supreme power of Genoa, although he declined to accept the official dignity of doge, as this would have prevented him from remaining, as he wished, attached to the service of Charles V. The senate conferred upon him the name of "the father of peace," and ordered a statue to be erected to him and a palace to be placed at his disposal. He inaugurated a new form of government, making the office of doge biennial instead of for life, terminated the fatal dissensions between the Adorni and Fregosi, and recalled the banished members of the Genoese aristocracy, without however granting them on their return any privileges over the other classes of society. While restoring order and governing the affairs of the republic, he continued to render himself useful to Charles V., who appointed him commander-in-chief of his navy, invested him with the order of the golden fleece and the principality of Melfi, and raised the number of his galleys to 22. The favors of the emperor were fully repaid by Doria's achievements in the interests of the empire. In 1532 he took from the Turks the towns of Coron and Patras in Greece, and ravaged the whole coast of that country, compelling the sultan by this diversion to evacuate Austria and Hungary. The conquest of Tunis in 1535 was mainly due to his skill and bravery. In 1536 he took part in the invasion of Provence, captured Toulon, and carried the war to the gulf of Lyons. After the defeat of the imperial army by the French, he accompanied the emperor to Barcelona; and when, under the auspices of Pope Paul III., a truce was concluded between the 2 parties, the interview between Charles V. and Francis I. took place on board of one of Doria's galleys, this opportunity serving at the same time to effect a reconciliation between himself and his former master, the king of France. In Doria's subsequent career in the service of Charles his good fortune seems to have abandoned him. In 1539 he neglected to avail himself of his superior force for the purpose of defeating at Prevesa the Turkish fleet under Khair-ed-Deen of Algiers, brother of the famous Barbarossa; and in 1541, during the fatal expedition of Charles to Algiers, he lost 11 of his galleys. On his return to Genoa he applied himself for the rest of his life to the administration of the affairs of the republic, which however was disturbed by the revolution instigated by the Fieschi family. In the first outbreak of 1547 his nephew Gianettino Doria lost his life (which caused Andrea to punish the conspirators with great severity), and Fiesco himself was drowned accidentally. Doria's death, at the age of 92, was deplored as a national calamity, and as the news of it spread over Genoa, the people exclaimed: "Andrea Doria is dead; the republic is left without a champion." The statue erected to him at Genoa bears an inscription characterizing him as "the father of his country."

DORIANS, the name by which one of the 4 chief branches of the Hellenes, the descendants of Dorus, son of Hellen, were distinguished in the history of ancient Greece. In the remotest period they appear on the classical ground of fabulous antiquity, between Mount Olympus and Ossa; then, by turns conquering and conquered, in Macedon, on the island of Crete, in Doris, where they founded the Tetrapolis, and in the Peloponnesus, which they entered under the returning Heraclidæ, and where they became masters of Sparta, Argos, and Messenia. They distinguished themselves from other Hellenic tribes, particularly from the Ionians, by a character of dignified solidity, of rigid and often rough gravity. This manifested itself not only in their manners, laws, and institutions, so much in contrast with those of the milder Ionians, but also in their dialect, broad and rough, but strong and solemn, and therefore well suited to sacred hymns and choruses; in the light hunting dress of their women, in the strong and unadorned Doric column, in the warlike sounds of their music, and even in the spirit of the Pythagorean philosophy; while every thing Ionian was marked by a character of softness, elegance, and taste. Colonies of the Dorians flourished in Italy, Sicily, and Asia Minor. The best authority on the Dorians is K. O. Müller, *Die Dorier* (2d ed. 3 vols., Breslau, 1844).

DÖRING, Theodor, a German actor, born in Warsaw in 1803, since 1840 connected with the royal theatre of Berlin, celebrated for his admirable personations of Mephistopheles, Shylock, Richelieu, and similar characters.

DORIS, now belonging to the eparchy of Phocis, in N. Greece, a small mountainous region, watered by the Mavropotamo, anciently one of the smallest divisions of Hellas, inhabited by the Dorians, and bounded by Thessaly, Phocis, Locris, and Ætolia. Of its 4 confederate cities, the so-called Tetrapolis, built at the foot of Mount Œta, none was adorned by great names or events of Grecian history. They were soon destroyed by hostile neighbors, and were in ruins in the time of the Romans.—Doris in Asia Minor, a part of the coast of Caria, settled by a colony of Dorians, contained a confederacy of 6 cities, which, though dependent at every period of history on some larger state, had, on the promontory of Triopion, a place of national assembly, where festivals and games were celebrated, and common affairs discussed.

DORKING, or Darking, a market town and parish of Surrey, England, situated in a beautiful valley on the left bank of the Mole, 21 m. S. W. of London; pop. in 1851, 5,996. It is noted for its romantic scenery. The Dorking fowls, celebrated for their excellent qualities, and in such demand for the London market, are supposed to have been introduced here by the Romans. They are usually white or of a partridge color, and have 5 claws on each foot. The neighboring country contains many beautiful residences, among which are Deepdene, the seat of the late Thomas Hope, and the Rookery, where Malthus was born.

DORMOUSE, a small rodent of the jerboa family, belonging to the genus *myoxus* (Gmelin); this genus has since been subdivided, with the addition of the genera *muscardinus* (Ray) and *graphiurus* (F. Cuv.). The genus *myoxus* has 2 incisors above and below, and 4 molars on each side of each jaw divided by numerous transverse bands; the eyes are large and prominent; the ears large; the whiskers long; no cheek pouches; fore feet with 4 toes and the rudiment of a 5th; hind feet 5-toed; tail long and hairy; fur soft; claws sharp. Dormice live principally on trees, eating fruits, and pass the winter in a state of lethargy, having collected a store of food for use in the spring. All are said by Cuvier to be destitute of a cæcum. The best known species are all European. The largest species, the fat dormouse or loir (*M. glis*, Linn.), is about 6 inches long, of an ashy brown above, whitish below, with brown about the eyes; the whiskers are strong; the tail is hairy its whole length, much like that of a squirrel. This animal resembles the squirrel in its manners, though it is less active, climbing trees with facility, and rarely descending to the ground; it makes a nest of moss in hollow trees, couples in the spring, and brings forth 4 or 5 at a birth; it is confined to the south of Europe, and in Italy has from remote times been used as food. As cold weather approaches, the dormouse rolls itself into a ball, and in this state is found in winter in holes of trees and clefts of rocks; if kept in a warm room during winter, it continues active like ordinary animals; when the thermometer descends to about 48° F. it begins to grow torpid, and becomes entirely so at about 42°; according to the experiments of M. Mangili of Pavia, a temperature in the neighborhood of and below 32° revives the animal. When torpid, it appears as if dead, with the eyes closed, the breathing being suspended for a period of from 5 to 20 minutes, and then renewed for from 15 to 30 respirations, with a corresponding retardation of the circulation; the nature of this state will be more fully discussed in the article Hibernation. The garden dormouse, or lerot (*M. quercinus*, Linn.), is smaller, with a thicker body, more pointed muzzle, and more thinly haired tail; the color is reddish gray above and white below, black round the eyes to the shoulders, tail black with a white tuft. As the name indicates, this species lives in gardens, and sometimes enters houses; it often does mischief in orchards, always selecting the choicest fruit; it hibernates, 8 or 10 being sometimes found together rolled up in a magazine of food; the scent is like that of the rat, and the flesh is not used as food; it is confined to temperate Europe. The common dormouse (*muscardinus avellanarius*, Linn.) is not much larger than a mouse, but the head is shorter, the muzzle less pointed, and the eyes larger; the color above is a cinnamon red, and whitish below; the tail, as long as the body and flattened horizontally, is covered with hair, quite short, and arranged on each side like the barbs of a feather. This species inhabits the woods, hibernating in the clefts of trees, and is rarely found in gardens or houses. The name dormouse, or sleeping mouse, is best applied to this species, as it most readily falls into the lethargic state, from which it is roused either by a too high or a too low temperature, becoming active in less than half an hour; when awakened, like the other species, it partakes moderately of food. One of these, exposed in a lethargic state to a cold which killed it in 20 minutes, presented on examination the heart, great vessels, and lungs distended and gorged with blood. It is found in temperate Europe, occasionally in England. The cape dormouse (*graphiurus capensis*, F. Cuv.) is found in South Africa; the length is 7¼ inches, of which the tail is 3½; the color is bluish gray above and whitish below; the muzzle and spots above and behind the ear white, behind the chin rufous; tail bushy and penniform, grayish above and blackish below. —Dormice are kept as pets, and may be fed on all kinds of grain and nuts; the inner part of the cage should be stuffed with fine hay, and the whole kept very clean; in winter they should be kept in a warm room to prevent their going to sleep.

DORN, Johannes Albrecht Bernhard, a German orientalist, born at Scheuerfeld, Saxe-Coburg, May 11, 1805. He was professor of oriental languages at the Russian university of Kharkov from 1829 to 1835, when he removed to St. Petersburg. Since 1843 he has been at the head of the imperial library, and presides over the Asiatic museum, of which he published a description in 1846. He has written several works on the Afghan language and other oriental subjects, and is noted for his knowledge of the history and geography of the Caucasus.

DORPAT, Dörpt, or Derpt, a Russian town, capital of a circle in the N. E. part of the government of Livonia; area of the latter, 4,257 sq. m.; pop. 190,000. The former is situated on the Embach, here crossed by a granite bridge; pop. in 1851, 12,683. It is on the road from Riga to St. Petersburg, and has 2 suburbs bearing the names of those cities. Its distance from the former is 150 m., and from the latter 170. It has a neat and picturesque appearance, being ranged in a semicircle, with clean, well-paved streets, and a spacious market place. The most noteworthy of the public buildings is the univer-

sity, founded in 1632, when the town belonged to Sweden, by Gustavus Adolphus, suppressed by the Russians in 1656, and reëstablished in 1802–'3 by the emperor Alexander. Connected with it are a normal school called the *Professoren-Institut*, founded in 1828, and an observatory which Tycho Brahe rendered famous, and which in modern times has derived additional celebrity from the labors of Struve and other astronomers. The university has a library of about 60,000 volumes, a museum, and a botanical garden. It is held in high repute, and students (numbering from 600 to 700) resort to it from every part of the empire. The rector of the university is now appointed by the emperor; previous to 1851 he was selected by the professors from their own body. Dorpat also contains a college founded in 1589, a number of other schools and academies, handsome law courts, and an ancient cathedral, now partly in ruins. In former times the town was fortified, but the defences have been dismantled and converted into pleasure gardens. It was founded in 1030, and anciently possessed great commercial importance, ranking as one of the Hanse towns. The Teutonic knights took it from the Russians in 1223, and erected it into a bishopric the following year. This rendered it a place of considerable note, and for upward of 3 centuries the bishop exercised almost sovereign power within his diocese. The see was abolished in 1558, when the town passed again into the hands of the Russians. The Poles seized it in 1582, and the Swedes took it from them in 1625. Peter the Great recaptured it in 1704, and it has remained ever since in the possession of Russia. The vernacular language is Esthonian, but the best educated classes speak German.

DORR, Thomas Wilson, an American politician, born in Providence, R. I., in 1805, died there, Dec. 27, 1854. He was the son of Sullivan Dorr, a successful manufacturer, was educated at Phillips academy, Exeter, N. H., and was graduated at Harvard college in 1823. He studied law in New York in the office of Chancellor Kent, was admitted to the bar in 1827, and commenced practice in Providence. Originally a federalist in politics, he became a democrat in 1837. The government of Rhode Island at that time was based upon a charter granted by Charles II. in 1663, and the apportionment of representation in the legislature was greatly at variance with the distribution of population. The elective franchise was limited to the holders of a certain amount of real estate and to their eldest sons. About one third only of the citizens were voters. Mr. Dorr was elected a member of the assembly in 1833–'4–'5–'6–'7, and exerted himself to procure the substitution of a liberal constitution in place of the old charter, but his movement for reform obtained in the legislature only 7 out of 70 votes. He resorted to popular agitation, and organized a suffrage party in opposition to the charter party. The suffrage party, after holding several large mass conventions in 1841, called a delegate state convention to frame a new constitution, which was submitted for ratification to the popular vote. It received 14,000 votes, a clear majority of the citizens of the state. The charter party, however, contended that the whole proceeding was seditious, and that a large proportion of these votes were fraudulent. Mr. Dorr and his party assumed that the new constitution was the fundamental law of the state, and proceeded in accordance with it to hold an election for state officers. Mr. Dorr was chosen governor, and a legislature composed exclusively of his supporters was elected, to meet at Providence on the first Monday of May, 1842. The charter party also held a legal election for state officers, polling 5,700 votes, while the suffrage party claimed to have polled 7,300. On May 3, Mr. Dorr's government attempted to organize at Providence and to seize the reins of power. They were resisted by the legal state government, which organized at Newport on the same day, at the head of which was Gov. Samuel W. King. Both sides appealed to arms. Gov. King proclaimed the state under martial law, called out the militia, and asked and obtained the aid of the United States to suppress the insurrection. A precept was issued for the arrest of Mr. Dorr, charged with treason. On May 18 a portion of the suffrage party assembled at Providence under arms, and attempted to seize the arsenal, but dispersed on the approach of Gov. King with a military force. They assembled again to the number of several hundred, May 25, at Chepachet, 10 m. from Providence, but being attacked by the state forces they dispersed without resistance, and the affair was over on the 28th. Mr. Dorr took refuge in Connecticut, and afterward in New Hampshire. A reward of $4,000 was offered for his apprehension by the authorities of Rhode Island. He soon returned to the state, was arrested, tried, and convicted of high treason, and sentenced to imprisonment for life. He was pardoned in 1847, and in 1853 the legislature restored to him his civil rights, and ordered the record of his sentence to be expunged. He lived to see his state under a liberal constitution, and his party in legal possession of the government.

DORSETSHIRE, a maritime co. of England, on the British channel; greatest length from E. to W. 57 m; greatest breadth, 40 m.; area, 987 sq. m.; pop. in 1851, 184,207. The seacoast is very irregular, running out in several promontories, and broken by Poole harbor and Weymouth or Melcombe Regis bay. The chief rivers are the Stour, Frome, and Piddle. The face of the country is undulating, there being no mountains, and the highest point, Pillerden Pen, being only 934 feet above the sea. A range of chalk downs, entering the county from Wiltshire on the N., passes S. W. and W. to the border of Somersetshire on the W., and is called the North downs; while a similar range, under the name of South downs, runs S. and S. E. from the W. terminus of the other, nearly par-

allel with the coast, to Poole harbor. The soil consists mainly of loose sand or gravel, interspersed with clay and chalk, and in some places mixed with these last, the conglomerate thus produced being the most fertile in the county. Beside the chalk formation, Dorsetshire contains pipe, plastic, and potters' clays, and has famous quarries of Portland stone, so called from the locality in which it is found, and which is exported to various parts of England, Ireland, and France. There are no ores nor coal. The downs are employed chiefly as sheep pastures, and it is estimated that the sheep stock amounts to 632,000, and the annual yield of wool to 10,000 packs. The Dorset sheep are noted as a profitable breed, and "Southdown mutton" has a high reputation. There is another and very small breed in the island of Purbeck, much prized by epicures. A large proportion of land is devoted to the use of the dairy. Excellent butter is made, but the cheese is of poor quality. The principal grain crops are wheat and barley. Potatoes, flax, and hemp are also raised, but husbandry is in a backward state. The manufactures comprise silk, woollens, cottons, blankets, canvas, ducks, fabrics of flax, gloves, parchment, buttons, strong beer, ale, and cider. Herrings, salmon, oysters, and large quantities of mackerel are taken off the coast. The chief towns are Dorchester, the county seat, Bridport, Lyme Regis, Weymouth, Poole, Shaftesbury, Wareham, and Sherbourne. Dorset returns 13 members to parliament, 3 of whom are for the county proper.

DORSEY, John Syng, an American physician, born in Philadelphia, Dec. 23, 1783, died Nov. 12, 1818. He was educated in his native city at a school belonging to the society of Friends, studied medicine with his relative Dr. Physick, and received the degree of M.D. in 1802. He visited France and England, and returning home in Dec. 1804, began the practice of his profession, in which his success was rapid. In 1807 he was elected adjunct professor of surgery in the Philadelphia medical school, was afterward transferred to the chair of materia medica, and having given 2 courses of lectures on that subject, was chosen to succeed Dr. Wistar in the professorship of anatomy. On the evening after delivering his introductory lecture he was attacked by a fever, and died at the end of a week, having gained at the age of 35 the reputation of one of the first surgeons of America. He contributed valuable papers to several periodicals, and published "Elements of Surgery" (2 vols. 8vo., 1813), which was adopted as a text book in the university of Edinburgh.

DORT, or Dordrecht (Lat. *Dordracum*), an ancient town of the Netherlands, in the province of South Holland, situated on an island in the Merwede, a river formed by the junction of the Meuse and the Waal; pop. in 1856, 22,000. The advantages of its position, 10 miles from Rotterdam, near the sea, accessible from the Rhine through the Waal, and having easy communication with an extensive inland district, have rendered it one of the first commercial towns of Holland. From Liége it receives coal, lime, and millstones. The vineyards on the Rhine supply it with wine, and from Switzerland and upper Germany it obtains timber, which drifts down the river in large rafts like floating islands, and is here collected, serving for ship-building and other purposes. The surrounding waters afford plenty of good fish and wild fowl. A flourishing trade is carried on in oil, seeds, grain, flax, and stock fish. There are oil mills, saw mills, salt and sugar refineries, bleaching grounds, and factories of white lead, tobacco, steel pens, and window glass. The port is excellent. There are canals leading to the interior of the town, and a number of quays. The houses have an exceedingly antiquated appearance; the windows are grotesquely ornamented, and the gable ends generally face the street. The public buildings are numerous, and some of them possess considerable historical interest. Three old houses formerly used as *doelens*, or places of rendezvous for armed burghers, are still standing. In one of these, now used as a public house, was held the famous Protestant synod of Dort, in 1618–'19, which condemned the doctrines of Arminius. The provincial synods of South Holland were held regularly in the same place until 1731, after which they convened in the great church. Another of the doelens has been converted into a court house, and a public school is taught in the third. Among the churches, the chief is St. Mary's, an immense building of great antiquity, originally used by the Roman Catholics, and then containing no less than 20 chapels and 40 altars. It has a square tower of considerable height, and a vaulted stone roof. The pulpit is a fine piece of workmanship, of white marble elaborately sculptured. The church is now held by the Protestants, who have beside 2 other places of worship. There are also a new Roman Catholic church, a congregation of Jansenists, numbering about 100, and a Jewish synagogue. The town hall is a very old building, but still in good preservation. Dort also has a corn exchange, a bank, an artillery arsenal, classical, agricultural, and other schools, an orphan asylum, alms houses, an infirmary, and a lunatic asylum. In 1421 it was involved in a terrible inundation, which is said to have swallowed up 70 villages, and to which the island of Dort owes its formation, the city having previously stood on the mainland. A conflagration in 1457 consumed upward of 2,000 houses, including many of the public edifices. At the time of the reformation the new doctrines, which were so well received in many towns of Holland, found few supporters here at first, though they were afterward received with avidity. The spot where the reformers first preached in Dort in 1572, beneath a linden tree which stood in front of one of the old doelens, is still pointed out to strangers. The first meeting of the states-general, at which the independence of the United Provinces was declared, was held here during the same year.

While the disputes about the stadtholdership were raging in 1672, the inhabitants of this town sided with the house of Orange; in 1786, when similar difficulties arose, and Prussia intervened, Dort took a decided stand against that kingdom, and succeeded in obtaining advantageous terms. During the wars of Napoleon the burghers displayed an undaunted spirit in maintaining their national independence.

DORT, Synod of. See Reformed Dutch Church.

DORTMUND, a town of Prussia, province of Westphalia, and capital of a circle of the same name; pop. in 1855, 20,000. It is enclosed by walls, has 5 gates, several churches, 2 hospitals, and some other public buildings, manufactories of woollen, linen, cotton, &c., 4 annual fairs, and a considerable trade. It was important at an early day, and was a member of the Hanseatic league, but its prosperity afterward declined. Formerly a free imperial city, it passed into the possession of the family of Nassau-Diez in 1802, and into the hands of Prussia in 1815.

DORUS-GRAS, Émilie, a French singer, born in Valenciennes in 1813. Her father, an officer under the first empire, was her earliest instructor in music, and at the age of 8 she was sent to the *conservatoire* of Paris. Having completed her education there, she made her début at Brussels in 1830; but returning to France in consequence of the revolution in Belgium, she accepted an engagement at the grand opera in Paris, where she remained upward of 20 years, most of the time in the capacity of leading prima donna. Her chief parts were in *Guillaume Tell*, *La muette de Portici*, *Fernand Cortez*, *Robert le diable*, *Les Huguenots*, and *La Juive*. Her voice has great compass and flexibility, and she is distinguished by brilliancy of execution and dramatic delivery. In 1833 she was married to M. Gras, an eminent violinist, with whom several years ago she retired from professional life.

DORY, the name of a family of scomberoid fishes, distinguished from the others of the group by having protractile mouths. This family of *zeidæ* contains the 6 genera of *zeus* (Linn.), *capros* (Lacép.), *caprophonus* (Müll. and Trosch.), *lampris* (Risso), *equula* (Cuv.), and *mene* (Lacép.) The name of dory is generally restricted to the genus *zeus* (Linn.), characterized by one dorsal fin deeply notched, or 2 contiguous dorsals of which the anterior is spinous, with delicate filaments projecting far beyond the spines; the ventrals, also spiny, are a little in advance of the pectorals; there are 2 anals, or 2 divisions of a single anal, the anterior portion being spinous and the posterior soft, like the dorsals; the caudal is distinct and rounded at the end; there are several bony dermal bifurcated plates or shields along the basis of the dorsal and anal fins; the branchiostegal rays are 7; the teeth numerous, small and feeble; the stomach large and cæcal, with very numerous pyloric cæca; air bladder large, simple, and oval. The best known species is the common or John dory (*Z. faber*, Linn.), a fish attaining a length of over 2 feet, of a grotesque form, and a yellowish tint; the body is oval, much compressed, with a smooth surface; the mouth is capable of such protrusion that the length from the point of the lower jaw to the posterior angle of the operculum may be made as great as from this angle to the base of the tail; the mouth is large, and the teeth are in a single row; the eyes are large, lateral, high up on the head, and with yellow irides; behind and over each eye is a spine. The general color is olive brown tinged with yellow, with blue, white, and golden reflections rapidly varying; on each side, very near the middle of the oval, is a round black spot surrounded by a narrow light ring. This fish was well known to the ancients, who expressed their regard for it by giving it the name of Jupiter. It has received a number of popular names, among others that of "St. Peter's fish;" with the haddock it disputes the honor of having been the species out of whose mouth this apostle took the tribute money, bearing on its sides, according to one popular tradition, the black spots indicating the marks of his finger and thumb; another tradition assigns the origin of these spots to the similar touch of St. Christopher as he bore the Saviour, wading through an arm of the sea. The name of dory has been derived from the French *adorée* (worshipped), and *dorée* (golden); the prefix of John has been derived from the French *jaune* (yellow); others consider John dory a corruption of *il janitore* (the gate-keeper), a name given to this species by the Adriatic fishermen, in allusion to St. Peter, who is often pictured as bearing the keys of the gates of heaven. From the resemblance of the first dorsal fin to a cock's comb, it has been called sea-chicken, *gal*, *gallo*, and in Gascony *jau* (cock), to which also some have traced the epithet of John, the whole name meaning the "gilt cock of the sea." This species is found in the Mediterranean, along the western coast of Europe, at the Canary islands, and on the English and Irish coasts; in England it is most common on the coasts of Devonshire and Cornwall. Its forbidding appearance has prevented it from being so much prized as an article of food as it deserves; it was highly esteemed, however, by the ancient Romans, and is now a favorite fish in many parts of England; it appears that Mr. Quin, equally famous as a comedian and an epicure, in the middle of the 18th century, first in England discovered the excellence of the dory for the table, and it is said that the English name of John dory was first given to the fish by him. It is a deep-water fish, and feeds on the fry of other species, shrimps, and mollusks; the average weight in the London market is 3 or 4 lbs., but some from the bay of Biscay have been seen weighing 12 to 16 lbs.; it often follows the pilchards, and is caught in the same nets with them; it readily takes the hook when baited with a living fish; very voracious, it seizes its prey by means of its protractile jaws, lying concealed among weeds and grasses. The elongation of

the mouth is due principally to the mobility of the intermaxillary and lower jaw bones, especially to the length of the ascending portion of the former. A second species (*Z. pungio*, Val.) is found in the Mediterranean; in this the spines of the 1st dorsal are much larger, the bifurcated spines along the 2d are 5 or 6 instead of 9 or 10, the osseous plates which bear them are stronger and more oval, and the scapular bone terminates in a large, round, pointed spine; the length is about 17 inches, and the color blackish brown. A species 2 feet long (*Z. capensis*, Val.) occurs at the cape of Good Hope; another (*Z. Japonicus*, Val.), of a grayish yellow color, with a deep blue spot, is found in Japan; and still another species in the Australian seas. In June, 1858, Dr. D. H. Storer described the first species of this genus found in American waters, in the "Proceedings of the Boston Society of Natural History" (vol. vi., p. 385); this is the spotted dory (*Z. ocellatus*, Storer), captured at Provincetown, Mass. The color is cupreous, marked with numerous more or less circular dark spots; the base of the 2d dorsal is longer than that of the 1st; along the dorsal fin are 7 bony spinous plates, along the anal 5, along the abdomen 8, and along the throat 4; the length was 6 inches.—The name of dory has been applied in this country to other scomberoid fishes of the genera *blepharis* (Cuv.), *argyreiosus* (Lacép.), and *vomer* (Cuv.), which were included by Linnæus and Bloch in the genus *zeus*, from which they were separated by Cuvier. These American dories have a very compressed body, and very singular forms. In the genus *blepharis* the body is sharp on the edges, with a brilliant smooth skin; the dorsal and anal fins have long filamentous rays from 4 to 12 inches in length, which from their resemblance to wax-ends have obtained for them in the West Indies the name of *cordonniers* (shoemakers). In the genus *argyreiosus* the 2d and 3d rays, or only the 1st, of one or both dorsals are filamentous; the great perpendicularity of the facial line gives a ridiculously solemn expression to this genus; these fishes are occasionally taken in the waters of New York, and are considered excellent articles of food. The genus *vomer* has a similar vertical profile and silvery lustre, but no filaments or prolongations of the fins; it is esteemed for food; the *V. Brownii* (Val.) of the New York coast is from 8 to 12 inches long.

DOSITHEANS, an ancient sect of the Samaritans, so called from their founder Dositheus, who was a contemporary and companion of Simon Magus, and flourished in the 1st century A. D. According to one account Dositheus was a disciple of John the Baptist, and, after the death of the latter, endeavored to place himself at the head of the followers of that prophet. Another account tells us that he tried to persuade the Samaritans to receive him as the Messiah. There were still in the 4th century a few Dositheans who adhered to their master as the true Messiah, but the sect was never of much importance.

DOUAY, or DOUAI, a town of France, capital of an arrondissement of the same name, in the department of Nord, 18 m. S. of Lille; pop. in 1856, 18,777. It is situated on the river Scarpe, and on the northern railway, thus having connection with the principal towns of France and Belgium. It is surrounded by walls, is strongly fortified, and contains several literary and scientific institutions, a public library, school of artillery, an arsenal and cannon foundery belonging to the government, and has manufactories of lace, embroidery, cotton, linen, leather, delft ware, glass, paper, refined sugar, salt, &c., several breweries, distilleries, and oil mills, and an extensive trade. Douay is a very ancient town, and, according to some, existed in the time of the Romans. It was a town of considerable importance when in possession of the counts of Flanders, from whom it came into the power of the king of Spain, and in 1667 passed into the hands of Louis XIV. Though taken by the duke of Marlborough in 1710, it was soon retaken by the French, and its possession was finally confirmed to them by the treaty of Utrecht in 1713. During the religious troubles in England in the 16th and 17th centuries, it acquired considerable celebrity as the seat of a Roman Catholic college and ecclesiastical seminary, founded by Dr. William (afterward Cardinal) Allen, for the education of English youths. Studies were commenced at this institution in 1568, and for about 10 years its prosperity was uninterrupted. But in the course of time the townspeople of Douay, then subjects of the king of Spain, grew jealous of their English neighbors, and in spite of the efforts of the magistrates to preserve peace, disturbances were of frequent occurrence. To prevent further mischief the college was removed to Rheims in 1578, where it was protected by the Guise family. In 1593 it was again established at Douay, and remained there until finally broken up by the French revolution in 1793. A translation of the Bible into English was made at this college by Dr. Gregory Martin, assisted by Dr. Allen, Dr. Richard Bristow, and Dr. John Reynolds. The New Testament was published at Rheims in 1582, and the Old Testament at Douay in 1609 and 1610. This is the translation received in the English Roman Catholic church, and known as the Rhemish or Douay version.

DOUBLEDAY, EDWARD, an English naturalist, born in 1810, died in London in 1849. At an early age he made a tour of the United States, and on his return published a paper on the "Natural History of North America," and was appointed one of the curators of the British museum. The most valuable of his contributions to science are the results of his researches concerning butterflies, published in a work "On the Genera of Diurnal Lepidoptera," which, however, he left unfinished at his death. He was also the author of a variety of papers on ornithology, entomology, and zoology, published in the "Entomological Magazine" and elsewhere.

DOUBLOON (Sp. *doblon*), a well known

gold coin of Spain and Spanish America, originally coined of the same weight and fineness as the Spanish dollar, and valued at $16. Its subdivisions in gold were the half doubloon, the quarter or *pistole*, the eighth or *escudo*, and in Spain the sixteenth or *veintein*. It is still coined in Mexico, Central America, and most of the South American states, but owing to a reduction of fineness is worth only from $15 50 to $15 60 of our money. (See Coins.)

DOUBS, a department on the E. frontier of France, named from the river Doubs, which rises in the Jura, and empties into the Saône; area, 2,020 sq. m.; pop. in 1856, 286,888. Its surface is for the most part mountainous, gradually rising from the more level country in the N. W. of the department to the rugged and sterile mountain peaks on the frontier of Switzerland. The principal rivers are the Doubs and the Oignon, though there is a large number of smaller streams. Agriculture is carried on to some extent, but the grain raised is insufficient for the wants of the inhabitants. Much attention is paid to the raising of horses and cattle, and a considerable portion of the department is devoted to pasturage. There are some iron mines, which are worked, and coal, gypsum, building stone, and salt are also produced. The manufactures comprise clocks, paper, leather, woollen and cotton cloth, iron and steel ware, butter, cheese, &c. The climate is somewhat variable, but is on the whole cold, and in the lower parts of the department much rain falls. The country is nevertheless healthy, and the inhabitants vigorous and sturdy. It is divided into 4 arrondissements. Capital, Besançon.

DOUCE, Francis, an English antiquary, born in 1762, died in London, March 30, 1834. He collected a great number of rare books, prints, medals, coins, &c., the most important of which he bequeathed at his death to the Bodleian library. His papers he gave to the British museum, on condition that the box which contained them should not be opened until the year 1900. Mr. Douce contributed some papers to the "Archæologia," and to the "Gentleman's Magazine," and was the author of "Illustrations of Shakespeare and Ancient Manners" (2 vols. 8vo., London, 1807), and a "Dissertation on the Dance of Death" (London, 1833).

DOUGHTY, Thomas, an American landscape painter, born in Philadelphia, July 19, 1793, died in New York, July 24, 1856. He was apprenticed in his youth to a leather manufacturer, and afterward carried on the business on his own account. A growing taste for art, however, induced him in his 28th year, contrary to the advice of his friends, to become a painter. He had previously attempted a few paintings in oil, which he himself has characterized as "mere daubs," and had received a quarter's tuition in India ink drawing. He practised his profession for many years in the United States, and also in London and Paris. For some years previous to his death his pencil was less active.

DOUGLAS. I. A S. W. co. of Oregon, bounded E. by the Cascade range, and drained by Umpqua river and its branches; pop. in 1858, 2,105. Organized in 1855. Capital, Winchester. II. An E. co. of Nebraska, bounded E. by the Missouri, which separates it from Iowa, and W. by the Platte river. It is drained by Elkhorn, Big Papillon, and Little Papillon rivers. Capital, Omaha City. III. An E. co. of Kansas, bounded N. by Kansas river, and drained by the Waukarusa; area, 500 sq. m.; pop. in 1859, about 12,000. It consists chiefly of rolling uplands, with a black loamy soil, well timbered, and producing Indian corn, wheat, oats, potatoes, sorghum, and hemp. The minerals are coal and carboniferous limestone. The county was settled in 1854, and its name was changed to Lincoln in 1859. Chief towns, Lawrence and Lecompton; the latter is the capital of the territory.

DOUGLAS. I. A seaport town on the E. coast of the isle of Man; pop. in 1851, 9,880. It is the capital of the island, and a watering place of much resort. It has a harbor capable of admitting vessels of 10 or 12 feet draught at high water, and a pier 520 feet in length. Steamers from Liverpool, Glasgow, and various ports of Ireland, often touch here. Ship-building is carried on to some extent, and many of the inhabitants are employed in the coasting trade and the fisheries. II. A village and parish of Lanarkshire, Scotland, on a river of the same name; pop. in 1851, 2,611. The parish is owned almost entirely by the heir-at-law of the Douglas family, who takes from this place his title of baron. The duke of Hamilton is marquis of Douglas. Near the village are the ruins of the ancient church of St. Bride, noted for its numerous family tombs, among which is a monument to "the good Lord James," the friend of Robert Bruce and the hero of Sir Walter Scott's tale, "Castle Dangerous."

DOUGLAS, a Scottish family, once so powerful that it passed into a proverb: "No man may touch a Douglas, nor a Douglas's man, for if he do, he is sure to come by the waur (worse)." The family has been connected with the most distinguished nobles of England, Scotland, France, and Sweden, and has intermarried 11 times with the royal houses of Scotland, once with that of England, and in 1841 with a princess of Baden. It held for a time the earldom of Athol, and one of its members acquired in the 14th century the title of earl of Douglas and Mar. The earls of Angus afterward became the heads of the family, and the 11th of that title was created marquis of Douglas in 1633, while another branch acquired the earldom of Queensberry. The 3d marquis was made a duke, but dying without issue the title of marquis of Douglas fell to the duke of Hamilton, and the chief dignities of the family are now held by the houses of Buccleugh and Queensberry. Baron James Douglas of Douglas was a son of Archibald Stewart, nephew of Archibald, duke of Douglas, whose legitimacy was contested by the duke of Hamilton; it being alleged on Stewart's behalf that he was one of a pair of twins born in Paris,

July 10, 1748, when his mother was in her 51st year; the other twin was said to have died in infancy. The Scotch courts determined in favor of Hamilton, but the house of lords reversed the judgment. This suit, known as the Douglas case, was one of the most extraordinary ever litigated in Great Britain. Mr. Stewart was elevated to the peerage as Baron Douglas in 1790. Baron James, the late peer, died April 6, 1857, when this title became extinct, and the estates devolved on his half sister, Lady Montagu. Among the present representatives of the great Douglas family is Sir Robert Douglas, an officer in the army, born July 19, 1837.

DOUGLAS, David, a British botanist, born in Scone, Scotland, in 1798, killed in the Sandwich islands, July 12, 1834. Having been employed as a laborer in the Glasgow botanic garden, his intelligence attracted the notice of Dr. (afterward Sir William) Hooker, who procured for him an appointment as botanical collector to the horticultural society of London. In this capacity he travelled extensively in America; in 1824 explored the Columbia river and California, and in 1827 traversed the continent from Fort Vancouver to Hudson's bay, where he met Sir John Franklin, and returned with him to England. He made a second visit to the Columbia in 1829, and afterward went to the Sandwich islands. His death was caused by falling into a pit made to entrap wild cattle, where he was killed and mutilated by an animal previously entrapped. Through his agency 217 new species of plants were introduced into England. He collected 800 specimens of the California flora. A gigantic species of pine which he discovered in California is named after him *pinus Douglasii*.

DOUGLAS, Gawin, or Gavin, a Scottish poet, bishop of Dunkeld, youngest son of Archibald, 5th earl of Angus, born in Brechin about 1474, died of the plague in London in 1521 or 1522. He was educated for the church, partly in Scotland and partly at Paris, and when 22 years of age was appointed rector of Hawick. While in this office he translated into verse Ovid's "Remedy of Love." In 1501 he addressed to King James IV. the "Palace of Honor," an allegory which resembles so much in structure the "Pilgrim's Progress," that Bunyan has been thought to have borrowed the idea of his work from that of the Scotch bishop. In 1509 he was appointed provost of St. Giles's, Edinburgh. At the solicitation of Lord Sinclair, who afterward fell at Flodden, he translated the Æneid into Scottish verse. The original issue bears the title page: "The xiii. bukes of Eneados of the famose poet Virgill, translatet out of Latyne verses into Scottish metir, bi the Reuerend Father in God, Mayster Gawin Douglas, Bishop of Dunkel, & vnkil to the Erle of Angus: euery buke hauing hys perticular prologe" (4to., London, 1553). This work was written in 16 months and finished in 1513, though first printed 40 years later. It is praised for its spirit and fidelity. The 13th book was the production of Mapheus Vegius. In Sept. 1513, "the provost of St. Giles," as he was now called, accompanied the king to Flodden field, where his 2 elder brothers, the master of Angus and Sir William Douglas, with 200 gentlemen of their name, were slain. Soon afterward the earl his father died of grief. The chief of Douglas was now the young earl of Angus, nephew of Gawin. This youth married the queen regent, and was the means of Gawin's obtaining the abbacy of Aberbrothwick, and a nomination to the archbishopric of St. Andrew's, which would have made him head of the church in Scotland. The pope would not assent to this appointment, and as the partisans of the various candidates appealed to arms, it ended in Gawin's abbacy being taken from him. Thereupon the queen made him bishop of Dunkeld, in 1515. On taking possession of his see he found it in armed possession of the earl of Athol's brother, Andrew Stewart. Douglas's friends rallied in force and took the cathedral, after which the contention went on for years between the rival families of Angus and Hamilton, and in April, 1520, both families met in Edinburgh to fight it out. Bishop Gawin, foreseeing bloodshed, besought Beaton, archbishop of Glasgow, a partisan of the Hamiltons, to prevent the fray. The archbishop, who was in canonical habit, struck his hand on his breast and declared on his conscience that he knew nothing of any attempted violence. Unfortunately the archbishop had armor under his gown, intending himself to take part in the fight; his gesture of asseveration caused the steel to clash. "Methinks," said Douglas drily, "your conscience clatters." Douglas's intercessions were of no avail; the forces of the rival lords met. Hamilton was defeated, and the bishop had the revenge, later in the day, of saving the life of Beaton, whom the victors were about to slay on the altar of Blackfriars' church. Next year the regent Albany called the Angus party to account, and the earl, with Gawin and the chief men of his name, were forced to fly to England, where Henry VIII. received them well, and allowed Gawin a pension. An allegorical poem of his, entitled "King Hart," was left in manuscript, and published by Pinkerton in his "Ancient Scottish Poems," 1788. According to Hallam, "the character of Douglas's original poetry seems to be that of the middle ages in general—prolix, though sometimes animated, description of sensible objects." Warton thinks, on the contrary, that his metrical prologues are "often highly poetical, and show that Douglas's proper walk was original poetry."

DOUGLAS, Sir Howard, an English general, born in Gosport, Hampshire, July 1, 1776. He entered the army at an early age, served in Walcheren, and in the Spanish and Portuguese campaigns in 1808–'9–'11–'12. He succeeded his brother as 3d baronet, May 24, 1809. In 1823 he was appointed governor of New Brunswick, and held that office until 1829, in which year he received the degree of D.C.L. from the university of Oxford. He was lord high commissioner

of the Ionian islands from 1835 to 1840, and member of parliament for Liverpool from 1842 to 1847. He was raised to the rank of general in 1851. Sir Howard is the author of several valuable works on military science, among which are an essay "On the Construction of Military Bridges," &c. (1817), and "A Treatise on Naval Gunnery" (1819). In a 4th edition of the latter work, published in 1855, he reviewed very severely the military operations in the Crimea.

DOUGLAS, John, D.D., an English prelate, born in Pittenweem, Fifeshire, Scotland, in 1721, died in Salisbury, May 18, 1807. He was chaplain to a regiment of foot guards serving in Flanders, was present at the battle of Fontenoy (1745), and was employed by Gen. Campbell in carrying orders. After having held various ecclesiastical benefices, chiefly through the patronage of the earl of Bath, in 1781 he was chosen president of Sion college; in 1787 was made bishop of Carlisle; in the succeeding year became dean of Windsor; and in 1792 was translated to the see of Salisbury. He was a member of the royal society, and vice-president of the antiquarian society. Beside an early literary effort entitled "A Vindication of Milton from the charge of Plagiarism," Dr. Douglas wrote many religious and political pamphlets. He also superintended in 1762 the publication of the 2d Lord Clarendon's "Diary and Letters;" in 1777, Lord Hardwick's "Miscellaneous Papers," and Capt. Cook's second voyage; and in 1781, Capt. Cook's last voyage. His religious writings were several anniversary sermons; the "Criterion, or Miracles Examined," intended as a vindication of the Christian miracles from the attacks of Hume; with sundry controversial discourses against the Hutchinsonians, Methodists, and other sects. He was a member of the club instituted by Dr. Johnson, and is accordingly mentioned by Boswell and Goldsmith.

DOUGLAS, Stephen Arnold, an American statesman, born at Brandon, Rutland co., Vt., April 23, 1813. His father was a native of the state of New York, and a physician of considerable reputation. He died suddenly of apoplexy when his son Stephen Arnold was but little more than 2 months old. The widow, with her infant and a daughter only 18 months older, retired to a farm which she had inherited conjointly with an unmarried brother. At the age of 15 her son, who had received a good common school education, desired to prepare for college; but his family proving unable to bear the requisite expense, he left the farm, determined to earn his own living, and engaged himself as an apprentice to the trade of cabinet making, at which he worked a year and a half, partly at Middlebury and partly at Brandon, when his health became so impaired by the severity of the labor that he abandoned the occupation altogether. He has often since said that the happiest days of his life were passed in the workshop. He now entered the academy at Brandon as a student, and remained there a year. His mother about this time was married to Mr. Granger, of Ontario co., N. Y., to whose son her daughter had been previously married. Young Douglas removed with his mother to Canandaigua, and entered as a student the academy of that place, in which he continued till 1833. He studied law in the office of the Messrs. Hubbell, at the same time that he pursued his academical course, having finally adopted that as his profession. In the spring of 1833 he went to the West in search of an eligible place in which to establish himself as a lawyer. At Cleveland he was detained the whole summer by severe illness, after his recovery from which he went to Cincinnati, Louisville, St. Louis, and Jacksonville, Ill. At Jacksonville he found his funds reduced to 37½ cents, and accordingly walked to Winchester, a little town 16 miles distant, where he hoped to get employment as a school teacher. He found there a large crowd assembled to attend the auction sale of the stock of a deceased trader. The auctioneer was without a clerk to keep the account of the sale, and perceiving that Mr. Douglas, who stood among the spectators, looked like a man who could write and keep accounts, requested him to serve in that capacity. Mr. Douglas consented, and acted as clerk during the three days of the sale, receiving for his services $6. With this capital in hand he promptly opened a school, and obtained 40 pupils, whom he taught for 3 months at $3 a quarter, devoting his evenings to the study of some law books which he had borrowed in Jacksonville, and on Saturday afternoons practising in petty cases before the justice of peace of the town. In March, 1834, he opened an office and began practice in the higher courts, for which, after examination, he had obtained license from the judges of the supreme court. He was remarkably successful at the bar, as may be inferred from the fact that within a year from his admission, while not yet 22 years of age, he was elected by the legislature attorney-general of the state. This office he resigned in Dec. 1835, in consequence of having been elected to the legislature by the democrats of Morgan co. He took his seat in the house of representatives, the youngest member of that body. In 1837 he was appointed by President Van Buren register of the land office at Springfield, Ill., a post which he resigned in 1839. In Nov. 1837, Mr. Douglas received the democratic nomination for congress, although he was under 25 years of age, and consequently ineligible. He however attained the requisite age before the day of election, which was the 1st Monday in Aug. 1838. His congressional district was then the most populous one in the United States, and the canvass was conducted with extraordinary zeal and energy. Upward of 36,000 votes were cast, and the whig candidate was declared to be elected by a majority of 5 only. A number of ballots sufficient to have changed the result were rejected by the canvassers because the name of Mr. Douglas was incorrectly spelled. After this defeat, which under the circumstances was claimed by his friends as a victory,

Mr. Douglas devoted himself exclusively to his profession until 1840, when he entered into the famous presidential campaign of that year with so much ardor that he traversed the state in all directions for 7 months, and addressed more than 200 political gatherings. To his exertions was ascribed the adherence of Illinois at that election to the democratic party. In Dec. 1840, Mr. Douglas was appointed secretary of state of Illinois. In Feb. 1841, he was elected by the legislature a judge of the supreme court, which office he resigned in 1843 to accept the democratic nomination for congress, which was urged upon him against his known wishes, on the ground that he was the only democrat who could be elected. After a spirited canvass Mr. Douglas was chosen by upward of 400 majority. He was reëlected in 1844 by a majority of 1,900, and again in 1846 by nearly 3,000 majority. He did not, however, take his seat under the last election, having in the mean time been chosen to the senate of the United States for 6 years from March 4, 1847. In the house of representatives Mr. Douglas was prominent among those who, in the Oregon controversy with Great Britain, maintained that our title to the whole of Oregon up to lat. 54° 40′ was "clear and unquestionable." He declared that "he never would, now or hereafter, yield up one inch of Oregon, either to Great Britain or any other government." He advocated the policy of giving notice to terminate the joint occupation; of establishing a territorial government over Oregon, protected by a sufficient military force; and of putting the country at once in a state of preparation, so that if war should result from the assertion of our just rights, we might drive "Great Britain and the last vestiges of royal authority from the continent of North America, and make the United States an ocean-bound republic." He denied the right of the federal government to prosecute a system of internal improvements in the states, though he maintained the constitutionality and expediency of improving rivers, harbors, and navigable waters, and advocated a scheme of tonnage duties for that purpose, to be levied and expended by the local authorities. He was mainly instrumental in securing the passage of the law extending the maritime and admiralty jurisdiction of the federal courts over the great chain of northern lakes, having reported the bill as a member of the judiciary committee, and put it upon its passage, when a member of the house of representatives. He was among the earliest advocates of the annexation of Texas, and after the treaty for that object had failed in the senate, he was one of those who introduced propositions, in the form of joint resolutions, as a substitute for that treaty. As chairman of the committee on territories in 1846 he reported the joint resolution declaring Texas to be one of the United States of America, and he vigorously sustained the administration of President Polk in the measures which it adopted for the prosecution of the war with Mexico, which was the ultimate consequence of that act. As chairman of the territorial committee, first in the house of representatives, and afterward in the senate, he reported and successfully carried through the bills to organize the territories of Minnesota, Oregon, New Mexico, Utah, Washington, Kansas, and Nebraska, and also the bills for the admission into the Union of the states of Iowa, Wisconsin, California, Minnesota, and Oregon. So far as the question of slavery was involved in the organization of territories and the admission of new states, he early took the position that congress should not interfere on the one side or the other, but that the people of each territory and state should be allowed to form and regulate their domestic institutions to suit themselves. In accordance with this principle he opposed the "Wilmot proviso" when first passed in the house of representatives in 1847, as an amendment to the bill appropriating $3,000,000 to enable President Polk to make a treaty of peace with Mexico, and afterward in the senate when offered as an amendment to the bill for the organization of the territory of Oregon. In August, 1848, however, he offered an amendment to the Oregon bill, extending the Missouri compromise line indefinitely westward to the Pacific ocean, in the same sense and with the same understanding with which it was originally adopted in 1820, and extended through Texas in 1845, prohibiting slavery in all the territory north of the parallel of 36° 30′, and by implication recognizing its existence south of that line. This amendment was adopted in the senate by a decided majority, receiving the support of every southern, together with several northern senators, but was defeated in the house of representatives by nearly a sectional vote. The refusal of the senate to adopt the policy of congressional prohibition of slavery in all the territories, and the rejection in the house of representatives of the proposition to extend the Missouri compromise to the Pacific ocean, gave rise to the sectional agitation of 1849–'50, which was temporarily quieted by the legislation known as the compromise measures of 1850. Mr. Douglas supported these measures with zeal and vigor; and on his return to his home in Chicago, finding them assailed with great violence, he defended the whole series in a speech to the people (Oct. 24, 1850) which is regarded by his friends as one of the ablest he has ever made. In this speech he defined the principles on which the compromise acts of 1850 were founded, and upon which he subsequently defended the Kansas-Nebraska bill, in these words: "These measures are predicated on the great fundamental principle that every people ought to possess the right of framing and regulating their own internal concerns and domestic institutions in their own way. . . . . These things are all confided by the constitution to each state to decide for itself, and I know of no reason why the same principle should not be extended to the territories." Mr. Douglas was an unsuccessful candidate before the democratic national convention at Baltimore

in 1852, for the nomination for the presidency. On the 30th ballot he received 92 votes, the highest number given to any candidate on that ballot, out of a total of 288 votes. At the congressional session of 1853–'4, he reported from the committee on territories the celebrated bill to organize the territories of Kansas and Nebraska, which effectually revolutionized political parties in the United States, and formed the issues upon which the democratic and republican parties became arrayed against each other. The passage of this bill caused great excitement in the free states of the Union, and Mr. Douglas as its author was widely and vehemently denounced, and in many places was hanged and burned in effigy. The whole controversy turned on the provision repealing the Missouri compromise, which Mr. Douglas maintained to be inconsistent with the principle of non-intervention by congress with slavery in states and territories. After repealing the Missouri restriction, the bill declared it to be the "true intent and meaning of the act, not to legislate slavery into any state or territory, nor to exclude it therefrom, but to leave the people thereof perfectly free to form and regulate their domestic institutions in their own way, subject only to the constitution of the United States." Whatever diversity of opinion may exist in regard to the correctness of this principle and the propriety of its application to the territories, it must be admitted that Mr. Douglas has proved faithful to it under all circumstances, and defended it whenever assailed or violated. In 1856 Mr. Douglas was again a candidate for the presidential nomination before the democratic national convention at Cincinnati. The highest vote he received was on the 16th ballot, which stood, for Mr. Buchanan 168, for Mr. Douglas 121, for Mr. Cass 6. In the congressional session of 1857–'8, he denounced and opposed with energy and ability the Lecompton constitution, upon the distinct ground that it was not the act and deed of the people of Kansas, and did not embody their will. Before the adjournment of that session of congress he returned home to vindicate his action before the people of Illinois in one of the most exciting and well-contested political canvasses ever known in the United States. He had to encounter the determined hostility of the federal administration and all its patronage, and the powerful opposition of the republican party. But he succeeded in carrying the election of a sufficient number of state senators and representatives to secure his return to the U. S. senate for 6 years from March 4, 1859, by 54 votes for him to 46 for Abraham Lincoln, his able and distinguished opponent. It was manifest, however, by the popular vote for certain state officers who were chosen simultaneously with the members of the legislature, that a majority of the people were opposed to Mr. Douglas. The republican candidate for superintendent of common schools received 124,566 votes; the Douglas candidate for the same office, 122,413; and the Buchanan or administration candidate, 5,173. During the whole of that contest he maintained and defended the doctrine of non-intervention and popular sovereignty, in the same sense in which he had previously proclaimed it in congress. Subsequently, in a debate in the senate (Feb. 23, 1859), he avowed and defended the same doctrine when assailed by several of the ablest senators of the democratic party.—Mr. Douglas has been remarkably successful in promoting the local interests of his own state during his congressional career. To him, more than to any other individual, is Illinois indebted for the magnificent grant of lands which secured the construction of the Illinois central railroad, and contributed so much to restore the credit and develop the resources of the state. He has always been a warm supporter and advocate of a railroad from the Mississippi river to the Pacific ocean, having been a member of the various select committees of congress on that subject, and being the author of several bills reported by those committees. Mr. Douglas's views in regard to our foreign relations have seldom been in accordance with the policy of the administration. He opposed the treaty with England limiting the Oregon territory to the 49th parallel, contending that England had no rights on that coast, and that the United States should never recognize her claim. He opposed the treaty of peace with Mexico on the ground that the boundaries were unnatural and inconvenient, and that the provisions in regard to the Indians could never be executed. The United States have since paid Mexico $10,000,000 to change the boundaries and relinquish the stipulations in regard to the Indians. He opposed the ratification of the Clayton and Bulwer treaty, and endeavored to procure its rejection, upon the ground, among other things, that it pledged the faith of the United States in all time to come never to annex, colonize, or exercise dominion over any portion of Central America. He declared that he did not desire to annex that country at that time, but maintained that the isthmus routes must be kept open as highways to the American possessions on the Pacific, that the time would come when the United States would be compelled to occupy Central America, and that he would never pledge the faith of the republic not to do in the future in respect to this continent what its interests and safety might require. He has also declared himself in favor of the acquisition of Cuba whenever the island can be obtained consistently with the laws of nations and the honor of the United States.—Mr. Douglas was married, April 7, 1847, to Miss Martha D. Martin, daughter of Col. Robert Martin of Rockingham co., N. C., by whom he had 3 children, 2 of whom are living. She died Jan. 19, 1853. He was again married, Nov. 20, 1856, to Miss Adèle Cutts, daughter of James Madison Cutts of Washington, D. C., second controller of the treasury.

DOUGLASS, David Bates, LL.D., an Amer-

ican engineer, born in Pompton, N. J., March 21, 1790, died in Geneva, N. Y., Oct. 19, 1849. He was graduated at Yale college in 1813, entered the army as 2d lieutenant of engineers, and was stationed at West Point. In the summer of 1813 he was ordered to the Niagara frontier, and arrived just in time to take part as a volunteer in the battle of Niagara. In the subsequent defence of Fort Erie, in August and September, he distinguished himself, and was at once promoted to a first lieutenancy, with the brevet rank of captain. He was ordered to West Point, Jan. 1, 1815, and made assistant professor of natural and experimental philosophy. In 1819 he acted during the summer recess as astronomical surveyor of the boundary commission from Niagara to Detroit, and in the summer of 1820 accompanied Gov. Cass in a similar capacity to the northwest. In August of the same year, while on this duty, he was promoted to the professorship of mathematics in the military academy at West Point, vacant by the death of his father-in-law, Prof. Andrew Ellicott, with the rank of major in the army. In 1823 he was transferred at his own desire to the professorship of civil and military engineering. The science of engineering was then new in this country, and few great works had been executed. He devoted himself to it with unsparing energy, and soon acquired a wide reputation. Many advantageous offers were made him, but he chose to remain at West Point. He was however employed by the state of Pennsylvania during the summer recesses from 1826 to 1830 as a consulting engineer, and charged with the surveys of several of the more difficult parts in its system of public works. In 1831 he resigned his professorship, and became chief engineer of the Morris canal, residing in Brooklyn. In 1832 he was appointed professor of civil architecture in the new university of the city of New York, and prepared the designs for its building. In June, 1833, he commenced his surveys for the great work of supplying New York with water, and in November submitted his first report, demonstrating the feasibility of such a supply, and showing how to obtain it from the Croton river. He reviewed his surveys in 1834, and prepared plans and estimates for the city authorities, and the next spring it was determined by a vote of the citizens that the aqueduct should be built. Water commissioners were appointed, and Major Douglass was at once elected chief engineer, and proceeded to lay out minutely the line of the aqueduct and complete his plans. He had accomplished his preliminary work when he was superseded. In 1839 he planned and laid out Greenwood cemetery. In 1840 he was elected president of Kenyon college, Ohio, and removed to Gambier in the spring of 1841. He withdrew from this office in 1844, and returned to the vicinity of New York. In 1845 he delivered a course of lectures at New Haven on the Niagara campaign. They had been originally delivered in New York in 1839, and soon afterward repeated at Albany during the session of the legislature, in the hall of assembly, and at Buffalo. In 1845–'6 he laid out the cemetery at Albany, and in 1847 was employed in developing the landscape features of Staten island. In 1848 he laid out the Protestant cemetery at Quebec, and in the same year he was elected professor of mathematics and natural philosophy in Geneva college. He accepted the office, and entered upon its duties in October, but died the next year. His published writings consist chiefly of reports on the numerous works on which he was employed, and which he projected.

DOUGLASS, Frederick, an American abolitionist, born at Tuckahoe, near Easton, Talbot co., Md., about 1817. His mother was a negro slave and his father a white man. He was reared as a slave on the plantation of Col. Edward Lloyd, until at the age of 10 he was sent to Baltimore to live with a relative of his master. He secretly taught himself to read and write, was employed in a ship yard, and, in accordance with a resolution long entertained to achieve his freedom, at the age of 21 fled from Baltimore and from slavery, Sept. 3, 1838. He made his way to New York and thence to New Bedford, where he married and lived for 2 or 3 years, supporting himself by day labor on the wharves and in various workshops. In the summer of 1841 he attended an anti-slavery convention at Nantucket, and made a speech which was so well received that at the close of the meeting he was offered and accepted the position of agent of the Massachusetts anti-slavery society, to deliver public addresses on slavery. In this capacity he travelled and lectured through Massachusetts and other New England states for 4 years. In 1845 he published an autobiography, entitled the "Life of Frederick Douglass," and soon after its appearance he went to Europe and lectured on slavery to crowded audiences in nearly all the large towns of England, Ireland, Scotland, and Wales. In 1846 his friends in England contributed £150 to buy him from his claimant in Maryland, and have him regularly manumitted in due form of law. He remained 2 years in Great Britain, and on his return to the United States in 1847 he began at Rochester, N. Y., the publication of "Frederick Douglass's Paper," a weekly journal which he still continues to edit. Mr. Douglass, at the beginning of his public career as a lecturer and editor, was a Garrisonian disunionist. Several years ago, however, he renounced disunionism, and now maintains in his paper and in his public addresses that slavery is illegal and unconstitutional. In 1855 he rewrote and enlarged his autobiography, under the title of "My Bondage and my Freedom," of which the 18th thousand was published at New York and Auburn in 1857.

DOURO, or Duero, one of the largest rivers of the Spanish peninsula, rises on the frontiers of the provinces of Soria and Burgos, and flows into the Atlantic at Oporto. Its current is rapid, and its course, for the most part, through nar-

row valleys. For a considerable distance it forms the boundary between Spain and Portugal. It is navigable for small vessels as far as the Spanish frontier, and receives the waters of the Pisuerga, Seco, Esla, Sabor, Tua, Tamega, Adaja, Tormes, Turon, Coa, and Tavora, beside many smaller streams. Navigation is often interrupted by freshets, and the river is but little used for commercial purposes. On its banks are the vineyards which produce the celebrated wines of Oporto. Its length, including windings, is estimated at from 400 to 500 miles.

DOUVILLE, Jean Baptiste, a French traveller and naturalist, born in Hambie, Feb. 15, 1794. The death of a rich relative gave him the means of gratifying a taste for adventure, and he travelled in Europe, South America, and Asia, landing at Genoa on his return in 1824. In 1826 he went to Paris, where he was made member of the geographical society. He sailed from Havre, Aug. 6 of the same year, for Buenos Ayres, where he arrived Oct. 29. The La Plata was at that time under blockade by the Brazilians, and the French vessel was captured while endeavoring to violate it; but Douville was befriended by the Brazilian admiral, and after a short sojourn at Montevideo, was sent to Buenos Ayres, where, finding his resources nearly exhausted, he attempted to replenish them by mercantile operations. Having been accused of some fraudulent transaction in business, of which he was afterward acquitted, he left Buenos Ayres in disgust, and went to Rio Janeiro, Aug. 1827. On Oct. 15 he embarked for Congo, whence he returned to France in 1831. The stories of his discoveries in several kingdoms hitherto almost unknown to Europeans, and of his exploration of the Congo or Zaire and other rivers, aroused great enthusiasm among the Parisians. He received a medal from the geographical society; his researches were published under the title of *Voyage au Congo et dans l'Afrique équinoxiale* (4 vols., with a map, Paris, 1832), and his book and chart were used as the basis of subsequent maps of Africa. But the evident exaggeration of some of his statements soon awakened suspicion. The English "Foreign Quarterly Review" assailed him as an impostor, and a few weeks later his deceptions were more fully exposed in the *Revue des deux mondes*. To cover his shame by real discoveries, he sailed for Brazil in 1833, and penetrated to the interior of South America, by the Amazon. Nothing has since been heard of him. Recent discoveries in Africa prove the truth of the accusations against him, although it is supposed that he reached the interior of that country, or that at least he obtained his information from Portuguese documents before unpublished; and some geographers of repute still credit a portion of his narrative.

DOUW, or Dow, Gerard, a Dutch painter, born in Leyden in 1613, died there in 1680. He had been engaged for some time in painting on glass, when he became a pupil of Rembrandt, under whom he studied for 3 years. He began with portrait painting, but was so extremely slow in finishing that no one would submit to the tediousness of sitting to him. He then devoted himself to painting domestic scenes. He was so exact in the imitation of objects, that a glass is needed to appreciate the skill and delicate finish of his work. His drawing was neither bold nor correct, but his figures are not wanting in life and expression, and his coloring is strong, fresh, and harmonious. He shared none of the poetical taste of his master, for his pictures generally consist of 2 or 3 figures engaged in the most trivial and often disagreeable occupations, as many of their titles indicate. Among the most celebrated are the "Dropsical Woman," the "Village Grocer's Wife," the "Dentist," and the "Violin Player." His works are to be found in all the public galleries of Europe, but private fortunes were hardly sufficient to command them, for it was the rule of Douw to be paid for his pictures according to the time they cost him.

DOVE, a river of England, noted for its picturesque scenery. It rises near Buxton, among the hills of the Peak of Derbyshire, and falls into the Trent, after a southerly course of 39 miles. Near the town of Ashbourne it flows through a remarkable winding chasm 2 miles in length, called Dovedale.

DOVE, Heinrich Wilhelm, a German meteorologist, born in Liegnitz, Prussian Silesia, Oct. 6, 1803. He was educated at Breslau and Berlin, in 1826 became a teacher and subsequently a professor extraordinary in the university of Königsberg, and in 1829 was invited to Berlin, where he has since filled the professorship of physics. For a series of years he has devoted much attention to the investigation of the laws which regulate atmospheric phenomena, and which he has evolved with clearness and precision. His reports and isothermal maps, prepared from an immense number of isolated observations, afforded the first representation of the isothermal lines of the whole globe for every month of the year, beside much kindred information, the importance of which to meteorologists can scarcely be overestimated. His investigations on the thermal influence of the gulf stream and on kindred subjects have also attracted the favorable notice of scientific men. As an experimenter in electricity he was the first to announce the presence of a secondary current in a metallic wire, at the moment that the circuit of the principal current is completed. Of his works, many of which have appeared in the "Transactions" of the Berlin academy of sciences, and in Poggendorf's *Annalen*, the principal are: *Ueber Mass und Messen; Meteorologische Untersuchungen; Ueber die nicht periodischen Aenderungen der Temperaturvertheilung auf der Oberfläche der Erde; Untersuchungen im Gebiete der Inductionselektricität; Temperaturtafeln; Monatsisothermen*, &c. In a more popular style he has written several treatises on meteorological and electrical phenomena, which have found many readers. In the

capacity of director of the Prussian observatories he publishes each year the results of their labors. Among his most recent writings are *Klimatologische Beiträge* (Berlin, 1857).

DOVER. I. A city and capital of Strafford co., N. H., situated 12 m. from the ocean, on both sides of the Cocheco river, 68 m. N. of Boston, and 12 m. N. W. of Portsmouth; pop. in 1775, 1,666; 1820, 2,871; 1830, 5,449; 1840, 6,458; 1850, 8,166; 1859, about 9,200. The Cocheco river runs through the township, and furnishes great motive power, the principal fall being 32½ feet. The supply of water is maintained through the dry season by draining Bow pond in the town of Strafford, which has been converted into an immense reservoir. The falls are situated at the head of tide water, to which point the river is navigable for sloops and schooners. The Cocheco company is one of the oldest incorporated manufacturing companies in the United States, and its operations have been among the most successful. It has 4 large mills for the manufacture of print cloths, also a large printery and machine shop, turning out about 9,000,000 yards per annum, and employing about 2,000 persons, the majority of whom are females. The mills are in the form of a quadrangle, and make an imposing appearance. There is also a mill for the manufacture of woollens, also an iron foundery, several tanneries, and other manufactures. The total capital employed is about $2,500,000. Black river, in the south part of the town, a smaller stream, furnishes water power which is used by establishments for the manufacture of flannels, carriages, and for various other mechanical employments. The town was settled in 1623 by the Laconia company of fishmongers of London, and is the oldest in the state. The first settlement was made on the tongue of land formed by the union of Cocheco and Piscataqua rivers. The settlement at "Strawberry Bank," or Portsmouth, was made about the same time, on the bank of the Piscataqua, a short distance down the river. It is one of the most fertile townships in the state, and the farms are in a high state of cultivation. The city is regularly laid out, and contains many elegant private residences. It is connected with Boston and Portland by the Boston and Maine railroad, and also with Winnepiseogee lake by the Cocheco road; the last named is a favorite route to the White mountains. The 3d Congregational church in the state was organized in this town about 1638. The first church edifice in the state stood on the ridge of land which rises gradually from the Piscataqua river, and was surrounded by palisades as a protection from the Indians. Jeremy Belknap, the first historian of the state, and the author and editor of several important works, was pastor of the church for 20 years from 1767 to 1787. There are 10 churches in the town, and about 70 stores. The city hall is a commodious and substantial brick edifice. The schools are excellent, and the high school building recently erected is one of the finest in the state. A monthly magazine and 3 weekly newspapers are published here. II. A post town, capital of the state of Delaware and of Kent co., on Jones's creek, 5 m. above Delaware river; pop. in 1850, 4,207. It is regularly built, mostly of brick, on high ground, 50 m. S. from Wilmington, and 114 N. E. from Washington. The streets are wide, straight, and cross each other at right angles. The principal public buildings face an open square, the E. side of which is occupied by a handsome state house. In 1850 there were 4 churches, 2 large hotels, a newspaper office, an academy, 9 schools, 3 grist mills, and 2 saw mills. The town contains a monument to the memory of Col. John Haslett, who fell in the battle of Princeton, a telegraph office, and one bank. The line of the Delaware, New Castle and Wilmington, and Wilmington and Frenchtown railroads, from Philadelphia to Seaford, passes through it. The trade is chiefly in flour with Philadelphia. III. A village and township of Tuscarawas co., Ohio, on the right bank of Tuscarawas river, near the mouth of Sugar creek, 98 m. S. from Cleveland; pop. of the township in 1850, 3,248; of the village in 1853, 1,500. It is regularly laid out, on the W. side of the Ohio canal, across which and the river there is a bridge 346 feet long. It is the shipping point for large quantities of wheat and flour; in 1851 the amount was stated at 534,415 bushels of wheat, and 40,495 barrels of flour. The town has great facilities for manufacturing, and in 1854 contained a woollen factory, 2 furnaces, 3 tanneries, a saw mill, 2 grist mills, and churches of 6 denominations. The name of its post office is Canal Dover.

DOVER (Fr. *Douvres;* anc. *Dubris*), a parliamentary and municipal borough, cinque port, and fashionable watering place of Kent, England, situated on the N. W. shore of the strait of Dover; pop. in 1851, 22,244. It is built mainly in a valley, partly encompassed by an amphitheatre of chalk hills, cliffs, and downs, on which stand a castle, a citadel, and several fortresses. The castle, an immense structure, whose walls enclose 35 acres of ground, is supposed to have been founded by the Romans. Other portions, however, are of Norman and Saxon construction, while others again belong to still later epochs. It contains a spacious keep, used as a magazine and considered bomb-proof, and barracks for 2,000 men, beside which extensive barracks for the officers, outside of the castle, were erected in 1857. Within the precincts of the castle stands an octagonal watch tower, interesting not only as the earliest specimen of Roman architecture, but also as one of the most ancient pieces of regular mason-work in Great Britain. In the time of Edward the Confessor Dover castle was considered the key to the whole kingdom. In 1296 the French made a descent upon this place, and committed great depredations in the neighbouring country. It witnessed the landing of Charles II. on his restoration to the British throne, May 27, 1660, and the embarkation of Louis XVIII., April 24, 1814, on the restoration of the Bourbons in France. Dover now

consists of an old and a new town; the former is the seat of most of the trade, and has narrow and irregular streets. The new portion is built with more taste, and contains a number of good houses, chiefly occupied by summer visitors. The importance of the town is principally owing to its position as a channel of communication between England and the continent. It was formerly the chief port of embarkation, but has been partially superseded in that respect by Folkestone. The Southeastern and Dover railway, which enters the town through a tunnel cut in the cliffs, connects it with the cities of Great Britain, and it has continual steamboat intercourse with Calais and Boulogne. Large sums of money have been spent at various times upon its harbor, which consists of 3 basins, the outer one enclosed between 2 piers 150 feet apart, but the entrance is unfortunately obstructed by a movable shingle bar. It has been determined to construct here a harbor of refuge, and the sum of £2,500,000 has been appropriated for the erection of immense jetties to reach far out into the sea. The submarine telegraph between England and the continent extends across the channel from Dover to Calais; it was completed in Oct. 1851. In the vicinity of the town, abutting on the sea, stands the remarkable chalk cliff called Shakespeare's or Hay cliff, described in "King Lear;" it is 350 feet high and almost perpendicular. In May, 1847, a huge mass of this cliff, 254 feet in height, 15 feet thick, and estimated to contain 48,000 tons of chalk, scaled off and fell to the base. Another mass of 10,000 cubic yards fell soon after. There are a number of ship yards on the coast, and many of the inhabitants are employed in sail and rope making. The registered shipping of the port in 1856 was 55 vessels of 3,553 tons; the entrances were 473 sailing vessels, tonnage 43,487, and 21 steam vessels, tonnage 2,679; clearances, 121 sailing vessels, tonnage 5,112, and 5 steam vessels, tonnage 663. The coasting trade of Dover is flourishing, and its fisheries are extensive and profitable. It imports from France large quantities of eggs, fruit, and other rural produce. There are several large paper mills in the neighborhood. The principal buildings in the town are 2 hospitals, 2 parish churches, a number of chapels, a synagogue, the custom house, town hall and gaol, workhouse, assembly rooms, theatre, museum, baths, news rooms, bonding warehouses, and many good hotels. Dover is the seat of government and principal station of the cinque ports, and returns 2 members to the house of commons.

DOVER, Strait of (Fr. *Pas de Calais;* anc. *Fretum Gallicum*), a strait connecting the English channel with the German ocean, and separating England from France. It extends from Dungeness and Cape Gris Nez N. E. to the S. Foreland and Calais; length, 22 m.; breadth at Dover, where it is narrowest, 21 m.

DOVER'S POWDERS, a preparation of ipecacuanha and opium, each a drachm, and of sulphate of potassa an ounce, rubbed together into a very fine powder. Though called by the name of Dr. Dover, it differs from that originally recommended by him, which contained nitrate of potash and licorice in addition to the ingredients named. It is a medicine admirably adapted for promoting perspiration, and possesses at the same time the properties of an anodyne. It is given, after depletion, in cases requiring profuse diaphoresis, and is particularly used in dysentery, diarrhœa, and affections of the liver and of the bowels, sometimes combined with small quantities of calomel.

DOVREFIELD, Dovrefjeld, or Dofrines (Norw. *Daavrefjeld*), a name sometimes given to the whole system of the Scandinavian Alps, which extend from Cape Lindesnaes on the Cattegat, along the dividing line between Sweden and Norway, to Cape Sviatoi, at the W. entrance to the White sea. The Dovrefield mountains, however, properly consist only of the central part of this range, extending in an E. N. E. direction from the valley of Lessöe, where the Langfield range or S. portion terminates, to the Syltfjället, where the chain of Kiölen or Kiöel begins. They are composed mostly of gneiss and micaceous schist. The principal peak is the Skagstols-tind, a snow-capped mountain having an altitude of 8,390 feet. It is the highest summit in the Scandinavian peninsula. There are 4 passes across this range, along which at intervals of 10 m. there are houses for the reception of travellers. The most frequented of these roads leads from Christiania to Trondhjem, and passes along the E. declivity of the peak of Sneehaettan. It reaches in some places an altitude of 4,200 feet. The Dovrefield mountains derive their name from *Daavre*, a small village of Norway, and *field* or *fjeld*, a mountain ridge.

DOW, Lorenzo, an American preacher, born in Coventry, Conn., Oct. 16, 1777, died in Georgetown, D. C., Feb. 2, 1834. When about 14 years of age he began to be agitated by religious speculations, had frequent dreams and visions, and was so troubled by his meditations upon the "doctrine of unconditional reprobation and particular election," that on one occasion he was on the point of putting an end to his life. Finally he adopted the doctrines of the Methodists, and in the spring of 1796, after many mental struggles and against the wishes of his family, became an itinerant preacher of that persuasion. His youth and eccentricity of character for a long time prevented his recognition by the conferences of the Methodist church, and he was at one period even prompted to renounce the name of Methodist. He finally received a regular license to preach, and, in spite of contumely and rebuffs, frequently from members of his own sect, and ceaseless hardships and dangers of all kinds, persevered for nearly 40 years, with an enthusiasm which never relaxed, and often with astonishing effect. In the course of his ministry he travelled over many parts of the United States and Canada, and in 1799 and again in 1805 visited England and Ireland,

where his peculiar eloquence attracted much attention and on several occasions subjected him to persecution. His wife, Peggy Dow, to whom he was married in 1804, was a woman of character and qualities very similar to his own, and accompanied him fearlessly in all his peregrinations. Dow's eccentricity of manner and dress for a long time excited a prejudice against him, and in many parts of the country he was familiarly known as "crazy Dow." In person he was awkward and ungainly, his voice was harsh, and his delivery not such as would impress a cultivated mind. But to the class whom he most frequently addressed, his simple fervor, though coupled with illiterate phraseology, supplied the place of eloquence, and he seldom failed of having attentive and even enthusiastic hearers. Many anecdotes are related of his courageous bearing, when threatened with violence by lawless men. His journal, containing the history of his life to his 40th year, together with some of his miscellaneous writings, and a short autobiography of Peggy Dow, was published in New York in 1856.

DOWER (law Lat. *doarium*, or *douarium;* Fr. *douaire*), the estate which the wife has by operation of law in the property of her deceased husband. Strictly it applies only to what the law gives her independent of any act of the husband, and which, in fact, it is not in his power to bar. A marriage portion, therefore, whether given with the wife or secured to her use, and whether so given or secured by the father or other relative, or by the husband himself, is not dower; and yet the term by which such marriage portion was designated in the Roman law (*dos*) was used by Bracton and other English writers for the right of the widow in the lands of her deceased husband given to her by the common law, as well as the endowment in contemplation of marriage, which last was also called *donatio ante nuptias*. The English word dower expressed the former, and also the donation before marriage, which was in two modes, viz.: *ad ostium ecclesiæ*, and *ex assensu patris*. Both of these were made at the porch of the church, after affiance and before marriage; in the one, the husband endowed the wife of lands of which he was himself seized; in the other, with consent of his father, he endowed her of lands belonging to his father; and it was usual to specify the particular lands intended. Endowment at the church door was the common mode of providing for the wife in the time of Bracton, and no other mode could be substituted, as by will or any other conveyance; the object of which was to prevent fraud: *Non enim valent facta in lecto mortali, nec in camera, aut alibi ubi clandestina fuerunt conjugia*. The feudal restriction against alienation of lands was, however, extended to dower, and the husband was not allowed to endow the wife *ad ostium ecclesiæ* of more than a third part of his lands. This gave rise to the common law rule which has ever since prevailed. In the absence of such dotation, or in case of the omission to specify the particular lands, it was prescribed that the wife should be entitled to one-third of the lands of the husband for life if she survived him, which was called *dos rationabilis*. It was at first limited to the lands which the husband had at the time of the dotation, unless he specially charged his future acquisitions; and in case he had no lands, or not sufficient, he was permitted to endow his wife of personal property, which was held to be a bar against any claim to dower of lands thereafter acquired. But in Magna Charta it was provided that the wife should have for dower the third part of all the lands which the husband had held during his lifetime, unless she had been endowed with less *ad ostium ecclesiæ*. In the reign of Henry IV. it was denied that the wife could be endowed of her husband's goods and chattels; and Littleton, who wrote in the reign of Edward IV., asserted that she could be endowed *ad ostium ecclesiæ* of more than a third part of the lands, and that she had the election after the husband's death to accept it or to take her dower at common law. In consequence of this uncertainty, that mode of endowment fell into disuse, but was never abolished by law until recently by act 3 and 4 William IV., c. 105 (1833). Dower at common law is different from the dotation of other countries, in being limited wholly to lands, and to such only as the husband holds in fee. By the civil law the *donatio ante nuptias* (or, as Justinian called it, *propter nuptias*) was all the provision made for the wife. It might consist of either lands or personal property; but though it went into the possession of the husband, it could not, if it consisted of lands, be alienated by him even with the consent of the wife, for which the reason given is the fragility of the female sex (*ne sexus muliebris fragilitas in perniciem substantiæ earum convertatur*). Upon the death of the husband, or dissolution of the marriage otherwise, the wife only took what had been given with her on the marriage, or of which a donation had been made during the marriage. Of the other property of the husband she could take nothing either as widow or heir.—In France, the two modes of providing for the wife are designated by the discriminative terms *dot* and *douaire;* the former of which is defined to be that which the wife brings in marriage (*ce que la femme apporte en mariage*); the latter is the right which the wife has, by custom or matrimonial contract, to a certain portion of the estate of the husband upon his death (*la jouissance que la coutume ou les conventions matrimoniales accordent d'une certaine portion des immeubles du mari à la femme qui lui survit*). The origin of *douaire* was that in some provinces of France, called *France coutumière*, women were not endowed on marriage (*n'avoient pas de dot de leur parens*); and hence grew up the custom that the husband at his death should leave something for the support of the wife. What was so left was called either *dot* or *douaire*, the wife being said to be *douée* or *dotée*. But as it was intended for her support merely, it was provided that after

her death it should go to the children of the husband if he left any. Philip Augustus fixed the dower of the wife at one-half of the goods which the husband had at the marriage. Henry II. of England established in his French provinces a rule that dower should be one-third, and this difference continued to exist on the opposite sides of the Loire, until the customary law was swept away by the legislation which succeeded the revolution of 1789. By the present law of France married persons may, by stipulation made before marriage, become subject to the law of community, or to the law of dowry. If the former, it brings into common stock all the movables of which the parties are possessed at the time of marriage, and of immovables which shall be acquired during marriage. Dower (*la dot*) is what the wife brings to the husband in marriage, and it may be either by donation from another or by a settlement of the wife upon herself (*tout ce que la femme se constitue ou qui lui est donné en contrat de mariage est dotal*), and it may extend to all the present or future property of the wife, but cannot be constituted or augmented during marriage. The parties may stipulate for a community of future acquisitions only. The husband has the management of dotal property, but is accountable as a usufructuary, and in case it be put in peril, the wife may obtain a separation of goods.—The English law of dower has recently undergone very great changes. By stat. 3 and 4 William IV., c. 105, the widow is not entitled to dower of lands which the husband has disposed of in his lifetime, or by will. All charges by will, and all debts and encumbrances to which the estate of the husband is subject, take priority of dower; and dower is made subject to any restrictions which the husband may impose by will. But on the other hand, the wife is entitled to equitable dower of any beneficial interest of the husband which shall amount to an estate of inheritance in possession, except joint tenancy; and no gift of personal property by the husband can invalidate the right to dower, unless expressly so declared by will. This modification of the law of dower has probably grown out of the general custom prevailing in England among land proprietors of making marriage settlements. In cases where this is omitted, the wife still has some provision under the statute of distribution (29 Charles II.), which gives her one-third of the personal estate of the husband when he dies intestate, not for life merely, but absolutely.—In the United States, the general rule prevails of allowing to the widow an estate for life in one-third of all the lands of which the husband was seized in fee. The rule, however, varies in different states in two particulars. In the state of New York, and most other states, dower is a charge upon all the lands of which the husband was seized at any time during the marriage, except such as she has released by joining in the conveyance thereof by the husband. In some of the states, as Vermont, Connecticut, Tennessee, North Carolina, and Georgia, it is limited to the lands of which the husband was seized at the time of his death; but the husband is not allowed to bar dower by will, nor by a voluntary conveyance, in which any benefit is reserved to himself. Again, in Pennsylvania, Tennessee, and Missouri, dower does not attach to lands sold under judicial process, nor to lands sold under a mortgage executed by the husband alone. The rule is general, perhaps universal, that the wife takes one-third of the personal estate upon the death of the husband, in accordance with the English statute of distribution.

DOWLER, Bennet, an American physician and physiologist, born in Ohio co., Va., April 16, 1797. He was educated at the university of Maryland, where in 1827 he received the degree of doctor of medicine. During the last 23 years he has practised his profession in New Orleans, and since March, 1854, has been the editor of the "New Orleans Medical and Surgical Journal." From an early period in his career experiments upon the human body, immediately or very soon after death, occupied a large share of his attention, and the results of his investigations, comprising some important discoveries with regard to contractility, calorification, capillary circulation, &c., were given to the world in a series of essays in 1843–'4. Since that time these and other original experiments have been extended, generalized, and analyzed by him. With one exception he has found in the course of his experiments no fact invalidating the fundamental laws which he announced in his first publications relative to *post mortem* contractility of the muscular system. He had prematurely assumed, early in his researches, in accordance with the prevailing theory, that the death rigidity, or *rigor mortis*, is antagonistic to, or incompatible with, the coexistence of muscular contraction; but he soon found instances which led him to maintain that the contractile function exists in all bodies immediately after death, although in some it is scarcely appreciable, while in others it is absent or feeble at first, but gradually increases. In all it is intermittent, and may be economized by proper management, or overtasked and exhausted, or even destroyed by a severe blow. He was consequently led to the conclusion that this force is inherent in the muscular tissue, and in every portion of it, being wholly independent of the brain, spinal cord, and nerves. During the last 18 years Dr. Dowler has shown by experiments on hundreds of human bodies that the capillary circulation is often active for some minutes, and even for hours, after the respiration and the action of the heart have ceased, and occasionally after the removal of this organ; and that in the same cadaver a high degree of calorification, together with active capillary and chylous circulations, may continue simultaneously for several hours. His researches on animal heat, in health, in disease, and after death, which have from time to time been published

in medical journals, have led to important discoveries, particularly with reference to *post mortem* calorification, which his experiments have shown will, after death from fever, cholera, or sun-stroke, &c., rise in some cases much higher than its antecedent maximum during the progress of the disease. From these experimental researches, as well as from a rational interpretation of the respiratory action of the lungs, either in their natural, diseased, obstructed, or disorganized conditions, Dr. Dowler has been led to reject the long received theory which ascribes animal heat to the lungs, as the sole heating apparatus of the animal economy. He maintains that the chemical history of respiration may be interpreted either as a refrigeratory or heat equalizing process, and that while the absorption of oxygen during respiration may generate heat, on the other hand the parting of carbonic acid gas and aqueous vaporization from the lungs, together with the incessant respiration of the air, almost always much cooler than the body, must refrigerate the animal economy; that for all that has been proved to the contrary, oxidation and deoxidation, repair and waste, composition and decomposition, inhalation and exhalation, are mutually compensating or equiponderant in the regulation of animal heat; and that, while it may be plausibly assumed that nearly the whole series of organs and organic functions, especially those of nutrition, contribute directly or indirectly to the origin and distribution of animal heat during life, *post mortem* calorification might to some extent be accounted for by assuming that respiration is not a heating, but a refrigeratory process, which, ceasing with apparent death, ceases to liberate the free caloric of the economy; whence the calorifacient function, not being in many instances extinguished with the respiration, persists, and for a long time accumulates faster than it can be radiated into the surrounding media. He has not, however, been able to trace a necessary connection, antecedence, or parallelism between *post mortem* calorification and muscular contractility, the development, degree, and duration of which may or may not coincide. In March, 1845, Dr. Dowler commenced a series of experiments in comparative physiology on the great saurian or alligator of Louisiana, which he regarded as much better for the purpose than any of the cold-blooded animals usually selected for vivisection. From these experiments, which embrace a period of 10 years, he has ascertained that after decapitation the head, and more especially the trunk, afford unequivocal evidences of possessing the faculties of sensation and volition for hours after a complete division of the animal. The headless trunk, deprived of all the senses but that of touch, perceived, felt, willed, and acted with unerring intelligence in removing or avoiding an irritant, such as an ignited match or bit of paper; when even a simple touch or a positive irritant was applied laterally, the body curved or receded in a contrary direction, while the most convenient limb was also directed to the exact place where the foreign body impinged, in order to remove it, if possible. After as well as before decapitation, after complete evisceration, and after the subdivision of the spine and its cord in 2 or 3 places, each section mutually and simultaneously perceived or felt in common the presence or contact of a pain-producing agent. In some instances Dr. Dowler observed that the separated head could see a body, like the finger, purposely directed close to the eye, as was shown by the violent opening of the mouth, as if to bite, and by the head jumping several feet from the operating table to the floor. The vivisection of the spinal cord satisfied him also that neither root of the spinal marrow is the exclusive seat of sensation or of motion, and that motion as well as sensory phenomena may be excited by irritation of either root; a result directly opposed to the celebrated theory of Sir Charles Bell on the functions of these roots. The vivisection of the inferior animals (hitherto the basis of experimental physiology), as well as the pathological, anatomical, and experimental phenomena observed in man, has therefore led Dr. Dowler to the following conclusions: that the functions and structures of the nervous system constitute a unity altogether inconsistent with the anatomical assumption of 4 distinct and separate sets of nerves, and a corresponding fourfold set of functions; that there is no anatomical or other proof that one set of nerves transmits impressions to, and a separate set from, a sensorial spot somewhere in the brain, nor that the nerves themselves are simple conductors and wholly insensible; that the 2 separate sets of nerves usually assigned to what is called the excito-motory action of the spinal cord are wholly hypothetical; that instead of 4 travelling impressions there is but one, the primary or sensiferous impression, which is simultaneously cognized upon the periphery as well as in the centre, and not solely by an unknown spot in the brain through the intermedium of a secondarily transmitted impression, being intuitively felt where it really is; and that sensuous cognition or sensation is immediate, intuitive, and not representative, nor the result of transmitted secondary impressions, but a directly felt relation, *ab initio*, between an object and a sentient subject, and not one between a mere secondary representation, idea, or transmitted impression of an object.—The assiduous devotion of Dr. Dowler to researches connected with medical and physiological science has won for him a wide reputation as an experimenter, an anatomist, and a pathologist.

DOWLETABAD, Dowlatabad, Dowlutabad, Douletabad, or Deoghir (the fortunate city), a town and fortress of Hyderabad, in the Nizam's territory, Hindostan, about 10 m. N. W. from Aurungabad. The fortress is situated on a hill about 500 feet in height, about 150 feet of which rises nearly perpendicularly, like a wall. The entrance is by a passage cut

through the rock. Notwithstanding its natural strength, the fortress has been several times taken, and has fallen under the dominion of various masters. Near the town are the remarkable cave temples of Ellora.

DOWN, a maritime co. in the N. E. part of Ireland, province of Ulster; greatest length, N. E. to S. W., 51 m.; greatest breadth, 38 m.; area, 956 sq. m.; pop. in 1851, 328,883. Near the middle of the county is a group of hills, and in its S. W. part are the Mourne mountains, some of whose summits are among the highest peaks in Ireland; but with these exceptions the surface of the county is for the most part tolerably even. There are several rivers and numerous lakes, both abounding in fish, but insignificant in size. Lough Strangford in the E. part of the county, though almost surrounded by land, is yet only a large inlet of the sea, with which it communicates by a channel navigable for large vessels. The county contains many mineral springs, and is one of the best cultivated of all the counties of Ireland, producing large crops of grain, peas, beans, potatoes, turnips, &c. The total extent of land under crops in 1855 was 310,424 acres. The raising of cattle is carried on mostly for dairy purposes, large quantities of butter being annually made and exported; and hogs are reared in great numbers. There are extensive quarries of limestone, sandstone, and slate; and granite, coal, and chalk also occur. The most important manufacture is that of linen, though there are also cotton and woollen mills. The climate is healthy and somewhat cold, and the people generally are in a better condition than those of most Irish counties. The fishery occupies many of the inhabitants, though not to an extent commensurate with the facilities for it. Some interesting remains of antiquity are found, and there are also ruins of abbeys and castles of the middle ages. Four members are returned to the house of commons, two for the county, and one each for the towns of Downpatrick and Newry.

DOWNES, John, a commodore in the U. S. navy, born in Canton, Norfolk co., Mass., in 1786, died in Charlestown, Mass., Aug. 11, 1855. He entered the navy as a midshipman in June, 1802, and his first service was in the frigate New York during the war with Tripoli. In May, 1803, he distinguished himself in a boat attack upon some Tripolitan feluccas, which had been chased into the port of Old Tripoli. In March, 1807, Downes was promoted to a lieutenancy, and during the war of 1812 served as executive officer of the frigate Essex, Capt. Porter, during her celebrated cruise in the Pacific ocean. Among the numerous prizes of the Essex was the whale ship Georgiana, which Capt. Porter fitted as a cruiser, with 16 guns, named the Essex Junior, and placed under the command of Lieut. Downes with a crew of 41 men. Finally, after the capture of the Essex at Valparaiso by the British frigate Phœbe and sloop Cherub, the Essex Junior was converted into a cartel for the purpose of carrying Capt. Porter and his surviving officers and men to the United States. In June, 1813, Lieut. Downes was promoted to the rank of master commandant, and in March, 1815, he commanded the brig Epervier of 18 guns in the squadron employed against Algiers in that year, under Commodore Stephen Decatur. On June 17, 1815, the Epervier assisted in the capture of the Algerine frigate Mashouda off Cape de Gatt. Two days afterward the Epervier and 3 of the smaller vessels of the squadron captured the Algerine brig of war Estido, 22 guns and 180 men, which had been chased into shoal water off Cape Palos. After the conclusion of the treaty of peace with Algiers, Commodore Decatur transferred Downes to his own ship, the Guerriere, while the Epervier, which was sent to the United States with the treaty, was never afterward heard from; it was supposed that she foundered in a heavy gale near the Western islands. In March, 1817, he was promoted to a captaincy, and from 1819 to 1821 commanded the Macedonian frigate of 50 guns in the Pacific. In 1828–'9 he commanded the frigate Java in the Mediterranean, and from 1832 to 1834 the squadron in the Pacific ocean. On his way to his station he anchored, Feb. 5, 1832, off Quallah Batoo, on the coast of Sumatra, where an outrage had been committed on an American vessel. His ship, the Potomac of 50 guns, was disguised as a merchantman. The town was supposed to contain not less than 500 fighting men, and was defended by 5 forts, owned and commanded by different rajahs or chiefs. The commodore had obtained tolerably correct information of their positions, as well as of the general topography of the place, but nevertheless deemed it advisable to make an actual reconnoissance if possible. An attempt was made to land a party of officers for this purpose, in citizens' dress, but as the boat (rowed by officers disguised as seamen) approached the landing, such hostile demonstrations were made by the natives that she was recalled. Preparations for an attack were now made, and about 2 o'clock in the morning of Feb. 6, about 150 officers, seamen, and marines were landed under the command of Lieut. Irvine Shubrick, the 1st lieutenant of the ship. This force was organized in divisions, the marines under Lieuts. Edson and Terrett, the seamen in 4 divisions commanded by Lieuts. Pinkham, Hoff, Ingersoll, and Sailing-master Totten. To each division a particular duty was assigned, and although the surprise was not quite perfect, the result was entirely successful. After 2½ hours of severe fighting, the town was nearly reduced to ashes, many of the natives were killed, and 4 of the forts were captured and blown up. This being accomplished, the expedition reëmbarked in perfect order, and returned to the ship with a loss of 13 killed and wounded. A flag of truce was immediately sent off from the town, and peace sued for, which was granted. Several of the rajahs from the towns in the vicinity sent deputations, declaring their friendly disposition to the Americans, to which the commander gave corresponding as-

surances, and soon after sailed for the Pacific. Our commerce at Quallah Batoo has never since been molested. The sea service of Com. Downes terminated with this cruise. From 1837 to 1842, and from 1850 to 1852, he commanded the navy yard at Boston.

DOWNING, Andrew Jackson, an American landscape gardener, born in Newburg, N. Y., Oct. 30, 1815, drowned in the Hudson river, near Yonkers, July 28, 1852. From an early age his tastes were directed to horticulture, botany, and the natural sciences, which the occupation of his father, who carried on business as a nurseryman in the vicinity of Newburg, gave him many opportunities to cultivate. His school education was acquired chiefly at an academy in the neighboring town of Montgomery, from which he returned home at the age of 16 to assist an elder brother who had succeeded his father in the management of the nursery. At school he was a thoughtful, reserved boy, made few friendships, and seldom joined in boyish pastimes; but he was always a diligent reader and a close observer, and now endeavored to compensate for what he considered a premature removal from his studies by a course of self-instruction in his favorite sciences. In the intervals of his labors in the garden he read treatises on landscape gardening, botany, the culture of fruits and flowers, and in general every thing pertaining to the economy of rural life; and found time also to make himself familiar with poetry, art, and elegant literature. At 20 years of age he determined to become a rural architect, and with a mind richly stored with knowledge suitable to his vocation, he began to visit the neighboring estates on the Hudson river, to enlarge his experience and confirm his theories of art in landscape gardening. Three years later he was married to Miss Caroline De Wint, and almost immediately afterward commenced the erection on his little paternal estate of an elegant mansion, which, with its tastefully arranged grounds, afforded the first practical illustration of the builder's conception of an American rural home. He had previously written a few fugitive pieces for the newspapers, but his career as an author properly commences with the publication in 1841 of his "Treatise on the Theory and Practice of Landscape Gardening." As a pioneer work of its class in this country, it necessarily attracted attention, and the author's extensive information, correct ideas of taste, and appreciation of the conditions of rural architecture in America, gave it immediate popularity and a position as a standard authority. In England it was highly commended by such competent judges as Loudon and Dr. Lindley, the latter of whom said that he "knew of no work in which the fundamental principles of this profession were so well or so concisely expressed." The "Cottage Residences," which followed in the succeeding year, was received with equal favor; and until his death Downing continued to be the chief American authority in rural art. The appreciation in which he was regarded abroad was evinced by his election as corresponding member of many of the chief horticultural societies of Europe. In 1845 appeared simultaneously in London and New York his "Fruits and Fruit Trees of America," of which more than 14 editions have been published; and in 1846 he became the editor of the "Horticulturist," a monthly magazine published in Albany, for which he wrote an essay every month until the close of his life. In 1849 he wrote "Additional Notes and Hints to persons about building in this country" for an American reprint of Wightwick's "Hints to Young Architects," and in 1850 published his "Architecture for Country Houses." His remaining work was an edition of Mrs. Loudon's "Gardening for Ladies." The summer of 1850 he passed in England, chiefly among the great country seats, of which he wrote some genial descriptions. On his return to America, having determined to devote himself exclusively to architecture and building, he received many private commissions, and was intrusted by President Fillmore in 1851 with the laying out of the public grounds in the city of Washington, in the vicinity of the capitol, the president's house, and the Smithsonian institution. In the midst of these labors he took passage at Newburg on July 28, 1852, in the steamboat Henry Clay, for New York. When near Yonkers, about 20 miles above New York, the Henry Clay, which had been racing with a rival steamboat, was discovered to be on fire, and was immediately steered for the shore. In the confusion of the moment Mr. Downing was separated from his wife, and when the heat of the conflagration had compelled him with many others to jump overboard, he was seen for the last time struggling in the water, with several persons clinging to him. His body was subsequently recovered and sent to Newburg for interment. A memoir of him by George W. Curtis, and a "Letter to his Friends," by Miss Bremer, who had been his guest during her visit to America, were prefixed to a collection of his contributions to the "Horticulturist," published in 1854, under the title of "Rural Essays." The labors of Mr. Downing gave a great impulse to the dissemination of correct taste in rural architecture among the American people, and of a love for rural life.

DOWNS, a term applied in England to hills of shifting sand along the coast; also called Dunes, which see. Barren tracts of hilly land used for sheep pasture are also called downs. A portion of the English channel, affording excellent anchorage, and much used by the British navy, bears the same name.

DOWSE, Thomas, an American mechanic, who has obtained considerable celebrity as a lover of books and the collector of a valuable library, born in Charlestown, Mass., Dec. 28, 1772, died in Cambridgeport, Nov. 4, 1856. He has sometimes been called "the literary leather dresser." His father, Eleazer Dowse, was a leather dresser, and was driven with his

family from Charlestown on June 17, 1775, his house being one of those destroyed by the conflagration of that day. After a short time passed at Holliston, he established himself at Sherborn, a small town in Middlesex co., the original seat of the family, and there resumed his occupation as a leather dresser. At the age of 6, Thomas was severely injured by a fall from a tree; and a rheumatic fever setting in before he had recovered from the effects of this accident, a lameness resulted which continued, with frequent attacks of severe pain, through life. At the proper age, Thomas began to work with his father, at his trade and on the farm; forming at the same time a taste for reading, which he indulged with so much eagerness that, by the age of 18, he had read all the books he could procure in Sherborn. All his little earnings were expended in the purchase of books. He had no education but what could be obtained at the town school. He continued to live at home as an apprentice to his father till he had attained his majority. He was then seized with a desire to visit foreign countries. A neighbor of his father's, who commanded a vessel that traded from Norfolk in Virginia to London, offered him a free passage; he was, however, to reach Norfolk at his own expense. Too poor to accompany the captain by land, he engaged a passage in a coasting vessel from Boston. Head winds prevented the departure of the coaster till the vessel had sailed from Norfolk, and thus Thomas Dowse lost the opportunity of visiting foreign countries. Another never presented itself. He immediately sought employment in the business in which he had been brought up, and entered the service of Mr. Wait, a leather dresser and wool puller at Roxbury, Mass, at $12 a month wages. His pay was afterward raised to $25. He remained in this employ 10 years. He once informed a friend that at the age of 28 his highest income was $25 a month; that he had never paid $5 for conveyance from one place to another, never owned a pair of boots, and was then the possessor of several hundred volumes of good books well bound. In 1803 he set up in business at Cambridgeport, with the assistance of Mr. Wait, who advanced the capital and shared the profits. This partnership was dissolved at the end of the year; after which Mr. Dowse carried on the business of a leather dresser, wool puller, and glover, at first with a succession of partners, and afterward alone, till he was far advanced in life. His business was successful, and the articles manufactured by him enjoyed the reputation of being the best of their kind in the market. In 1814 he erected a large and commodious dwelling-house and shop in Cambridgeport, and laid out 2 or 3 acres as a garden; and here he lived unmarried the rest of his days. From the earliest period he devoted a large part of his income to the purchase of books. The working hours of the day were devoted to his shop or business connected with it; but the early morning and the evening hours were employed in reading. He thus acquired an intelligent knowledge of the contents of his steadily increasing library. Having formed a taste, not only for good books but for handsome editions, in which the American press was then greatly deficient, he was accustomed to import them directly from London. About the year 1820 his agent in England sent him the prospectus of a lottery for the disposal of the sets of a costly collection of engravings of the most famous works of the old masters, and of the water-color copies made from the originals, for the purposes of this publication. Mr. Dowse bought 3 tickets in this lottery, and drew 2 prizes, one prize consisting of 2 sets of the engravings, colored and uncolored; the other prize being ⅓ of the water-color copies framed, 52 in number. He thus became possessed of a large collection of admirable copies of some of the most celebrated paintings in England. In the judgment of Mr. Washington Allston, it afforded ampler means for the study of art than were elsewhere to be found at that time in the United States. The paintings were advantageously arranged in rooms adjoining Mr. Dowse's library, and formed with it an attraction of steadily increasing interest to men of letters and taste resident in the neighborhood, and to strangers. Mr. Dowse's bodily infirmity unfitted him for much active intercourse with society, and his disposition naturally inclined him to retirement and solitary occupation. He abstained from public life in all its forms, and though a diligent reader, committed nothing to writing. He continued to work at his trade till after he was 70 years of age; but for the last 10 years of his life, though his shop remained open in the lower story of his dwelling, the business was conducted by persons in his employ. Of the eminent men whom the country has produced, Franklin was one of the special objects of Mr. Dowse's admiration. Toward the close of his life he expressed this sentiment by the erection, at his own expense, of a substantial granite obelisk at Mount Auburn, by the side of his own tomb. With the exception of the statue of Franklin presented by Mr. Bingham to the public library at Philadelphia, and the urn in Franklin place, Boston, which is rather an ornamental than a commemorative work, the obelisk erected by Mr. Dowse is believed to have been the first monument dedicated to the memory of Franklin in the United States. As Mr. Dowse was childless, the destination of his library after his decease was a matter of some curiosity among those acquainted with its value. A few months before his death he formed the resolution to present it to the Massachusetts historical society; and on July 30, 1856, the formal transfer was made. The library, however, was left by the society in the possession of M. Dowse during the brief remainder of his life. It consisted of about 5,000 volumes of a miscellaneous character, generally in good, often in elegant bindings, and of the best editions. It is almost exclusively an English library, though contain-

ing translations of the principal authors in the ancient languages, and the cultivated languages of modern Europe. It is estimated to have cost Mr. Dowse $40,000 without interest. After his death the library was deposited in the historical society's building, in an inner room fitted up for the purpose, and arranged in tasteful cabinets at a cost of $3,000 advanced by his executors, in addition to a sum of $10,000 also given by them as a permanent fund for the conservation and care of the library. Mr. Dowse in his will made provision for his relatives to the extent of $25,000. The residue of his property, amounting to about $40,000, was placed at the disposal of his executors, to be by them appropriated to literary, scientific, or charitable purposes. The collection of water-colors was given by them to the Boston Athenæum, where it is displayed in an apartment exclusively devoted to that purpose. Handsome donations have been made by the executors to the botanic garden of the university at Cambridge, and to other meritorious public objects in Cambridge and Boston. The Dowse high school has been founded by them at Sherborn, where he passed his youth and learned his trade; and the Dowse institute established at Cambridgeport, in the immediate vicinity of his residence. A commemorative discourse was delivered by Mr. Edward Everett, at the opening of the Dowse institute, Dec. 7, 1858, and before the Massachusetts historical society on Dec. 9. A fine portrait of Mr. Dowse was painted a short time before his decease by Wight of Boston, at the request of the society, and now adorns the room in which his library is deposited.

DOXOLOGY (Gr. δοξα, glory, and λεγω, to ascribe), in general, a prayer to celebrate the grandeur and majesty of God. In the Roman Catholic church it is applied particularly to the angelic hymn or canticle of praise which is sung in celebrating the mass, and is otherwise called the *Gloria in excelsis*. This is also styled the greater doxology, to distinguish it from the lesser, or *Gloria Patri*, which is usually sung after the chanting or recitation of a psalm. Both doxologies are traced to the earliest periods of the church, and though slightly and temporarily modified during the prevalence of some heresies, have not been permanently changed. They both have a place in the liturgy of the Anglican church, and are of common use in the service of other branches of Protestantism.

DOYLE, Richard, an English humorous artist, born in London in 1826. From his father, Mr. John Doyle, an able political caricaturist, he inherited a taste for humorous illustration, and a few years after the establishment of "Punch" became known to the public by his designs published in that paper. His political caricatures are singularly free from direct personalities or the appearance of malice, but his humorous illustrations of London life afford the best examples of his harmless wit and graceful fancy. The series entitled "Manners and Customs of y^e^ Englyshe," though ostensibly caricatures, are in fact sketches of the every-day life of the people, and for liveliness of invention and various technical merits may be regarded as unique performances. The "Continental Tour of Messrs. Brown, Jones, and Robinson," perhaps the most popular of his works, is in like manner a somewhat exaggerated view of the lights and shadows of travel on the continent. In 1850 Mr. Doyle, taking umbrage at the severe attacks of "Punch" upon the Roman Catholic hierarchy, severed his connection with that paper, since which time he has employed his pencil chiefly in illustrating books of fairy tales, and similar publications, including the "Fairy Ring," "Fairy Tales from all Nations," Leigh Hunt's "Jar of Honey," Ruskin's "King of the Golden River," &c. He fails in attempting to depict the merely pleasaic or the sentimental, and his illustrations to Thackeray's "Newcomes" are comparatively feeble.

DRACHENFELS (Dragon's Rock), the most celebrated of the Siebengebirge range, or "seven hills" (though their number is really more than 7), on the right bank of the Rhine, near Bonn. The ascent of the mountain, which is 1,056 feet high, is fatiguing from its steepness, but amply rewards the traveller by the majestic beauty of the scenery of the river and valley beneath, and of the adjoining panorama of ruin-clad mountains. Upon the summit of the Drachenfels are the ruins of a castle of the 12th century, a monument erected in 1814 by the Siebengebirge militia to their gallant leader Genger, who died on the battle field, and another in August, 1858, in commemoration of the German war of independence. Here also is a famous quarry which furnished stone for the cathedral of Cologne, and hence called *Dombruch* (dome or cathedral quarry). The beauty of this far-famed mountain has been a fruitful theme with poets of every land, but to English readers it is familiar chiefly from the well-known verses of Byron. Its name is explained by a tradition of a dragon which inhabited a cavern in its sides, and was slain by Siegfried, the hero of the Nibelungen lay.

DRACHMA, a measure both of weight and value among the ancient Greeks. In either case it was composed of 6 *oboli*, and was the $\frac{1}{100}$ part of the *mina*, and the $\frac{6}{10000}$ part of the Attic talent. The drachma was the principal silver coin of the Greeks, and its value was from 15.20 to 17.05 cents. The drachma or drachm mentioned by Jewish writers was the Greek coin which became current among the Jews in the latest period of their national existence.

DRACO, the author of the first written code of laws at Athens, which he is supposed to have published in the 4th year of the 39th Olympiad, 621 B. C. He was of distinguished birth and virtue, honored for his severe manners and his large experience in public affairs; and the people of Athens, a prey to anarchy, besought him to give them a code of laws. Like all the other legislative systems of antiquity, the system which he proposed linked together civil and

moral duties. He took the citizen at the moment of his birth, prescribed the manner in which he should be nourished and educated, followed him with directions through the different epochs of life, and flattered himself that he should make men free and virtuous. The penalty of death was to be inflicted for almost every crime, for homicide and idleness, for sacrilege and the stealing of garden herbs. The slightest offence, he said, deserved death, and he knew no punishment more severe for the greatest. He even carried his severity to a fantastic extreme, ordering punishment to be inflicted upon inanimate things, as for instance on a statue whose fall had injured a man. So violent a code could not last, and within 30 years Athens was again in anarchy. Recourse was then had to Solon, whose wisdom and moderation gave to the Athenians, not, as he himself said, the best laws, but the best that they were able to support. Draco died at the culmination of his glory upon the isle of Ægina. As he entered the theatre he received the acclamations of the people, and was stifled amid the mass of caps, robes, and cloaks, which they in accordance with their custom threw upon him as a mark of honor.

DRACUT, a post village and township of Middlesex co., Mass., on the N. bank of Merrimack river, opposite Lowell, with which it is connected by 2 bridges, 28 m. N. W. from Boston, and 16 N. E. from Concord; pop. of the township in 1850, 3,450; in 1855, 1,966, a portion of it having been annexed to Lowell in 1851. It borders on New Hampshire, and is traversed by Beaver river, which supplies it with water power. It is mainly an agricultural town, but in 1855 had 1 cotton mill manufacturing $62,000 worth of goods per annum, 1 woollen mill producing 475,000 yards of stuff, and 2 paper mills producing $10,500 worth of paper. In 1858 it contained 4 churches.

DRAFT, a word used indiscriminately with the synonymous term DRAUGHT, from which, according to Dr. Webster, it is corrupted. Although no less than 17 definitions are given in his dictionary, no mention is made in this or in Worcester's of the common use of the word to express a current of air; as the draft of a chimney—to sit in a draft of air. In the former application it is also used to express quality, as a chimney of strong draft; so the word is used in the example given by Dr. Webster of a cart of easy draft, expressing "the quality of being drawn."

DRAGOMAN, an oriental word signifying interpreter. It is applied, in the Ottoman empire and the courts of the further East and of Barbary, to men who know several languages, and make it their business to act as interpreters between foreigners and the natives. What was formerly a necessity for commercial relations, has since become so for purposes of diplomacy. At Constantinople the office of prime dragoman, through whom the sultan receives the communications of Christian ambassadors, is one of the most important of the Sublime Porte, and is usually held by a Greek, belonging to one of the most illustrious families of his nation. Most foreign ambassadors and consuls in the ports of the Levant, and many travellers, keep private dragomans at their own expense.

DRAGON (*draco*, Linn.), an iguanian lizard, of the subfamily of acrodonts, or those having the teeth implanted in the bony substance of the jaws, to which they firmly adhere by the base of the roots. The head of these reptiles is triangular, flattened, and covered with small irregular scales, sometimes ridged; the small circular and tubular nostrils open at the end of the obtuse snout; the tongue is thick and spongy, with a round single extremity; the anterior teeth are 3 or 4, and resemble incisors; behind these the median ones are conical, like canines, and there are generally 2 pairs in each jaw; the posterior teeth, or molars, are tricuspid and compressed; under the neck is a long crest or dewlap, and on each side a triangular cutaneous fold placed horizontally, all 3 having in their thickness a process from the hyoid bone; there is generally a small cervical crest. While some species have no external ear, in others there is a small circular membranous tympanum. The neck is slightly compressed; the body has a central dorsal depression, and is covered above and below with small imbricated ridged scales. Dragons are at once distinguished from all other reptiles of this order by the horizontal expansion of the skin of the sides into a kind of wing, supported chiefly by the first 6 false ribs, which are extended horizontally outward instead of surrounding the abdomen. This flying membrane, of a semicircular form, is about as wide as the arm is long, free in front, but attached behind to the anterior part of the thigh; in a state of rest the animal keeps it folded like a fan along the body, and spreads it like a parachute to sustain it when leaping from branch to branch; it cannot be moved as an active organ of flight like the wing of a bird or the membrane of the bat, but serves only as a passive supporting instrument like the parachute membrane of the flying squirrel; both surfaces of this membrane are furnished with very small smooth scales. The fore and hind limbs, each with 5 toes, are of about the same length, the latter being flattened, with the posterior border fringed with serrated scales; there are no femoral pores; the tail is very long, slender, wide and flat at the base, round at the end, with rhomboidal imbricated scales, strongly ridged beneath. Among the species with a visible tympanum, and the nasal openings directed laterally, are: 1, the fringed dragon (*D. fimbriatus*, Kuhl), with the thighs fringed behind with triangular scales, and with longitudinal white lines on the wings; the general color above is an olive gray with shades of brown in transverse bands, and whitish below; this is the largest species described by Duméril and Bibron, the total length being about 11 inches, of which the body is only 3; it is peculiar to Java: 2,

the flying dragon (*D. Daudinii*, Dum.), from Java, of a grayish color above with black spots, and the wings marbled with the same; total length about 9 inches: 3, the Timor dragon (*D. Timorensis*, Peron.), with wings spotted with brown on a reddish ground, and a row of ridged scales larger than the rest on each side of the median line of the back; length about 8 inches; probably a variety of the last: 4, the banded dragon (*D. quinquefasciatus*, Gray), with 5 brown bands traversing the upper surface of wings and back; from the East Indies; about 10 inches long. The dragon of Dussumier (*D. Dussumieri*, Dum.) has the nostrils opening vertically, the wings spotted with brown near the body and widely marbled with the same on their upper free edge, and a black band across the lower surface of the neck; length about 8 inches; it is a native of the continent of India. The red-bearded dragon (*D. hæmatopogon*, Boie), from Java, has vertical nostrils, and a large black spot on each side of the red gular pouch; length about 9 inches. There are 2 species which have the tympanum concealed under the skin, constituting the genus *draconculus* of Wiegmann; these are the lined dragon (*D. lineatus*, Daudin) of Amboyna and Celebes, about 6½ inches long, with the back ash-colored, and the wings grayish brown with longitudinal white lines; the Philippine dragon (*D. spilopterus*, Wiegm.), from the neighborhood of Manila, about 8½ inches long, with red wings spotted with black or brown, and throat yellow with black dots. Dragons live almost entirely in trees, and feed upon insects, which they catch with dexterity.

DRAGON, an animal often alluded to in the Bible, supposed by some to be the crocodile, and by others to refer, in some passages, to a species of giant serpent, or to a wild beast like the jackal or wolf. According to Robinson's Calmet, it is not improbable that St. John had in mind the enormous boa of Africa and the East when he described the symbolic great red dragon.—In mythology, the dragon is a fantastic animal, variously represented as of immense size, with wings, thorny crests, powerful claws, and a snaky tail and motion. He figured in the ancient conceptions of the Orient and of the classical nations, was a familiar subject in the middle ages, is still an emblem of universal use among the Chinese, and seems to have existed almost everywhere except in nature.

DRAGON-FLY (*libellula*, Linn.), an insect of the family *subulicornes* of Latreille, and the order *neuroptera*. The insects of this genus, in this country commonly called "devil's needles," in the perfect form are light and graceful fliers, of the most brilliant and beautiful colors, with 4 large, shining, delicate wings of nearly equal size; the mouth is arranged for crushing insect prey, provided with strong horny mandibles and spiny maxillæ; the eyes are lateral, large, and brilliant, with 3 stemmata upon the top of the head; the antennæ consist of from 3 to 6 joints; the legs are short, 6 in number, directed forward, arising from a firm thorax formed of 3 united segments; the abdomen is very long, a flattened cylinder, soft, without sting or piercer, and in the males terminated by 2 lamellar appendages. In some genera the male sexual organs are placed in the 2d abdominal ring, and those of the female in the last ring, which requires an unusual position in the act of reproduction; the female deposits her eggs on aquatic plants beneath the surface of the water. From their lightness and beauty the French call them *demoiselles*. Kirby speaks of their "dress" as "silky, brilliant, and variegated, and trimmed with the finest lace;" Mouffet says they "set forth nature's elegancy beyond the expression of art;" yet with all their gay coloring they are among the most voracious and cruel of insects, darting with hawk-like swiftness and ferocity upon gnats, mosquitoes, butterflies, and almost any soft-bodied winged insect, eating even their own species. They are not only in no way injurious to man, attacking neither his person, cattle, nor crops, but are directly beneficial in destroying many noxious insects. They hover over pools in search of prey, or dart from a post or fence upon insects coming near; having caught one, they alight to devour it, first pulling off the wings; in their habits they resemble the fly-catchers among birds. They are equally carnivorous in the larva state, which they pass in the water. The larvæ are without wings; they have 6 feet, and a very complicated arrangement of the parts forming the under lip, which covers the face like a mask, concealing the mouth, and serving by the unfolding of its plates for seizing and conveying food to the mouth; they crawl stealthily along the bottom, like a cat, and when within reach spring their jointed mask upon insects and even small fishes with great precision. By a valvular apparatus at the end of the tail, these larvæ draw in and expel water, using the jet against the surrounding stationary fluid as a means of locomotion; the currents thus produced also bring insects within reach of the jaws, and doubtless serve some of the purposes of respiration, though respiratory tracheæ also exist on the sides of the body. They remain several months in the water, and change their skins several times. The nymphs have rudimentary wings, and when they are ready to assume their final change, the brilliant eyes of the future fly may be seen through the envelope, which becomes more transparent; they crawl out of the water upon some bank or aquatic plant, where the pupa skin becomes dry and crisp and bursts open on the back; the head and legs of the perfect insect are slowly thrust and drawn out, the wings gradually expand themselves and become smooth, and the body and limbs assume their just proportions. During the drying of the wings the insect bends the body into a crescentic form, that their delicate tissue may not be disturbed by contact with any foreign substance. The anterior nervures of the wings must be very strong, though light, to enable the rapid vibrations of these organs to be performed; their sec-

tion, as in the butterfly, would probably present the form found by engineers to be that of the beam of greatest strength and lightness, viz.: the greatest amount of material thrown into the oval flanges, connected by the thinnest possible median support. According to Drury, these insects are 2 years in reaching the perfect form from the egg; after flying about a few weeks, and having performed the act of reproduction, the wings become ragged, the strength fails, and they soon die. They are sometimes seen in immense swarms; M. Poey says that at certain seasons of the year the north winds sweep hosts of them into the neighborhood of Havana; in Belgium in 1854 a swarm was seen extending ¾ of a mile, and requiring nearly an hour to pass a given spot, the lowest individuals flying at a height of about 6 feet. The restricted genus *libellula*, of which nearly 20 species inhabit New England, has a flattened, moderately long body, an almost globular head, the eyes contiguous or approximate, and the wings horizontal when at rest. The larvæ are short and thick, of a rough appearance, and a dirty color; they have 5 appendages to the tail. The genus *æshna* (Fab.) includes the large species, with long slender bodies, which keep the wings expanded when at rest; the larvæ are larger, long and slender, with the abdomen flat below and rounded above; this includes the *L. grandis* (Linn.), the largest and most predaceous of the British genera; there are about a dozen species in Massachusetts. In the genus *agrion* (Fab.) the wings are perpendicular during repose, the head transversal, and the eyes far apart; this includes the species with the slender and filiform abdomen, sometimes of extraordinary length; the larvæ are small, with round slender bodies terminating in 3 feathery appendages; there are about 10 northern species well known, many of them delicate and beautiful; among the foreign species are some of the most brilliant of insects. Many of the finest American species of this family are described and figured by Drury.

DRAGON'S BLOOD. See Balsams.

DRAGOONS (Fr. *dragons*, from Lat. *draconarius*, a standard bearer), a species of cavalry first introduced by Marshal de Brissac in France in the 16th century, when they were armed with muskets and trained to fight according to circumstances either as cavalry or infantry. They manœuvred either in or out of the line, extended themselves as skirmishers on the wings, fired upon the enemy, and then deployed behind a column of infantry to reload their pieces, promptly returning again upon their adversaries. They were subsequently of especial service in passing rivers and defiles, and as an escort for the baggage and convoys of artillery. In the 18th century they lost their hybrid character, were generally used as cavalry, and now form in most of the European armies a grade between cuirassiers and hussars, mounted on horses too heavy for the latter and too light for the former. Nicholas of Russia created a dragoon corps of 8 regiments designed to act either as cavalry or infantry, but they were reduced to simple cavalry by his successor. The first corps of dragoons in England, called the royal regiment of dragoons of North Britain, was raised in 1681, and is now the Scots greys. There are two regiments of dragoons in the U. S. army. (See also Cavalry.)

DRAGUIGNAN, a town of France, capital of the department of Var, 41 m. N. E. from Toulon; pop. in 1856, 9,900. It rises in the midst of a fertile valley, surrounded by high hills covered with rich vineyards. It is well built, with several elegant edifices, and numerous fountains. It contains a library of 15,000 volumes, among which are a few very valuable works, a cabinet of medals and of natural history, law courts, a parish church, and a fine clock tower. The inhabitants are employed chiefly in the silk mills and soap works of the environs, and in preparing and selling olive oil. Draguignan is an ancient town; was last fortified in 1615; and its possession was a matter of contention in many of the wars of France.

DRAINAGE, the art of freeing land from superfluous water by causing it to flow off in channels or through porous substances. The system of drainage adopted for cities and towns is commonly described as Sewerage, and will be noticed under this head, as that of mines in the article devoted to that subject. (See also Pump.) The art is of especial interest in its application to the reclaiming of wet lands, and the improvement of those through which the water that falls upon them in rain, or is brought by subterranean channels, does not find a ready exit. The importance of this branch of the art appears to have been appreciated by the ancient Romans, who are known to have constructed open drains for conveying away the superficial water from their lands, and to have laid underground water pipes of earthenware, which some suppose were for the same purpose, but which are with more probability referred by others to the purposes of aqueducts for supplying water to their houses. In England public attention was directed to the injurious effects of water retained in cultivated lands by the treatise of Capt. Walter Blyth in 1652. In this work the tendency of wet lands to produce the flag and rush instead of useful crops was forcibly portrayed, and the remedy of deep drainage as strongly urged. The author condemned the shallow open drains in common use, and recommended straight trenches reaching below the spring of "cold, spewing, moyst water," which he regarded as the source of the "corruption that feeds and nourisheth the rush or flagg," even to the depth of 3 or 4 feet, and the filling in of the trenches with stones, or with faggots covered over with turf. It was long, however, after his time before the excellence of this system was generally recognized, and little attention appears to have been directed to the subject until the latter part of the next century. About the year 1764 a shrewd farmer of Warwickshire, Mr. Elkington, undertook to investigate the peculiar qualities

of one of his fields in which the sheep were badly affected by the rot. He discovered that when an impervious stratum beneath the soil was perforated with an iron bar, the water confined below welled up and flowed away; and he hence inferred that the water in wet lands came chiefly from subterranean sources, and might be removed by tapping the stratum that confined it, and thus letting off the superfluous quantity. On this theory he established an original system of drainage, and was himself remarkably successful in seeking out the sources of the water, the supplies of which, after reaching by an auger, he drew off in a single deep channel dug for the purpose. This system came into extensive practice in England and Scotland, and its imperfections were not fully appreciated till after the introduction of the system of Mr. James Smith of Deanston, first brought forward in 1823. This, which its inventor called frequent or thorough drainage, and others named the Deanston system, was contrived with reference to the removal of the water collected by rains upon the surface, as well as that lying beneath the soil, and was in fact the practice recommended nearly 200 years before by Capt. Blyth. A series of parallel drains were sunk in the direction of most rapid descent, and being partially filled with stones small enough to pass through a 3-inch ring, were covered over with soil. At the bottom a main drain was constructed, of sufficient capacity to convey away all the water from the smaller drains, and this he directed should be made in stone work or with tiles. The new practice met with great opposition from the advocates of the method of Elkington, but finally came to be regarded as the only complete system applicable in all cases. In some instances the other plan may no doubt be economically adopted. The drains came at last to be made chiefly of tiles, for the manufacture of which the first machine was invented by the marquis of Tweeddale. The practice has been successfully introduced into the United States; and in Albany and New York draining tiles are already a considerable branch of manufacture. They are also made in New Jersey, Pennsylvania, and Ohio. Their forms and the manner in which they are used will be described after a few remarks upon the necessity and effects of drainage.—Wet lands are well known to be unfavorable to the production of large crops; it is also true that grains, potatoes, grass, &c., are of sounder and better quality when grown upon lands not subject to excess of moisture. The soils that retain it are correctly described as cold, while the more porous soils of a sandy nature are called warm. The former are chilled by the evaporation continually going on, while the latter are warmed below by the rain water which percolates through from the surface, and are heated by the direct action of the sun's rays. By the experiments of Mr. Parkes in a bog in Lancashire, it appears that by giving free passage to the water through a cold soil by thorough drainage, its temperature at the depth of 7 inches may be raised 10° above that of undrained adjoining land of the same quality. Thus drainage produces the effect of a warmer climate, and may add in fact many days to the length of the season; and this not merely by reason of the warmth extended for a longer period, but in the spring the soil is sooner prepared for cultivation, and may be in condition for ploughing and planting even two weeks before neighboring land of similar quality in other respects would admit of the passage of oxen and horses for working. An instance of such a gain in time was reported in 1856 by the secretary of the board of agriculture of the state of Maine. In the late spring of the northern states, where the snow often lies in April, and the ground is saturated with moisture in May, the advantage thus secured is of great importance. While frequent accession of water is a great benefit to lands through which it finds a ready passage, its retention impairs in various ways the fertility of the soil. It prevents the pulverization of the earth by the plough and harrow, and the circulation of air to the roots of the plants. It nourishes a growth of noxious plants, and in woodlands its injurious effect is seen in the production of many lichens, fungi, and other parasites upon the trees. Even the cattle and sheep pastured upon wet lands are subject to diseases from which those in dry fields are comparatively free, and are moreover pestered by swarms of flies and mosquitoes, which disappear as the same lands are drained. Man himself is often the greatest sufferer from undrained lands, which tend to engender fevers and agues; and these are known to prevail long after the forests have been removed, showing that the cause is not so much the decay of large bodies of vegetable matter, as the cold dampness produced by the saturation of the earth with moisture. By the recent researches of Dr. H. I. Bowditch of Boston, it appears that consumption also is more prevalent in those localities in Massachusetts which are badly drained, 50 out of 55 districts in the state of decidedly consumptive character being found wet by contiguity to ponds or marshes, or by reason of low and springy lands. In the vicinity of the wet and unhealthy localities are often found others which appear to be as free from any tendency to induce or aggravate the disease as the distant regions to which patients are sent for recovery. It is a singular fact, fully established by experience, that undrained lands are more liable to suffer from drought than those thoroughly drained. The former in a dry time become baked and compact, and do not readily absorb moisture from the atmosphere; but a well pulverized and open soil receives into its pores and absorbs like a sponge the dew and aqueous vapor in the air. The moisture finds its way to the lower portions of the soil, and is there taken up by the rootlets, which penetrate deep into the loosened materials. Deep or subsoil ploughing is thus seen to be most advantageously employed in connection with underdraining. The same cause which prevents the

penetration of the water also keeps near the surface the fertilizing substances applied as manure; and these exposed to the heat of the sun are in great part dissipated, their richest ammoniacal portions going off in exhalations to be precipitated by the rains upon other lands. Undrained soils in cold climates suffer from another cause. They are liable to freeze when saturated with moisture; and as they thaw, or, in popular language, as the frost comes out of the ground, they are so heaved and broken up, that the roots of the grasses and winter grains are thrown out, and the plants are destroyed; this is what is called winter-killed. By draining and subsoiling, a way is opened for the moisture to sink beyond the reach of frost, and the soil is left too dry to be disturbed by the thaws of spring.—From these remarks may be inferred the inutility of mere surface draining. Open trenches may convey away the surface water, but do not reach the cold stagnating repositories beneath the soil, which check that free circulation of fluids which is as essential to the health of vegetable bodies as that of the air to animals. Such ditches should be used only as brooks in the lowest grounds to convey away the water discharged into them by the underground drains coming down the slopes. Deep ditches partially filled with small stones or with brush, or laid at bottom with flat stones, are found by long experience to be not so well adapted to accomplish the object sought for as drains laid with tiles. These are short pipes moulded and baked of brick clay. Some are of cylindrical shape; and in others, called the horse-shoe tile, the section is an incomplete circle, and when laid the tiles are placed upon the 2 edges, either directly upon the ground, or separated from it by the intervention of flat pieces of the same material, placed so as to break joints with the tiles. In another form which is very generally used, called the sole tile, the flat bottom piece, instead of being separate, is a part of the tile itself, and is the foot upon which it stands. This and the pipe tile are considered far superior to the horse-shoe. Tiles are made of various sizes from 2 to 8 inches diameter, moulded by machines in lengths of about a foot, and baked as thoroughly as common hard-burned bricks. They are carefully set in the ground end to end; but the cylindrical pipes are often furnished with a collar which slips over and holds 2 adjoining ends. The bottom of the trench is dug with excavating tools, made for the purpose, just wide enough to admit the tiles. The water filtering through the soil passes into the pipes by the numerous joints, entering chiefly at the bottom, and the multiplication of these joints is the chief object of the short lengths. Tiles should always be imbedded in compact soil, and at a depth somewhat dependent upon the contour of the ground as well as other circumstances. A sufficient slope must be secured for the water to flow readily through the drains. There should be no interruptions to the descent, causing depressions in which sediment might accumulate to obstruct the drainage. The least fall admitted by most authorities in the usual sized drains is not less than 1 in 600 or 700; but so gentle a slope is rarely advisable; indeed, not less than 1 in 200. The depth generally agreed upon as the best is at least 4 feet. The tiles are at this depth rarely reached by a hard frost, and are not disturbed by the pressure of the subsoil plough, which penetrates a few inches over 2 feet below the surface. This depth is also lower than the roots of most of the crops are likely to extend; but the tiles cannot be placed beyond the possibility of injury from the roots of willows, poplars, and other trees which strike down in an open soil to uncertain depths. Their distance apart should depend upon the nature of the soil. In compact clays they have been set within 15 feet of each other; but this is unnecessarily close. If the subsoil be clayey, it is not well to exceed 30 feet; for if the drains once laid are found to be ineffectual, as they have in many instances proved, the only expedient is to make an additional one between each 2 of the original set. If the subsoil is very porous, the tiles may be placed 40 feet apart; but if trials at a greater distance than this are ever found effectual, it is believed their success should be referred to the principle of Elkington, the drains tapping a porous stratum containing water which was kept from flowing by an impervious overlying stratum. The effect of drains is not always perceived immediately after heavy rains. Some time is required for a dry soil to become saturated, and the moisture is then gradually given off below. The plants thus have sufficient opportunity to obtain the benefit of the water which passes through, and no danger is incurred of overdrainage, especially as the lands are left in better condition, as already stated, for absorbing atmospheric vapor. In stiff clayey soils the operation, though it would at first appear impracticable, is greatly facilitated by the property of the clays to shrink and open in cracks in passing from a wet to a dry state. This process commences near the drains, and the cracks extend back, serving as they open as minor channels for leading the water down to the tile beds. They have been traced stretching across through the clay with innumerable ramifications nearly from one drain to the next; and though they close again when very wet, they still let water pass along their lines.—The most extensive agricultural drainage operations in the United States are on the farm of Mr. John Johnston, near Geneva, N. Y. By steadily pursuing the practice for about 20 years, he has accomplished the laying of 210,000 tiles, or over 47 m. An instance of their beneficial effect was observed a few years since, when by the destructive action of the midge the crop of wheat upon 6 adjoining farms was reduced to 7 bushels per acre, while he obtained 29 bushels. The system of drainage adopted in the central park of New York city, under the direction of George E. Waring, Esq., is very complete, and

exhibits some peculiar features. The soil is chiefly a clay loam, and in this the drains are dug mostly from 4 to 5 feet deep, at distances apart of 40 feet, and directed down the line of steepest descent. The depths of the excavations are regulated by grade stakes set at the intersections of the drains, and at various points on their lines, the levels of which are taken, as in railroad excavations, and from these points the whole plan is prepared. In this no fall is admitted less than 1 in 200, and no diminishing slope toward the outlet if this can be avoided. The small drains discharge into the tops of the main drains. Where a diminishing slope toward the discharge cannot be avoided, a "silt basin" or catch-pool, formed of brick or of a large tile set on end, is placed on the line of the drain to retain the sediment. A silt basin of about 3 cubic feet capacity receives the drain of every 20 acres. It is built up to the surface, and furnished with an iron cover, secured by lock. This affords an opportunity of examining at any time the condition of the drainage, and of removing the sediment which is deposited. By reference to the plans of the work kept in the office, changes and additions may at any time be introduced in accordance with the general system.—The expense of underground drainage seriously checks the extension of the practice. The 2-inch sole tile, or 2½-inch horse-shoe tile, costs $12 per 1,000 feet length, and the prices rapidly increase up to $80 for 1,000 feet of 6-inch sole tile, and $60 for the same length of 6½-inch horse-shoe tile. The least expense per acre in nearly all arable soils for proper drains properly constructed may be estimated at from $35 to $50.—In Europe the largest draining operations have been those designed for reclaiming immense tracts of submerged or boggy lands, some of which were altogether below the level of natural drainage. As early as 1436 attention was directed to the possibility of reclaiming the fens bordering the river Ouse and its tributary brooks. These covered an area of some 400,000 acres of land, which in ancient times appears to have been in a condition for cultivation. The tract is partly in Cambridgeshire and Huntingdonshire, extending into the adjoining counties, by the high ridges of which it is bounded. It receives the waters of 9 counties, and presents but very limited natural channels for conveying these into the sea on the N. E. The attempts to embank and deepen these in the 15th century were unsuccessful, and the undertaking was abandoned till 1634, when it was renewed by the earl of Bedford. In 3 years he expended £100,000 in embankments for keeping out the waters of the rivers, and removing those within by pumping machinery and discharging them over the dikes. This attempt also failed; but in 1649 his son recommenced operations, and finally succeeded after the expenditure of £300,000 more. From that time the lands reclaimed—now known as the Bedford Level—have been kept free from water by means of efficient machinery, worked by windmills. The great difficulty appears to have been in securing main channels of sufficient capacity to discharge the waters in time of freshets; and through want of these the banks were often overflowed, and the former works washed away. Among the numerous drainage channels cut through these lands are 2 nearly parallel, of more than 20 m. in length, and both navigable, serving to cut off a long circuitous route of the river Ouse. By other direct channels made during the present century above the outlet of the same river, and also of the neighboring river Nene, many thousand acres more of land have been reclaimed. The steam engine has been advantageously substituted in many instances for the windmills; and it has been found practicable to estimate closely the power and expense required to keep an area of given extent thoroughly drained, the drainage from neighboring high lands being cut off by catch drains, and the height to which the water must be raised being known. The annual fall of rain averaging 26 inches, there would be, with a very moderate allowance for evaporation, 2 inches per month of water to be raised, or 1⅓ cubic feet of water as a maximum on every square yard of surface. The amount upon an acre, or 7,260 cubic feet, may be raised to the height of 10 feet and discharged in about 2 hours and 10 minutes by the power of one horse. A steam engine of 10 horse power could then each month raise to the same height and discharge the water from 1,000 acres in 232 hours. Similar calculations may be made for the drainage of submerged lands in the United States, proper allowance being made for the difference in the annual fall of rain in the district from that which occurs in England.—The drainage of the Haarlem lake in Holland, undertaken in 1839, was a gigantic operation of this class. From an area of 70 sq. m. of average depth of water of 12¾ feet, situated below the level of any sluices that could be constructed, it was required to raise the water an average height of 16 feet, and to an estimated possible amount of 35,000,000 tons in a single month. An enormous steam engine was constructed in London for working 11 pumps of 63 inches diameter each, and 10 feet stroke, the maximum capacity of all which was to raise 112 tons of water 10 feet at each stroke. These were set around the circular tower which contained the engine, and from the upper portion of which the balance beams radiated—one for each pump. They raised in actual work 66 tons per stroke, discharging the water in a large canal 38 miles in length, and from 115 to 130 feet in width, which had previously been constructed around the area. Two other similar engines were applied to the same work, and the pumping was continued from May, 1848, to July 1, 1852. Then the area was thoroughly drained, and the lands were ready to be divided out for sale. The entire expenses from the commencement of operations in 1839 to the close of 1855 were estimated at £748,445, which would be more than

paid by the proceeds of the sale of the lands, the greater part of which had then been disposed of. The swamp lands and salt water marshes of the United States present vast and almost untouched fields for this system of operations. The accumulations of vegetable matters they contain give fertility to the soil, when the stagnating waters are removed; and the success that has attended small operations undertaken to bring them into cultivation, gives encouragement to expect great results from operations undertaken upon a larger scale.—The subject of drainage may be further studied in the number of Weale's "Rudimentary Series," by G. D. Dempsy, "On the Drainage of Districts and Lands." It is also treated in an article in the U. S. patent office "Agricultural Report" for 1856; and by H. Colman in his reports of European agriculture. The very complete treatise of James Donald has been recently republished in New York; and William McCammon, civil engineer of the "Albany tile works," has presented in an advertising pamphlet a summary of the principles and advantages of drainage, with exact descriptions of the tools and methods employed and estimates of cost.

DRAKE, Daniel, an American physician, born in Plainfield, N. J., Oct. 20, 1785, died in Cincinnati, O., Nov. 5, 1852. His father, a farmer in indigent circumstances, emigrated from New Jersey to Mason co., Ky., in 1788, where Daniel's childhood and youth, up to his 16th year, were passed on a small farm, amid the labors and privations of a frontier life. In Dec. 1800, with only such education as he had received in the course of some 6 months' desultory attendance at different times upon country schools, taught by wandering and ignorant schoolmasters, he was placed under the care of Dr. William Goforth, of Cincinnati, as a student of medicine, and in 1804 he commenced the practice of that profession. In 1816 he was graduated at the university of Pennsylvania, and in 1817 he was invited to a professorship in the Transylvania medical school at Lexington, Ky., in which he lectured one session. In Dec. 1818, on his personal application, the legislature of Ohio granted a charter for the medical college of Ohio, at Cincinnati, and also established there the commercial hospital. In the autumn of 1820 the former institution was opened for students, and for 2 sessions Dr. Drake was connected with it. In 1823 he again accepted a chair in the Transylvania school; and thenceforth, till the close of his career, was with brief intermissions connected with medical schools, holding professorships in that institution, and in the Jefferson medical college, Philadelphia, in the Cincinnati medical college, in the university of Louisville, and finally, again, in the medical college of Ohio, with which he was connected at the time of his death. As a professor of the theory and practice of medicine he held an eminent position, and as a practitioner his reputation was coextensive with the Mississippi valley. His writings were voluminous, but principally of a character not calculated or intended for permanent use. His first book, the "Picture of Cincinnati" (1815), attained in its day a wide reputation, and drew from Thomas Jefferson a highly complimentary letter. His last work, upon which his fame as an author must principally rest, was "A Systematic Treatise, historical, etiological, and practical, on the Principal Diseases of the Interior Valley of North America, as they appear in the Caucasian, African, Indian, and Esquimaux Varieties of its Population," vol. i. of which was published in 1850, and vol. ii., posthumously edited, in 1854. A memoir of his life and services, by Edward D. Mansfield, LL.D., was published in Cincinnati in 1855.

DRAKE, Sir Francis, an English navigator, born near Tavistock, in Devonshire, according to some authorities in 1539, and to others in 1545 or 1546, died Dec. 27, 1595. His father, a poor yeoman, and a recent convert to the Protestant faith, obtained from Queen Elizabeth an appointment as naval chaplain. He had 12 sons, of whom Francis, the eldest, received a scanty education through the liberality of his kinsman John, afterward Admiral Sir John Hawkins, and as soon as he was old enough to serve as a cabin boy, was apprenticed to the master of a bark. By his industry and frank and decided character he so gained the affections of his master, that the latter at his death bequeathed his vessel to his young apprentice. Being thus at the age of 18 years a good sailor and the proprietor of a ship, he quickly completed his education by learning how to command, and made a commercial voyage to the bay of Biscay and afterward to the coast of Guinea. Inspired by the adventures and successes which the new world then offered, he sold his vessel and invested the proceeds with all his savings in the expedition of Capt. Hawkins to Mexico in 1567, receiving the command of the Judith. The fleet was attacked by the Spaniards, and only 2 of the 6 ships escaped. Drake, barely succeeding in saving his own vessel, returned to England, with a loss of his entire property, and fruitlessly petitioned the court of Spain to restore what its subjects had taken from him. Then with an oath he declared that he would obtain by force the rights which he could not get otherwise, and began to sail with the avowed object of pillaging the Spaniards. In 1570 he obtained a commission from Queen Elizabeth. In 1572 he armed 2 ships at Plymouth, with which, joined by a third at Port Pheasant, on the coast of South America, he made a descent upon New Granada, captured and plundered various Spanish settlements, and made at the expense of his enemies a fortune vastly larger than they had taken from him. He returned to England in 1573, and was welcomed as a hero. While at Darien he had seen from a mountain top the waves of the Pacific, and had there conceived the purpose of an expedition into those waters, yet unexplored by English vessels, which he now prepared to execute. His eloquence was sufficent to gain the patronage

of Elizabeth, to whom he exposed the feebleness of Spain in her colonies and promised treasures and conquests. He set sail from Plymouth, Dec. 13, 1577, with 5 vessels and 164 gentlemen and sailors, to follow the route which had been traced by Magellan. While in Port San Julian on the coast of Patagonia, he put to death Captain Doughtie, a good sailor and brave officer, and a gentleman of birth and education, who was charged with having conspired against the life of the admiral. Directing his course to the N., Drake pillaged the Spanish settlements of Peru and Chili, captured a royal galleon richly laden with plate, and took possession of California in the name of the queen of England, and then, burdened with gold, sated with vengeance, and fearing to meet the Spaniards in superior force if he returned upon his steps, he sought to find by the N. E. a passage back to the Atlantic. Being repelled by the severe cold, he changed his purpose, and determined to make the circuit of the globe. He traversed the Pacific ocean, the archipelago of the Spice islands, the Indian ocean, doubled the cape of Good Hope, and arrived at Plymouth, Sept 26, 1579. Elizabeth received him with favor, and 4 months afterward knighted him, and partook of a banquet on board of his ship. The rupture which followed between Elizabeth and Philip II. gave Drake a new opportunity to gratify his animosity against Spain, and within one year he captured and plundered Carthagena and several other towns, burned the forts of San Antonio and Saint Augustine, and visited and brought away with him the remains of the colony which Raleigh had planted in Virginia. In 1587 he was placed in command of a fleet of about 30 sail designed to attack the Spanish ports. He destroyed 100 ships in the harbor of Cadiz, an exploit which he spoke of as singeing the king of Spain's beard, and soon after captured an immense carrack, from papers in which the English first learned the value of the East India traffic, and the mode of carrying it on. In 1588, as vice-admiral, he commanded one squadron of the fleet by which, with the assistance of the elements, the "invincible armada" was annihilated. In 1589 he ravaged the coasts of the Spanish peninsula, leaving fearful traces of his passage, and in 1592 and 1593 was a member of parliament for Plymouth. In 1594, a report having reached England that Spain was preparing against that country a fleet more numerous and powerful than the armada, he again entered the service against his old enemy. Convinced that the West Indies was the point where Spain could be best attacked, he sailed for America in 1595 with 26 vessels, in company with Admiral Hawkins. A divided command produced its usual bad results, and their first attempts were unharmonious and fruitless. At Porto Rico Admiral Hawkins died, either of a wound or of chagrin, and Drake then in the region where his first anger against Spain had been kindled gained new triumphs. He burned Santa Marta, Rancheria, Nombre de Dios, and Rio Hacha; but a fatal malady broke out among his sailors, and as he heard of the defeat of a division of his forces which he had sent to operate by land, he himself fell sick, and died from the combined effects of fever and of mental agitation on account of the reverses of the expedition. His body received a sailor's funeral in sight of Puerto Bello, and was buried in the sea. Admiral Drake was one of the founders of the naval greatness of England; and though in his spirit and conduct there was something of the buccaneer, he was yet one of the most daring and efficient of naval commanders.

DRAKE, Joseph Rodman, an American poet, born in New York, Aug. 7, 1795, died Sept. 21, 1820. He lost his father in early life, and with 3 sisters struggled against adversity. He studied medicine, and his marriage in 1816, shortly after taking his degree, placed him in affluence. He travelled in Europe, and after his return in 1819 contributed under the signature of "Croaker" many pleasant and effective verses to the columns of the "New York Evening Post." His friend Fitz-Greene Halleck joined him in this series, signing his own pieces at first "Croaker jr.," but soon they both adopted the signature of "Croaker and co." The novelist Cooper was also one of the intimate associates of Drake, and a conversation between them as to the poetical uses of American rivers, in the absence of historical associations such as belong to the streams of the old world, was the occasion of Drake's longest and most imaginative poem, the "Culprit Fay." It was his aim to conjure up in this fanciful production all the associations of natural life and beauty which gather around a sylvan scene, and to show how the earth, the air, the sea, the field, the wave, the moonlight, are in themselves vital with poetical images and meaning. Though Drake had written verses from his boyhood, yet the poems which gave him his wide reputation as a writer of genius and taste were all the productions of a single season. His health failing, he passed the winter of 1819 in New Orleans, hoping to be benefited by the milder climate. But the progress of the consumption which had smitten him could not be arrested, and he lived but a short time after his return to New York in the spring. His death called forth a beautiful poetical tribute from his friend Halleck.

DRAKE, Nathan, an English physician and miscellaneous writer, born in York in 1766, died in Hadleigh, June 7, 1836. He was educated at the university of Edinburgh, and practised his profession in Hadleigh from 1792 till his death, during which time he was a frequent contributor to literary and medical periodicals. His works are numerous; they include "Shakespeare and his Times" (2 vols. 4to., London, 1817), and various criticisms and illustrations of the writings of the age of Queen Anne.

DRAKE, Samuel Gardner, an American author, born at Pittsfield, N. H., Oct. 11, 1798. He was educated at the common schools of the neighborhood, and between the ages of 20 and

27 was a district school teacher. Subsequently he removed to Boston, and in 1828 established an antiquarian book store, one of the first of its class in the United States. In 1825 his literary and antiquarian labors commenced with the republication with notes of Church's "Entertaining History of King Philip's War," of which several editions have since appeared. In 1833 he reprinted 5 old tracts, which, with the preceding work, comprise, in his opinion, all that can be recovered in relation to King Philip's war. In 1832 appeared his "Indian Biography," and in 1833 the "Book of the Indians, or History and Biography of the Indians of North America," a work of high authority for facts, and of which the 11th edition, much enlarged, appeared in 1851. His remaining publications on Indian history are "Old Indian Chronicles" (Boston, 1836), "Indian Captivities" (Boston 1839), and "Tragedies of the Wilderness" (Boston, 1841). Since 1847 he has edited the "New England Historical and Genealogical Register," which, under the direction of a historical and genealogical society in Boston of which he is president, has contained many valuable contributions to local and family history. His latest work is an elaborate history of Boston in 1 vol. royal 8vo.

DRAKENBERG, Christian Jacobsen, a Norwegian, remarkable for his long life, born in Blomsholm, Nov. 18, 1626, died in Aarhuus, Oct. 9, 1772, at the age of 145 years and more than 10 months. The son of a sea captain, he himself led a seafaring life till 1717, when he abandoned it on account of the dimness of his eyesight, though his strength and vigor were undiminished. In 1732 he was residing in Copenhagen, and his advanced age having been disputed by persons who judged from his looks that he was younger, he indignantly set off to procure his baptismal certificate, and having for that purpose performed a long journey through Sweden chiefly on foot, reappeared with his documentary proof at Copenhagen. He was married in 1737, and in 1759 still continued to exercise much in walking, and retained extraordinary strength. He died after a gentle sickness of 13 days. He was of medium stature, passionate, but rather temperate, with a good appearance and address.

DRAMA (Gr. δραμα, from δραω, to make), a story represented by action. The principle of imitation is inherent in human nature; painting, sculpture, and the drama must be coeval with society, and have been practised in some form by almost every nation. Among the South sea islanders a rude kind of drama was discovered. In China the drama dates its origin to remote ages. The war dance of the Indian and the African, intermingled with pantomimic descriptions of the preparations for battle, the stealthy advance upon the foe, the combat, and the death of the enemy, greeted with applause from the excited spectators, is essentially a dramatic exhibition, although wordless. But that form of the drama accepted and followed in Europe, divided chiefly into tragedy and comedy, was the creation of the Greeks about 700 B. C. The religious festivals of Bacchus were believed to have been introduced into Greece by Melampus. In the Bacchic ritual an ode in honor of the god was recited; and to produce the best ode, the one which should be selected by the priests to be inserted into their ceremony, became a favorite contest among the poets of the time. A goat was either the principal sacrifice at the altar, or the prize awarded to the successful competitor; thus from the two words τραγος and ωδη, the ode for the goat, came the Greek word τραγωδια, tragedy. In like manner, at the rustic festivals or harvest homes of the Greeks, semi-religious ceremonies, composed of odes and dances in honor of Bacchus, were enacted. These odes, being of a more genial and comic character, consistent with the occasion of an agricultural triumph, were called κωμωδια, comedy, from κωμη, village, and ωδη, song, the song of the village. Some writers are of opinion that the word comedy originally signified drama, and had not the distinctive sense in which we apply it, but included tragedies and theatrical representations of every kind.—The earliest known form of drama is the dithyrambus, a hymn in honor of Bacchus, sung by a chorus of voices, accompanied by music, expressive gesture, and dances. In 562 B. C., Susarion, a native of Megara, appeared at Athens, where he, as a single speaker, recited an ode. In 536 B. C., Thespis, a native of Icaria, recited an ode with responses made to him by a dithyrambic chorus; in this we faintly perceive the first germ of dialogue. Such were the rude elements found by Æschylus in 499 B. C., and out of them he alone and unaided created and perfected the drama as we now behold it. Nothing essential has since been added to its structure; he seems to have forestalled future ages of invention, and to have left nothing undone. He removed the chorus into the background, and used them only as an auxiliary. He brought a second actor upon the scene, and introduced dialogue; thus the drama became an action instead of a narrative. He invented scenery, costume, and machinery, of a grandeur unknown to our stage. Banishing the lewd and Bacchanalian character from the dithyrambic hymn, he supplied its place with pure tragedy, simple and grand in its form, noble and dignified in its object. From his works were gathered those rules called the unities, referred to by Aristotle; indeed, he may be truly said to have found the drama chaos, and left it a world. These changes were wrought within the space of 30 years, and so rapidly were they accomplished, that they were at the time regarded as the work of inspiration. The expansion he gave to the drama caused the Athenians to build the great theatre of Bacchus, the Lenaion, the former theatre having broken down under the pressure of the people gathered into it to witness a representation in which Æschylus and Pratinas were rivals. Thirty years later, Sophocles introduced a third actor, and thus diffused the dialogue and

fertilized the action. As a dramatic poet he surpassed Æschylus by a noble grace and a sweet majesty, which were wanting to the Titanic father of the drama. Fifteen years afterward Euripides enabled Greece to behold as contemporaries the three greatest purely tragic poets the world has produced. In reviewing their works we must remember that Æschylus was the creator of that fanciful world which Sophocles and Euripides so wonderfully cultivated. The dramas of Æschylus are dark, gloomy, and terrible; thunder and lightning are their atmosphere, and demigods their *dramatis personæ;* his human beings are gigantic in moral stature, and removed above our sympathies. Sophocles, more human but not less divine, drew human nature as it ought to be. Euripides, descending still further, depicted men and women as they were.—The origin of the drama is popularly but erroneously ascribed to Thespis. This improvisatore did no more than improve upon the dithyrambus; he first organized a regular chorus, and invented dances of peculiar energy and grace; but his performances were a kind of ballet farce. Of tragedy he had no idea.—The tragedy of the Greeks was a fable or a series of events begotten of each other in a natural sequence. It began with a simple position, so selected that the auditor required no explanation to understand the present condition of matters or persons; it was a simple beginning. The development of the characters was required to be simultaneous with the action, the one being involved in the other. The action should not stray from the one place beyond such a limit as the time employed in the performance might naturally permit; nor should a lapse of time take place during the piece beyond the limit of one day. These unities of action, place, and time, however, so strenuously insisted upon by the French dramatists, were not strictly observed by the Greeks, nor were they considered essential, for Æschylus himself did not always observe them. Aristotle refers indistinctly to the unity of action; he says in reference to the unity of time: "Tragedy endeavors as much as possible to restrict itself to a single revolution of the sun." Of the unity of place he says nothing. The Greek tragedy was composed in trilogies, or 3 distinct plays, continuations of each other; such, for example, was the trilogy of Æschylus, formed of the *Agamemnon*, the *Choëphoroi*, and the "Furies." In the 1st, Agamemnon, returning from the siege of Troy, is murdered by his wife Clytemnestra; in the 2d, Orestes, Agamemnon's son, avenges his father by the slaughter of his mother; in the 3d, Orestes is pursued by the Furies for this unnatural deed; the gods cannot agree upon his case until Minerva decides in his favor, and releases him from the torture of the avenging divinities. These 3 subjects conjoined formed a complete action, divided into a thesis, an antithesis, and a synthesis.—The early history of comedy is more obscure than that of tragedy. The earliest comic poet of whom we have remains is Aristophanes, who flourished a century after Æschylus. He was the last of what was called the old school. Comedy was divided into 3 forms, the old, the middle, and the new. In the first or old comedy, the characters were real living personages, who, under their real names, were freely satirized. This license was soon so abused that a law was passed forbidding the names of real personages to be used in comedy. This impediment produced the second or middle comedy, where the prohibition was evaded by giving fictitious names to real characters, and distinguishing the individual intended to be satirized by a mask or by some unmistakable inference. The middle comedy lasted about 50 years, when it was superseded by the 3d or new comedy; in this form the characters and the subject were fictitious, and as the old satirized and ridiculed statesmen, orators, and generals under their real names, so the new was aimed at abstract vice, and not at the individual offender. As tragedy descended from the contemplation of divine matters to depict and sympathize with human woes, it gradually lost its grandeur and depreciated. So, also, as comedy divested itself of its direct influence upon men and things, and from a statesman became a philosopher, it lost its pith and power.—The list of dithyrambic poets preceding Æschylus from 700 to 525 B. C. includes Archilochus, Simonides, Lasus, Arion, Stesichorus, Solon, Susarion, Hipponax, Theognis, Thespis (birth of Æschylus). Afterward came Chœrilus, Phrynichus, Epicharmus, *Æschylus* (invents the drama, and first exhibits 499 B. C.), Chionides, *Sophocles* (first victory 468 B. C.), *Euripides* (first exhibits 455 B. C.), Cratinus, Aristarchus, Ion, Crates, Achæus, Melanippides, Pherecrates, Phrynichus the comic poet, Lysippus, Eupolis, *Aristophanes* (427 B. C.), Agathon, Xenocles, Ameipsias, Sannyrion, Astydamas, Antiphanes, Theopompus, Eubulus, Alexis, Heraclides, *Menander* (first exhibits 321 B. C.), after whom the Greek drama died obscurely.—The Romans derived their drama from the Greeks. Terence, Plautus, and Seneca are the only Latin dramatists worthy of mention, and these are but translators and imitators of the Greek. The only element introduced by the Romans into the drama was farce, an invention of the Tuscans; buffoonery became more popular than wit. In truth the Roman people took little pleasure in pure intellectual amusement, and what the poet was to the Greek the gladiator was to the Roman. The coarser Roman preferred to watch the agonies of the body suffered in the circus, rather than sympathize with the woes of the soul simulated in the theatre.—Thus ended the first or classic age of the drama. The second, or romantic age, gave its first indication of existence in the 12th century, when dramatic performances called *entremets* were introduced, as the word implies, between the services at royal banquets and carousals. These entremets soon became pageants, masks, and mummeries, and lasted as distinct dramatic entertainments up to the period of Shakespeare. Simultaneously

a dramatic composition called a Mystery, usually founded on passages of Scripture, was introduced and became a popular exhibition on saints' days. Subjects from the Bible, rudely treated in the form of a dialogue between the holy personages, were represented on a stage erected in the church or church yard, the priests and acolytes being the actors. These performances were carried to an abuse, and they became so blasphemous a scandal that they were suppressed. The next form of drama was the Morality, bearing a relation to the mystery similar to that between the new and old comedy of the Greeks. The morality was aimed at abstract vice, its action was a fable, its characters typical.—In the 15th and 16th centuries Histories began to be written—long, rambling pieces of action without form or object, but introducing rudely the design of that romantic drama destined to so wondrous a perfection under the minds of Shakespeare and his colleagues. As the classic drama was derived from the dithyramb, a pure poetic germ, subsequently developed into action, the romantic drama was derived from the pageant, mask, or mummery, a pantomimic germ, subsequently developed into poetry. In the first the action is subservient to the passion; in the second the passion is subservient to the action. Thus we find Shakespeare borrows his plots from Boccaccio, and makes his passions fit under these forms, where his characters rather encumber than assist the intrigue. In the Elizabethan age the romantic drama sprang at once into existence; and as in the single life of Æschylus the classical or Greek drama passed from infancy to maturity, so Shakespeare and his colleagues raised the romantic or Gothic drama from rudeness to the highest perfection it has ever achieved. In the romantic drama the unities of time, place, and action are not observed. The poet is allowed unbridled license; prose and poetry may be mingled without rule or reason, beyond the aptitude of each to the moment and the character. In the Greek mind the sense of form was very acute; we see it in their architecture, sculpture, and poetry; we have it in their social and political institutions. The Greek taste demanded grace of outline, proportion of parts to the whole, and was so extremely sensitive to this element in art, that we find it in all things Greek which remain to us. The Gothic mind is eminently defective in this sense. The only ideas of form we have are derived from study of the ancient models, and are not inherent in us. Reckless of form, therefore, Shakespeare depicted characters and developed passions, flung them into groups, hurried them through the action, over the possible and the impossible, and landed them on a catastrophe not prepared by design, but which suited his convenience. His works present a glorious intellectual anarchy in which he has had no follower, for the reason that no mind of less power than his own could contend with the confusion he so marvellously controls. The romantic dramatists greatly excelled their classic rivals in the rich coloring of their characters; they drew men more like imperfect human beings and less like inspired statuary; and if less noble in contour, they were more truly flesh and blood. The Shakespearean characters are constructed piecemeal out of the small imperfections and humors that make up human nature; the Greek heroes are made of one piece, one passion. The English dramatists of this age gave originality at least to the form of the romantic drama, and, whatever its faults, it was new. The French and Italian poets clung to the Greek models; Corneille and Racine were but faint and poor imitators of Euripides; Alfieri affected the same ancient simplicity. As students of the Greek, their individual merit is great; but having had no share in the progress of the drama, they have no prominent place in its history. The Italians and Spaniards at this period contrived a species of performance, part pantomime, part farce, part comedy of intrigue. It was derived from those Italian narrators of whom Boccaccio is the best type, and represented dramatically those short and pithy tales in which Margaret of Navarre was wont to take such delight. Lope de Vega was the first to inaugurate this comedy of intrigue; it was quickly imitated and greatly improved by the French, who by admitting more Italian elements gave it variety and scope. Hardy, Rotrou, and Corneille, Scarron and Quinault, prepared the public taste for Molière, who truly founded and made the second or middle age of comedy, as Shakespeare and his colleagues made the first or old. Comedy at this time mainly occupied the stage. In England the four great masters, Wycherly, Congreve, Vanbrugh, and Farquhar, brought forth the prose drama. If inferior to Molière, they were less tainted with that leaning toward Greek classicality which has always retarded the true progress of the drama in France. The most original of Molière's works is the *Bourgeois gentilhomme*, because in its form and treatment he has exhibited more freedom from scholastic trammel. In the beginning of the 18th century the sentimental drama, a mixture of comedy and tragedy, a weak solution, obtained great popularity, but cannot be considered a forward movement in the art. In Germany this drama obtained great popularity under Kotzebue, and at the same time a wild, mythic, philosophical dramatic form of poem was created by Goethe and Schiller. These poets have rather embellished dramatic literature than added to the development or progress of the drama as an art. Lessing, who preceded them, may be said to have founded the German drama, but he attempted no reform.—The next and last great step which the drama has made, and one that has become prominent in the present age, is the invention of opera, or a drama in which music takes the place of poetry, and the dramatic action is subservient to a new musical development. It is a mistake to presume that an opera is a musical drama. The musical form of an opera and its dramatic treatment are essentially different from

the form and treatment of a drama based on the same fable. There is also in the form of the music, apart from the libretto, a plan and proportion to which the drama must be subservient.—Among the various minor forms of the modern drama are melodrama, farce, vaudeville, and pantomime. Melodrama owes its invention to the laws which restricted the performance of tragedies and comedies to certain privileged theatres. Booths were erected in which were performed serious pantomimes, or dramas without words, accompanied throughout with expressive music. By degrees the actors ventured a few extempore phrases or jests. This license was gradually extended, until dialogue was regularly introduced, and the music was only used to accompany the movement of the actors. Melodrama is now understood to be a drama wherein the passion and development of character are subservient to the action and plot; whereas tragedy is a drama where the action and plot are subservient to the passion and development of character. Farce is a humorous piece of buffoonery, in which probability may be outraged both in the incidents and character, and stands in relation to comedy as melodrama does to tragedy. Vaudeville is an invention of the French stage. Schlegel states that "vaudeville is only a variation of comic opera;" but it is essentially a different thing, and was in no manner derived from it, nor has it ever been connected with it. It has its name from *vau de Vire*, which was originally a satirical song containing a keen, witty thought, and applicable to some popular person or event. It was a lyric epigram invented in that part of Normandy called Vire, and carried thence to Paris, where these musical satires became the vogue. Presently the writers of small comedies threw their keenest epigrams into verse, by which they gave them more point and drew to them more attention; these verses might be sung to any air that would happily suit them, and were called vaudevilles. The comic pieces through which they were scattered eventually received the name. When the work is but slightly speckled with these musical epigrams,' it is distinguished as a *comédie vaudeville*, or a *drame vaudeville*. Pantomime is a drama without language, composed of gesture accompanied with music. It is probably the most ancient form of drama, and has changed less in its essential form than any other. The most perfect and most elegant kind of pantomime is the ballet, where graceful dances are interspersed amid the pantomimic action.—No work of the mind possesses such charms for the author as the drama; the combination of poetry, music, oratory, sculpture, and painting, represents an army of muses which almost every literary aspirant desires to command; but few are found adequate to the task. The first difficulty consists in the selection of a subject fit for dramatic treatment. Many fables read well, that lose the appearance of life when deprived of the peculiar charms of narrative, and given in dialogue. In the dramatist's language, "they will not act." Having secured a fit theme, it should be examined to see if it be agreeable. Thus in tragic subjects horror should be distinguished from terror. Horror has in it something repulsive; it has the ingredients of disgust to distinguish it from terror, which possesses a charm most attractive, having the ingredient of pity mingled in its sentiment. Provided with an appropriate subject, the dramatist must proceed to select a good beginning. If in his first act he has to employ his characters in long explanations of that part of his story which precedes the rising of the curtain, then has he made a beginning in the middle, as it were, and his drama is taking place off the stage, instead of upon it; for the mind of the auditor is fixed upon a scene described, and the action of the play ceases to give place to narrative; if he can find no means of avoiding these explanations, then he must consider that his subject is not susceptible of a good dramatic form. Having begun well, the action must never pause, and it must be continuous, for in this continuity is the secret of interest; it betrays an object which, though kept out of sight, is palpably ahead. As the plot proceeds, it should embrace nothing but what is essential to its support; whatever may be the beauty of an episode, it is a distraction, and has always more charms for the author than the auditor. Shakespeare triumphed over this fault so often that he has done great damage to the English dramatist by his example. At a certain proportionate distance from the end of the work comes the climax or catastrophe, toward which achievement all the action conspires. This event generally occupies the latter half of the 4th act in a 5 act play. The 5th is used to bring the fable in all its parts to a simple and clear conclusion, leaving a sense of completeness in the mind, where nothing remains to be desired or told.—A further account of the dramatic literature of each nation will be found under the titles of the respective countries. See also ÆSCHYLUS, ALFIERI, CALDERON DE LA BARCA, CORNEILLE, GOETHE, GOLDONI, LESSING, LOPE DE VEGA, MOLIÈRE, RACINE, SCHILLER, and SHAKESPEARE.

DRAMMEN, a commercial town of Norway, situated on the southern coast, in the province of Aggershuus, 20 m. S. W. from Christiania; pop. in 1855, 9,916. It lies on both sides of the river Drammen, and is composed of 3 small villages, separated from each other by natural limits. The commerce of which Drammen is the centre gives it the third rank among the cities of Norway, but in respect to its timber trade it stands first. It manufactures tobacco, earthenware, sail cloth, rope, carriages, leather, &c.; and beside timber, which is exported chiefly to Great Britain, France, and Holland, has a commerce in iron ware and agricultural produce. About 40,000 tons of shipping are annually employed in its port. It suffered considerably in 1850 and 1857 from conflagrations.

DRAPER, JOHN WILLIAM, an American chemist and physiologist, born near Liverpool,

England, May 5, 1811. He received his early education at the Wesleyan Methodist school at Woodhouse Grove, an institution for the sons of clergymen of that denomination, of which his father was one. Having here acquired the rudiments of knowledge, his maturer education was intrusted to private instructors; and while thus employed, he devoted much attention to chemistry and natural philosophy, a partiality for which he imbibed from his father, who made these pursuits a relaxation from his clerical duties. The higher mathematics were also a part of his early training, and his writings denote their successful cultivation. He subsequently went to the university of London, where he had the opportunity of prosecuting his chemical studies under the late Dr. Turner. Some of Dr. Draper's ancestors had been attracted to America before the revolution, and a greater part of his family connections followed at later periods, and in 1833 he came over to join them. He then continued his chemical and medical studies at the university of Pennsylvania, where he took the degree of M.D. in 1836, and with the rare distinction that his thesis was announced at commencement as having been selected for publication by the medical faculty. A few weeks after, he received the appointment of professor of chemistry, natural philosophy, and physiology in Hampden-Sidney college, Virginia, in which institution he remained until 1839. During his residence there his time was occupied in original chemical and physiological investigations, many of the latter appearing in the "American Journal of Medical Sciences." From Hampden-Sidney college Dr. Draper was called to the chair of chemistry and natural history in the academic department of the university of the city of New York, where, beside instruction in those branches, he has delivered lectures to the advanced undergraduates upon physiology. In 1841 he was appointed professor of chemistry in the university medical college, which forms the medical department of the city university, having coöperated with 5 others (Drs. Valentine Mott, Granville S. Pattison, John W. Revere, Gunning S. Bedford, and Martyn Paine, who were simultaneously elected professors) in establishing that very flourishing school of medicine; and in 1850 physiology was added to the chair of chemistry. These relations to the academic and medical departments of the university have been continued without interruption to the present time; and it is also worthy of remark, as illustrating his industry, that he has acted throughout as the medical faculty's secretary, and since 1850 as their presiding officer. As an instructor, Dr. Draper stands in the very first rank, and to his rich variety of attainments unites all the important elements of a public speaker. Although his researches have been mostly experimental, involving therefore great labor and cost, he has written voluminously and with high reputation. Beside contributions to various other scientific journals, he furnished to the "Edinburgh Philosophical Journal" between the years 1837 and 1857 about 40 treatises, principally on topics previously little understood. He is the author of many literary works, reviews, &c., but for the most part published anonymously; of a "Treatise on the Forces which produce the Organization of Plants" (4to., New York, 1844); of a popular "Text Book on Chemistry" (12mo., New York, 1846), and another on "Natural Philosphy" (8vo., New York, 1847), which consist of excerpts from his courses of lectures. His last and most elaborate work is a treatise on "Human Physiology, Statical and Dynamical; or the Conditions and Course of the Life of Man" (8vo., New York, 1856, and a new edition, 1858).

DRAPER, Sir William, an English officer, born in Bristol in 1721, died in Bath, Jan. 8, 1787. He was educated at Eton and Cambridge, entered the army, won distinction in the East Indies, obtained a colonelcy in 1760, acted as brigadier at the capture of Belle Isle in 1761, and led the land forces at the taking of Manila in 1763. The Spaniards ransomed the latter place by the promise of £1,000,000, which was never paid, and Sir William corresponded long but unprofitably on the subject with his own and the Spanish governments. For his services, however, he was made knight of the bath. When the first of the "Junius" letters appeared in Jan. 1769, he came forward under his own name in defence of his friend the marquis of Granby. Junius replied with marvellous skill and sharpness; two more letters passed on each side, and Sir William then retired from a contest which had endangered his good name, damaged the cause of his friend, and heightened his opponent's reputation. Six months afterward, when he saw these letters republished, he appeared twice again in print to complain of their injustice, and was again worsted by his anonymous antagonist. During the same year he visited America, where he was married to Miss De Lancey of New York. In 1779 he was appointed lieutenant-governor of Minorca, and on the surrender of that island brought 29 charges against the governor, Murray, for all but 2 of which he was obliged to offer an apology.

DRAUGHTS, a game played by 2 persons, on a checkered board like the chess-board, with 12 or 20 pieces on each side, which capture each other by angular movements governed by certain rules, until the game ends by one player losing all his pieces, or by both players getting their pieces into positions from which they cannot be taken. In America the game is commonly called checkers. In France it is known as *le jeu de dames*, in Italy as *dama*, in Germany as *Damen;* all which terms are commonly supposed to have their origin in some fancied adaptation of the game as a pastime for women. But as it has been played in Egypt for more than 4,000 years, and made its appearance in Europe only 3 or 4 centuries ago when there was much intercourse between southern Europe and Alexandria and other Egyptian ports, before the passage to India round the cape of Good

Hope replaced that through the isthmus of Suez, it is probable that the Egyptian-Arabic name of the game, *dameh*, is the source of its appellations in French, Italian, and German. In Polish, the game has, beside that of *dama*, a foreign designation, *arcaby* or *warcaby*, supposed to be of oriental origin. In Spanish, the word *ajedrez*, applied to both chess and draughts, is also of eastern derivation, and appears to be nearly equivalent to the American term checkers.—The origin of the game is uncertain. It is supposed to have preceded chess, and is certainly of very high antiquity, for in Egypt, as appears from the monumental paintings, it was a common amusement in the reigns of the Osirtasens, 2000 B. C. It was played as now with pieces, all of which on the same board were alike in size and form, though on different boards they varied in shape, some being small, others large and rounded at the top or carved into human heads. The kind used by King Rhamses, 1311 B. C., who is represented on the walls of his palace at Thebes playing at draughts with the ladies of his household, resembled small ninepins, and seem to have been about 1½ inches high, standing on a circular base of half an inch in diameter. Some have been found of ivory, 1¾ inches high and 1⅛ in diameter, with a small knob at the top. The opposite sets of pieces were distinguished sometimes by their color and sometimes by their form, one set being black, the other white or red, or one set having round, the other flat tops. It is uncertain how the Egyptians played the game, though from the position of some of the pieces in the paintings it would seem that they did not take backward, as is done in the Polish game of draughts. The modern Egyptians, who use pieces similar to those used by their predecessors, play the game as it is generally played in Europe and America. By the Greeks the invention of draughts, as well as of dice and many other things, was poetically ascribed to Palamedes, one of the heroes of the expedition against Troy, 1193 B. C. Plato, however, attributes the invention to the Egyptian Theuth. Homer, in the 1st book of the Odyssey, describing Minerva's arrival at the palace of Ulysses in Ithaca, says: "There she found the haughty suitors; some of them were amusing themselves before the gates with draughts, sitting upon the hides of oxen which they themselves had slain." There is reason to believe, however, that the game mentioned by the Greek writers was a species of backgammon.—In playing draughts, the board is placed with an upper white corner on the right hand. Each player places his pieces on the 3 lines of squares nearest to him. In England the white squares are played upon; in Scotland and America the black squares are generally selected. The game is begun by each player moving alternately one of his men along the diagonal on which they are first placed, one square at a time to the right or the left. When 2 hostile pieces encounter each other, the one that has the move may take the other, if there be a vacant square of the color played upon behind it, by leaping over the other into that square. The piece leaped over is removed from the board. If several pieces on forward diagonals should be exposed by having alternate open squares behind them, they may all be taken at once, and the taking piece placed on the square behind the last piece captured. When a piece has reached one of the 4 squares of the extreme opposite row, it becomes a king, and is crowned by placing one of the captured pieces upon it. Kings can move backward as well as forward, though only one square at a time. The principal laws of the game are these: if a piece is touched, it must be moved, if a move be possible; the player who has the move must take a piece which is exposed to capture; if he neglects to take it, his adversary may remove from the board the piece with which the capture should have been made; but a player has no right to decline to take under any circumstances. The first move of each game is to be taken by the players in turn; if lots are drawn for the move, he who gains the choice may move first or require his adversary to move. In Polish draughts, a variety of the game played not only in Poland, but in other parts of the continent of Europe, and sometimes in England and America, the pieces are moved forward as in the English form of the game, but in taking they move like the kings of the English game, either backward or forward. The kings in the Polish game have the privilege of passing over several squares at one time, and even over the whole length of the diagonal when no pieces obstruct the move. Polish draughts is sometimes played with 40 pieces on a board divided into 100 squares.—M. Mallet, a celebrated professor of mathematics, published a treatise on draughts at Paris in 1668. Another teacher of mathematics, William Paine, published at London in 1756 an "Introduction to the Game of Draughts." The best work on the subject is the "Guide to the Game of Draughts," by Joshua Sturges (London, 1800), of which an improved edition appeared in 1835, the whole of which, with additions, is comprised in the "Handbook of Games" which forms one of the volumes of "Bohn's Scientific Library" (London, 1850).

DRAVE (Ger. *Drau;* Hung. *Dráva;* anc. *Dravus*), one of the principal tributaries of the Danube, rises from 2 sources situated in the E. portion of the Tyrol. In its upper part it is a small and extremely rapid river, with craggy and overhanging banks, but it becomes navigable at Villach, and flows with a slow current through a low and marshy country, through S. Styria, where it washes the walls of Marburg and Friedau, then along the S. border of Hungary, which it separates from Croatia and Slavonia, till it enters the Danube 14 m. E. from Eszek, as a large and powerful stream, after a course of 360 m. Its navigation above Völkermarkt is obstructed by various falls and cataracts. The most important of its numerous affluents is the Mur, the largest river in Styria. Lienz in Tyrol, Villach, Pettau, Warasdin, and Eszek, are among

the chief towns situated on its banks. One of the most interesting uses of the Drave is that to which the Hungarian peasants put it, who descend it on rafts of empty barrels after having disposed of their wine in the mountains of Carinthia.

DRAWING, the representation or delineation of objects, either as they appear to the eye, or as projected on assumed planes, or as designated by conventional signs having a certain similarity to the appearance of the objects themselves. The painter, with free hand, draws or sketches objects in their visible and natural forms; the mechanical or architectural draughtsman projects, according to certain established rules and principles, objects existing or designed; while from the notes of the surveyor the topographical draughtsman plots the surface of a field or locality, with its natural and artificial objects represented somewhat as they would appear projected on a transparent plane above them, but with certain conventionalities to express more definitely certain features. Architectural and mechanical drawing is in general the delineation of objects by geometric or orthographic projection. Since the surfaces of all bodies may be considered to be composed of points, the first step is to represent the position of a point in space, by referring it to planes whose position is established. In general these planes are assumed at right angles to each other, and the points projected upon them to make up the drawings of the plan, end and side elevation. Let a brick be held flatwise in the corner of a rectangular box, with its sides parallel to the various sides of the box; if now from the several corners of the brick perpendiculars be let fall upon the adjacent sides, the points thus found will be the orthographic projections of the corners; and if these points be connected by corresponding lines, there will be outlines of the brick under 3 views or projections: upon the bottom of the box a rectangle 8 by 4 inches, being the plan of the brick; upon one side a rectangle 8 by $2\frac{1}{2}$ inches, the side elevation; on the other side a rectangle 4 by $2\frac{1}{2}$ inches, the end elevation. If the brick be inclined to either or all of the sides of the box, the projected outlines will be varied; but the same rule for determining the position of points obtains, viz.: by letting fall perpendiculars on the planes to which they are referred. The orthographic projection of any object in outline is the shadow it would cast on a plane perpendicular to the rays of the sun, if held between it and the sun. Simple objects in general may be defined by 2 views, a plan and elevation; but often, to illustrate the construction of the interior, sections are necessary, that is, the appearances that might be presented were the objects cut by planes; all portions that would be thus absolutely cut, are designated by filling up the outline with a quantity of inclined parallel straight lines, at equal intervals from each other; should there be distinct parts in section, in contact with each other, to prevent confusion the different sections are expressed by lines inclined in opposite directions. In most architectural and mechanical constructions it would be obviously impossible that they could be drawn full size. Scales are therefore made use of in which fractional parts represent wholes. The scale in most common use in architectural drawings is that of $\frac{1}{4}$ of an inch to the foot, or $\frac{1}{48}$ of the lineal dimensions; in mechanical drawings, $\frac{1}{4}$ or $\frac{1}{8}$ full size, that is, as usually understood, $\frac{1}{4}$ or $\frac{1}{8}$ of the lineal dimensions. Beside these scales, the divisions of one inch or foot are very numerous, according to the purposes for which the drawing is designed. Working drawings of machines, or those intended to be used in construction, are generally laid off to as large a scale as possible; they are mostly outline drawings, consisting of lines to indicate the form of the object represented. The roundness, fulness, or obliquity of the individual surfaces is not indicated by the lines, although it may be generally inferred from the relation of the different views of the same part. The direct significance of an outline drawing is often considerably increased by strengthening those lines which indicate the contours of surfaces resting in the shadow. That all parts may be shade-lined according to one uniform rule, the light is supposed to fall upon the object obliquely at an angle of 45°, that the horizontal and vertical lines may be relieved equally. In general the light is supposed to fall, as it were, from the upper left hand corner of the paper diagonally, and the same rule is followed in the more finished drawings where both shade and shadow are introduced. As a means of avoiding the indefiniteness presented by mere outline, recourse is had frequently to the mere shading of the parts of a machine or edifice, usually done with color and a brush. In architectural drawings, a complete picture is often attempted with all the appliances of shade and shadow, intended to show the artistic effect of the construction. Color is introduced not unfrequently in both mechanical and architectural drawings, to show the material of which the construction is composed; in these cases it is usual to imitate somewhat the natural color of the substances—wood with burnt sienna, brick with Indian red, wrought iron with Prussian or indigo blue, cast iron with a dark blue tint, shading off to a green. —Beside orthographic projection, architects, for the representation both of exterior and interior of edifices, frequently make use of perspective, and mechanical draughtsmen, for the better understanding of the parts of a machine than by separate plans and elevations, unite them by the rules of isometrical drawing. The science of perspective is the representation by geometrical rules, on a plane surface, of objects as they appear to the eye from an assumed point of view. All the points of the surface of a body are visible by means of luminous rays proceeding from these points to the eye, forming a cone of rays. The intersection of these rays by an intervening transparent plane is the perspective projection

of these points, the rules for the projection of which mechanically are simple and well established. The supposed transparent plane is called the plane of projection or plane of the picture. The horizon of the picture is the horizontal line resulting from the intersection of the plane of the picture by a horizontal plane passing through the eye. Point of view or point of sight is the point where the eye is supposed to be placed. Vanishing points are points in a picture to which all lines converge that are in the object parallel to each other. An object is said to be in parallel perspective when one of its sides is parallel to the plane of the picture—in angular perspective when none of its sides are so. Isometrical drawing implies that the measures of the representations of the lines forming the sides of each face are equal. The principle of isometrical projection consists in selecting for the plane of the projection one equally inclined to 3 principal axes at right angles to each other, so that all straight lines coincident or parallel to these axes are drawn in projection to the same scale. To draw a cube in isometrical projection, with a radius equal to one side of the cube, describe a circle, inscribe a regular hexagon, and connect alternate angles by lines to the centre; the hexagon will be divided into 4 quadrilaterals, each of which will represent a face of the cube; all the lines will be equal, and equal to the side of the cube. On these lines can be set off distances as in orthographic projection, but only upon these lines, or those parallel thereto. Curved or inclined lines are therefore to be established by reference to these lines, and not by direct measure of the lines themselves. Isometrical drawing is especially valuable to the mechanical draughtsman, embracing as it does the applicability of a scale with pictorial representation. In drawings for the patent office it is of very general application.—Topographical drawing is the delineation of the surface of a locality, with the natural and artificial objects, as houses, roads, rivers, hills, &c., upon it, in their relative dimensions and positions; giving as it were in miniature a copy of the field, farm, district, &c., as it would be seen by the eye moving over it. Many of the objects thus to be represented can be defined by regular and mathematical lines, but many other objects, from their irregularity of outline and their insignificance in extent, would be very difficult to distinguish. Certain signs have therefore been adopted into general use among draughtsmen, some of which resemble in some degree the objects for which they stand, while others are purely conventional. Sand is represented by fine dots, gravel by coarser dots; meadow or grass line is represented by tufts of little perpendicular lines; trees, although not consonant with the other parts of the plan, are represented often in elevation, at other times by clumps of foliage in plan, sometimes distinctive in their foliage; dwellings and edifices usually in plan, made distinctive by some small prefix, as a pair of scales for a court house, a sign post for a tavern, a horse shoe for a smithy, a church with a cross or steeple, &c. The localities of mines are represented by the signs of the planets which were anciently associated with various metals, and a black circle or dot for coal. Hills are represented by 2 methods, the vertical and the horizontal. In the first the strokes of the pen follow the course the water would take in running down the slopes, the strokes being made heavier the steeper the inclination; and systems have been proposed and used by which the inclination is defined by the comparative thickness of the line and the intervening spaces. In the system proposed for the U. S. coast survey, slopes of 75° are represented by a proportion of black to white of 9 to 2, and so down by 9 grades to a slope of 2½°, in which the proportion is 1 black to 10 white. By the horizontal method, or by contours, hills are represented by horizontal lines traced round them, such as would be shown on the ground by water rising by equal vertical stages. The choice of a scale for a plot depends in a great measure on the purpose for which the plan is intended. Plans of house lots are usually named as being so many feet to the inch, plots of surveys so many chains to the inch, maps or surveys of states so many miles to the inch, and maps of railway surveys as so many feet to the inch, or so many inches to the mile. In the U. S. coast survey all the scales are expressed fractionally and decimally. The scales of small harbor charts vary from 1 : 5,000 to 1 : 60,000; that of charts of bays and sounds is usually 1 to 80,000, of general coast charts 1 to 400,000. In the U. S. engineer service the following scales are prescribed: general plans of building, 1 : 120; maps of ground with horizontal curves, 1 : 600; topographical maps comprising 1½ miles square, 1 m. to 2 ft., or 1 : 2,640; 3 miles square, 1 : 5,280; between 4 and 8 miles, 1 : 10,560; 9 miles square, 1 : 15,840; not exceeding 24 miles square, 1 : 31,680; 50 miles square, 1 : 63,360; 100 miles square, 1 : 126,720; surveys of roads and canals, 1 : 600. In the plotting of sections, as of railway cuttings, a horizontal or base line is drawn, on which are laid off the stations or distances at which levels have been taken; at these points perpendiculars or ordinates are erected, and upon them are marked the heights of ground above base, and the marks are joined by straight lines. To express rock in a cut, it is generally represented by parallel inclined lines; rivers by horizontal lines, or better colored in blue; the depth of sounding in a mud bottom by a mass of dots. Since it would be in general impossible to express the variations of the surface of the ground in the same scale as that adopted for the plan, it is usual to make the vertical scale larger than that of the horizontal lines in the proportion of 10 or 20 to 1.—Topographical features are represented as effectively by the brush and water colors as by the pen. Colors are used conventionally. Thus in the practice of the French military engineers, woods are represented by yellow, gamboge with a very little

indigo; grass land green, gamboge and indigo; cultivated land brown, lake, gamboge, and a little India ink or burnt sienna; adjoining fields are slightly varied in tint; gardens, by patches of green and brown; uncultivated land, marbled green and light brown; brush, brambles, &c., marbled green and yellow; vineyards, purple; sands, a light brown; lakes and rivers, a light blue; seas, a dark blue, with a little yellow added; roads, brown; hills, greenish brown. In addition to the conventional colors, a sort of imitation of the conventional signs already explained is introduced with the brush, and shadows are almost invariably introduced. Topographical drawings receive the light, the same as architectural and mechanical drawings, from the upper left hand corner. Hills are shaded, not as they would appear in nature, but on the conventional system of making the slopes darker in proportion to their steepness, the summit of the highest ranges being left white. Topographical drawings embrace but a small portion of surface, and are therefore plotted directly from measures; but in geographical maps, embracing at times a great extent of country, various projections are made use of to express as nearly as possible a spherical surface upon a plane. These species of projection are generally included under the head of mapping, and belong to the province of geography.

DRAYTON, Michael, an English poet, born in Hartshill, or Harshull, in the parish of Atherston, Warwickshire, in 1563, died in 1631. His life is involved in obscurity. It is said that he was the son of a butcher, was a page to a person of rank, was maintained for some time at Oxford by Sir Henry Goodere, held a commission in the army, and witnessed the defeat of the Spanish armada; but none of these statements are well supported. In 1626 he was poet laureate. He found patrons in Sir Walter Aston and the earl of Dorset, but he never became wealthy or powerful, though respected for his virtues and talent. It is not easy to discover the order of his various poems, some of which were published without date. The best known is his "Poly-olbion," a descriptive poem on England, her legends, antiquities, and productions, the first 18 books of which were published in 1613, and the whole 30 in 1622. Among his other works are "Harmony of the Church, containing the spiritual Songs and holy Hymns of godly Men, Patriarchs, and Prophets" (4to., 1591, only one copy of which edition is known to exist; and 8vo., London, 1843, edited by Dyce); "Idea, the Shepherd's Garland, and Roland's Sacrifice to the Nine Muses" (4to., 1593), the second of which was reissued under the title of "Pastorals;" "Mortimeriados" (4to., 1596), reprinted under the title of the "Barons' Wars;" "England's Heroical Epistles" (8vo., 1598); the "Legend of Great Cromwell" (4to., 1607); "Battle of Agincourt" (folio, 1627); "Muses' Elysium" (4to., 1630); numerous legends, sonnets, &c., mostly printed in collections; and "Nymphidia, the Court of Fairy," edited by Sir E. Brydges (Kent, 1814). The last is one of his most admirable productions. His historical poems are dignified, full of fine descriptions, and rich in true poetic spirit, and his "Poly-olbion" is moreover so accurate as to be quoted as authority by antiquaries. Notes to the first portion of it were written by Selden. He was buried in Westminster abbey, where a monument was erected to his memory. An edition of his works, with a historical essay on his life and writings, was published in 1752–'3 (4 vols. 8vo., London).

DRAYTON, William, LL.D., an American judge, born in the province of South Carolina in 1733, died in June, 1790. He was educated for the bar in the Middle Temple, London, where he studied 4 years. He returned to America in 1754, and was appointed chief justice in the province of East Florida in 1768. During the war of the revolution he was suspended from his office and reinstated in it, and went with his family for a time to England. After the peace he became successively judge of the admiralty court of South Carolina, associate justice of the state, and a judge under the federal government.

DRAYTON, William, an American politician, a native of South Carolina, died in Philadelphia, May 24, 1846. Though a federalist in 1812, he held a commission in the army after the declaration of war. He was a representative in congress from South Carolina from 1825 to 1833, and in 1830 was a leader of the union party in opposition to that of nullification. He resided in Philadelphia many years prior to his death, and in 1839 succeeded Nicholas Biddle as president of the U. S. bank, the affairs of which he found it impossible to retrieve.

DRAYTON, William Henry, an American statesman of the period of the revolution, born at Drayton hall, on Ashley river, S. C., in Sept. 1742, died in Philadelphia in Sept. 1779. He belonged to an influential family of South Carolina, and was educated in England at Westminster school, and at Baliol college, Oxford. Returning to America in 1764, he became an active writer on political affairs. In 1769 he published letters on the side of the government, which brought him into controversy with Christopher Gadsden and other patriotic leaders. In 1771, after revisiting England, he was appointed privy councillor for the province of South Carolina; but as the revolutionary crisis approached he espoused the popular cause, and protested against the proceedings of his colleagues. In 1774 he was appointed judge of the province, and when the continental congress was about to sit he published a pamphlet under the signature of "A Freeman," which substantially marked out the line of conduct pursued by the congress. Suspended from his offices under the crown, he was made a member of the popular committee of safety, and was prominent in advising the seizure of the provincial arsenals and British mails. In 1775 he was president of the provincial congress, and in 1776 was elected chief justice of South Carolina. He soon after de-

livered an energetic charge to the grand jury on the question of independence, which was published throughout the colonies and had great influence. He had produced several other political charges and pamphlets, when in 1778 he was elected a delegate to the continental congress, of which he was a prominent member till his death. He left a minute narrative of the preliminary and current events of the revolution, which was prepared for the press and published by his son, Gov. John Drayton (2 vols. 8vo., Charleston, 1821).

DREAM, the series of thoughts which occupy the mind during sleep. The whole animal kingdom is characterized in its sensuous relations with the external world by two distinct, and, so far as the organs involving these relations are concerned, opposite conditions, the one of wakefulness, and the other of sleep. Within certain limits this alternation of action and repose presents itself as a general law of animal organization, more or less varied, according to the simpleness or complexity of the functions involved; and hence it is found that the quantity and regularity of sleep bear a close relation to the degree of development of animal life. To those vertebrata in which the muscular and nervous tissues exist in their most complete conditions, sleep is much more important than to those types of organic existence which, while endowed with some of the functions of animal organization, are for the most part devoted to the simple process of assimilation. Indeed, a point is at last reached where no evidence of the phenomenon of sleep is presented. In man, in whom the voluntary and involuntary functions exist in their most complete development, and in whom their operations are complicated by the addition of those of the intellect, the periods of waking and repose are most fully marked, and their presence most important to the welfare of the individual. In sleep, the organs of sense, the power of voluntary motion, and the active powers of the mind suspend in a great degree their operation, in order to collect by rest new strength. The approach of sleep is announced by diminished activity of mind and loss of the power of attention. The senses become blunted to external impressions, and we feel an unconquerable desire for stillness and repose. Our ideas grow confused, our sensations obscure, our sight fails, hearing grows dull and uncertain, the eyelids close, the joints relax, and the body instinctively assumes an easy position. The vital activity, however, is in full vigor; the functions of the heart and the lungs, breathing and the circulation of the blood, continue, but are more calm and equable than during the waking season; the nutrition of the system, the secretion and absorption of the juices, are also carried on undisturbedly and perfectly. Hence sleep is not really a state of total inactivity, and only bears a very partial resemblance to death. A person awaking from profound sleep finds himself refreshed, and his bodily and intellectual functions restored to their usual vigor. If the sleep, however, be partial and disturbed, these results do not follow, but the waking state is accompanied by a sense of lassitude and fatigue. It is in this latter condition that dreams take place, and hence Dugald Stewart has properly defined dreaming to be that condition of sleep in which we have nearly or quite lost all volition over the bodily organs, but in which those mental powers necessary for volition retain a partial degree of activity. M. Perquin observed in the hospital of Montpellier in 1821 a case which throws considerable light upon the actual condition of the brain in profound sleep, and in that in which dreams occur. A female aged 26 had lost a portion of her scalp, skull bone, and dura mater, under an attack of malignant disease, by means of which a portion of the brain was exposed in such a manner as admitted of inspection. When this patient was in a dreamless state, or in profound sleep, her brain was motionless, and lay within the cranium. When the sleep was imperfect, and the mind was agitated by dreams, her brain moved and protruded from the cranium, forming a cerebral hernia. This protrusion was still greater whenever the dreams, as reported by herself, were most active, and when she was perfectly awake, especially if engaged in active or sprightly conversation, it attained its fullest development; nor did this protrusion occur in jerks, alternating with recessions, as if caused by arterial blood, but remained permanent while the conversation continued. It is clearly shown by this case, so far as the appearance of the brain is concerned, that during profound sleep the active state of the mental faculty ceases, but that, in that condition in which dreams occur, some of the mental powers are sufficiently active to excite a motion in the cerebral organs, less in degree than in a state of full wakefulness, but more than in a condition of profound sleep. Though the power of volition does not seem to be altogether absent in sleep, the will appears to lose its influence over those faculties of the mind and members of the body which during our waking hours are subject to its authority. Hence it may be inferred that all our mental operations which are independent of the will continue during sleep. The senses may be considered as the media by means of which the spirit within is brought in contact with the external world, and comes to have a knowledge of actual existence. Although the predisposing causes of dreams may be diverse, yet they are generally referable to some peculiar condition of the body, and are often called into action through the agency of the external senses. Dr. Gregory relates that, having occasion to apply a bottle of hot water to his feet upon retiring for the night, he dreamed that he was making a journey to Mount Etna, and found the heat insufferable. Dr. Reid, having had a blister applied to his head, dreamed that he was scalped by a party of Indians. M. Giron de Buzereingues made a series of experiments to test how far he could determine his

dreams at will by operating upon the mind through the medium of the senses. With this view he left his knees uncovered on falling asleep, and dreamed that he was travelling at night in a diligence with a vivid impression of cold knees produced by the rigor of the weather. Waller relates the case of a gentleman who was ever after a victim to terror on account of a dream, which he could never look upon except as a real occurrence. He was lying in bed, and as he imagined quite awake, when he felt the distinct impression of a hand placed upon his shoulder, which produced such a state of alarm that he durst not move in bed. The shoulder which had experienced the impression had been uncovered, and the cold to which it was exposed produced the sensation. Persons in whom one of the senses is defective frequently have their dreams modified by this circumstance. Darwin relates the case of a deaf gentleman who in his dreams always appeared to converse by means of the fingers or in writing. He never had the impression of hearing speech, and for the same reason one who has been blind from his birth never dreams of visible objects. Sensations produced by the condition of the digestive apparatus have a very marked influence on the phenomena of dreams. When the functions of the digestive organs are properly performed, the dreams, if affected at all from this cause, are pleasant in their character; if however there exists any disturbance in this part of the system, the dreams are apt to assume a painful character, usually proportioned in intensity to the amount of disturbance of the alimentary canal. To this class of sensations may be referred those dreams produced by the use of opium and intoxicating drinks, which in part at least act by the impression made upon the digestive organs. Dreams induced by this latter cause are remarkable for the extravagance of the phantasmagoria they exhibit, frequently presenting shapes of the most fugitive and fanciful character. The dreamer often seems endowed with such elasticity that it appears as if he could easily mount to and float upon the clouds above him. De Quincey, in the "Confessions of an Opium Eater," has portrayed in the most vivid manner the effect of that narcotic in the production of dreams. "Under the connecting feeling of tropical heat and vertical sunlights I brought together all creatures, birds, beasts, reptiles, all trees and plants, usages and appearances, that are found in all tropical regions, and assembled them together in China and Hindostan. From kindred feelings I soon brought Egypt and all her gods under the same law. I was stared at, hooted at, grinned at, chattered at by monkeys, by parroquets, by cockatoos. I ran into pagodas, and was fixed for centuries at the summit or in the secret rooms. I was the idol, I was the priest. I was worshipped, I was sacrificed. I fled from the wrath of Brahma through all the forests of Asia. Vishnu hated me, Seeva lay in wait for me. I came suddenly upon Isis and Osiris. I had done a deed, they said, at which the ibis and the crocodile trembled. I was buried for 1,000 years in stone coffins with mummies and sphinxes, in narrow chambers at the heart of eternal pyramids. I was kissed with cancerous kisses by crocodiles, and lay confounded with unutterable slimy things among reeds and Nilotic mud." In these hallucinations it will be observed how completely all ordinary ideas of time and space are annihilated. Indeed, De Quincey, in noticing this curious psychological phenomenon, says: "The sense of space, and in the end the sense of time, were both powerfully affected. Buildings, landscapes, &c., were exhibited in proportions so vast as the bodily eye is not fitted to receive. Space swelled and was amplified to an extent of unutterable infinity. This, however, did not disturb me so much as the expansion of time. I sometimes seemed to have lived for 70 or 100 years in a single night." Nor does it require the aid of a narcotic as powerful as opium, or indeed any thing beyond what ordinarily occurs in a state of dreaming, to create ideas of time and space apparently as incongruous as those narrated by the opium eater. The sleeper who is suddenly awakened by a loud rap does not begin and terminate his dream with this simple occurrence, but experiences a long train of events requiring hours and even days for their fulfilment, and which are all evidently occasioned by the sound which awakens him, and concentrated within the brief space of time it occupies. A person who was suddenly aroused from sleep by a few drops of water sprinkled in his face, dreamed of the events of an entire life in which happiness and sorrow were mingled, and which finally terminated with an altercation upon the borders of an extensive lake, into which his exasperated companion, after a considerable struggle, succeeded in plunging him. It is evident that the association of ideas in this case which produced the lake, the altercation, and the sudden plunge, was occasioned by the water sprinkled upon the face, and the presumption is probable that the whole machinery of an entire life was due to the same cause. Dr. Abercrombie relates a similar case of a gentleman who dreamed that he had enlisted as a soldier, joined his regiment, deserted, was apprehended, carried back, tried, condemned to be shot, and was at last led out to execution. After the usual preparations a gun was fired, and he awoke with the report to discover that the cause of his disturbance was a noise in the adjacent room. Dreams are often produced by the waking associations which precede them; thus the writer had occasion to send a letter to a relative in a neighboring city, and upon retiring to rest dreamed that he was walking in the principal thoroughfare of the city where his correspondent resided, and accidentally meeting him, held a long conversation, upon subjects, however, in no way connected with the one which gave rise to the correspondence. So, too, dreams may be characteristic of the peculiar idiosyncrasies of the dreamers: a miser will dream of his gold, a

philosopher of science, a merchant of his ventures, the musician of melody, and the lover of his mistress. Tartinia, a distinguished violin player, is said to have composed his "Devil's Sonata" under the inspiration of a dream, in which the devil appeared to him and invited him to a trial of skill upon his own instrument, which he accepted, and awoke with the music of the sonata so vividly impressed upon his mind that he had no difficulty in committing it to paper. In like manner Coleridge composed his poem "Kubla Khan" in a dream, of which the following is his account: "In the summer of 1797 the author, then in ill health, had retired to a lonely farm house between Porlock and Linton, on the Exmoor confines of Somerset and Devonshire. In consequence of a slight indisposition an anodyne had been prescribed, from the effects of which he fell asleep in his chair at the moment he was reading the following sentence, or words of the same substance, in Purchas's 'Pilgrimage': 'Here the Khan Kubla commanded a palace to be built and a stately garden thereunto, and thus 10 miles of fertile ground were enclosed within a wall.'" Coleridge continued for about 3 hours apparently in a profound sleep, during which he had the most vivid impression that he had composed between 200 and 300 lines. On awaking he had so distinct a remembrance of the whole that he seized his pen and wrote down the lines which are still preserved. Unfortunately, at this moment he was called out of the room to attend to some business which occupied more than an hour. Upon his return he found to his surprise and chagrin that, although some vague idea of the vision was still present, yet, with the exception of some 8 or 10 scattered and fragmentary lines and images, the whole had been obliterated from his memory. Instances like the above occasionally occur where the mind in a state of waking is aided by the processes carried on during sleep, but these are rare. As a general rule dreams are wanting in coherence and unsubstantial in reasoning. Nothing is more common than for the mind in dreams to blend together objects and events which could not have an associated existence in reality. The faces of friends long since dead and events long since past rise before the mind with all the vividness of real existence, and fail to excite surprise by their incongruity because the mind views them without the association of ideas which in a waking state would place them at such a distance from the present that no cognizance could be taken of them except as very remote events. It is the absence of these associated ideas, which in a state of wakefulness fix the limits as to time and space of each fact of which the mind has a knowledge, that prevents any surprise at the occurrence of unusual events in dreams, and constitutes one of their most remarkable features. The popular belief that in dreams an insight is frequently given of coming events is shared by many well-informed persons, and is supposed to be corroborated by many remarkable cases; from among them the following is selected. Mr. D., residing in Edinburgh, informed his aunt one evening of his intention to join a sailing party the next morning upon the firth of Forth. The lady retired to rest and dreamed repeatedly of seeing a boat sink and those on board drowning. When wakened she went to the bedside of her nephew, and with great difficulty obtained his promise to remain at home. In the afternoon a violent storm arose, the boat was upset, and all that were in it went to the bottom.—The earliest mention of dreams is in the Scriptures and in the poems of Homer, in both of which a supernatural origin is generally ascribed to them. By the ancients, indeed, dreams were almost universally regarded as coming from the other world, and from both good and evil sources. A great number of instances are on record in the Greek and Latin classics of remarkable dreams, which show how widely the faith in the spiritual nature of dreaming was disseminated. The night before the assassination of Julius Cæsar, his wife Calphurnia dreamed that her husband fell bleeding across her knees. On the night that Attila died, the emperor Marcian at Constantinople dreamed that he saw the bow of the Hunnish conqueror broken asunder. Cicero relates a story of two Arcadians, who, travelling together, arrived at Megara and went to separate lodgings, one of them to an inn, the other to a private house. In the course of the night the latter dreamed that his friend appeared to him and begged for help because the innkeeper was preparing to murder him. The dreamer awoke, but not considering the matter worthy of attention, went to sleep again. A second time his friend appeared, telling him that assistance would be too late, for the murder had already been committed. The murdered person also stated that his body had been put into a cart and covered with manure, and that an attempt would be made to take it out of the city the next morning. The dreamer awoke, went to the magistrates, had the cart searched, when the body was found and the murderer brought to justice. Dreams were even allowed to influence legislation. During the Marsian war (90 B. C.) the Roman senate ordered the temple of Juno Sospita to be rebuilt in consequence of a dream of Cecelia Metella, the wife of the consul Appius Claudius Pulcher. Some of the fathers of the Christian church attached considerable importance to dreams. Tertullian thought they came from God as one species of prophecy, though many dreams may be attributed to the agency of demons. He believed that future honors and dignities, medical remedies, thefts, and treasures had been occasionally revealed by dreams. St. Augustine relates a dream by which Gennadius, a Carthaginian physician, was convinced of the immortality of the soul, by the apparition to him in his sleep of a young man, who reasoned with him on the subject, and argued that as he could see when his bodily eyes were closed in sleep, so

he would find that when his bodily senses were extinct in death he would see and hear and feel with the senses of his spirit.

DREBBEL, Cornelis van, a Dutch philosopher and inventor, born in Alkmaar in North Holland in 1572, died in London in 1634. His inventive faculty raised him from a peasant boy to the favor of the emperors Rudolph II. and Ferdinand II., and of James I. of England. He lived in London from the year 1620, devoted entirely to scientific labors. Numerous marvels are related of him, but it is only certain that he possessed extraordinary knowledge of the principles of optics and mechanics. He invented several philosophical instruments, among which, it is said, were the compound microscope and a thermometer consisting of a glass tube containing water connected with a bulb containing air. His contemporaries say that he displayed to King James a glass globe in which by means of the 4 elements he had produced perpetual motion, and that by means of machinery he imitated rain, thunder, lightning, and cold, and was able quickly to exhaust a river or lake. He discovered a bright scarlet dye for woollens and silks, which was introduced into France by the founders of the Gobelin manufactures; and the invention of the telescope has been ascribed to him, but on no good grounds. Drebbel left 2 treatises which appeared first in Dutch (Leyden, 1608); afterward in Latin, under the title *Tractatus duo: De Natura Elementorum; De Quinta Essentia* (Hamburg, 1621); and again in French (Paris, 1673).

DREDGING, the process of deepening harbors and channels by excavating the sediment that collects in them; the term is also applied to the scooping up of oysters, or any thing else, from the bottom. The force of running water has sometimes been applied to wash out the sediment by which channels become choked; and to render this more efficient, the drainage waters and even the ebb tide have, in places adapted for this operation, been held back by floodgates, and the waters at last let out have rushed with great violence through the channels, sweeping forward the materials that obstructed them. This is the principle of flashing or flushing applied to sewers, &c., and is without question the most efficient mode of dredging in the few situations favorably formed for its application. In the artificial improvements introduced into some of the harbors in England, scouring basins have been constructed especially for this purpose, as for instance at Ramsgate, Dover, &c. To loosen the sediments, so that they might be more easily swept out by the tide or by sluices, the Dutch long since contrived a floating frame to which bars were attached, that went down to the bottom and stirred up the mud, as the machine moved along with the current. These are perhaps the oldest dredging machines. Variously formed scoops have been in use in different places, which as they are drawn over the bottom rake up the sediment as with a hoe, and gather it in the hollow part of the scoop or in a bag of leather attached to the instrument, from which it is discharged when the whole is hoisted to the surface by the rope attached to the scoop. The apparatus is made more efficient by being constructed of large size and worked by a steam engine. A hull is then provided for the machinery, and a scow is employed alongside to receive the mud as it is raised and dumped. Instead of the single large scoop, a line of buckets has been substituted, working around pulleys at the ends of a long frame, which lies over the side of the hull, and one end of which can be lowered down to the bottom or hoisted up when not in use. The buckets, as they pass down empty, suspended on the chain, scoop into the bottom and become filled, and, coming up on the upper side of the frame, discharge themselves as they turn over its higher extremity. The mud falls into troughs, which convey it into the scow alongside. As the channel is deepened, the lower end of the frame is let down accordingly; or if any obstruction impedes the motion of the buckets, this end of the frame is lifted by the pulley, till the chain moves on again. The machine has been made with a frame on each side of the hull, and both kept in operation together.—In another dredging machine the excavator is a wheel about 24 feet in diameter, very strongly braced with many arms, and set in a well hole about 3 feet wide and 26 feet long across the forward part of the hull. It works in boxes which can be raised or lowered by chains and windlass as the depth of water requires. Upon its periphery are the scooping buckets, which are provided with a hinged bottom secured by a latch. As each bucket in the revolution of the wheel approaches the top, it lifts the upper end of a small discharge trough, which falling back causes the bottom of the bucket to be unlatched and its contents to drop out. These are received by the small trough, and immediately pass through it into the larger one that conveys them to the scow. The hull is drawn forward by the steam engine at the precise rate required by the progress of the excavation. It is stated that 1,200 cubic yards of gravel bottom have been dug in a day with a 24-foot wheel provided with 4 buckets.—Dredging for oysters, &c., is performed with an iron rake or scoop at the end of a long pole, and furnished also with a rope by which it is drawn forward. One man pushes the dredge down by the pole, and another draws it along the bottom and raises it into the boat with what it has gathered. For deep water the handle is dispensed with, and the dredge is made like a basket of iron rods, so shaped as to fill itself when dragged upon the bottom. Naturalists make use of dredges of much better construction for collecting specimens of shellfish, &c., from the bottom of the sea. A figure of a small one is given by Woodward in his "Manual of the Mollusca," which is highly recommended for general use. It is a sort of box of 2 strips of boiler plate iron 2 feet long and each 2 inches wide, fastened at their ends to 2 iron rods of

about ¾ inch diameter and 8 inches long. Each end of the rods is bent over at an angle of 145°, and drawn out to a point. The sides placed upon these consequently flare outward, their lower edges coming within 4 inches of each other. These edges are pierced with holes by which the bag is attached in which the materials are gathered up. The part of this bag in contact with the dredge is a network of cod line; the remainder is of raw hide. The net is to allow the escape of the water. The handles are forked iron rods, the double ends securely hooked round the rods that form the ends of the machine, and the single ends provided with rings, meeting in the centre of the box as they are folded down when not in use. The rings are for attaching the towing line to the dredge. With machines of similar construction, but much larger than the one described, the bottom of the sea has been extensively explored by English naturalists off the coasts of Great Britain and Norway. In dredging on coral ground, Mr. Cuming, according to Woodward, employed a 3-inch hawser, and had a patent buoy attached to the dredge by a 1¼-inch rope. Whenever the hawser parts, the buoy and smaller rope secure the recovery of the dredge. In water of 50 to 300 fathoms the dredging can be done only in moderate weather. As the vessel lies to, the dredge is thrown over to windward and is dragged along as she drifts off, spare line being given out as necessary. It is hauled up by block and tackle, or if it get foul, the rope is passed into the boat, which is run out over the dredge and trips it. The contents of the dredge are washed and sifted with 2 copper wire sieves, one "¼ inch," the other very fine. The sediments of the fine sieve are kept for examination for minute shells. Prof. Edward Forbes prepared a form of "dredging papers," which are employed for recording the names and number of species obtained, the depth, locality, nature of the bottom (ground), and whether the specimens are living or dead. The latter are often found in deeper waters than the living individuals. The following directions are given for treating the shellfish obtained by dredging. They should be at once boiled, and the animal removed unless wanted for examination. The bivalves gape, and require to be tied with cotton; the opercula of the univalves should be secured in their apertures with wool. The small univalves may be put up in spirit or glycerine to save time. In warm climates flies and ants assist in removing the animal matter from the spiral shells. Chloride of lime may be employed to deodorize them. Full instructions for collecting and preserving shells may be found in the *Journal de conchyliologie* for 1850, p. 215, and 1851, pp. 182, 226.

DRELINCOURT, Charles, a French Protestant divine, born in Sedan, July 10, 1595, died in Paris, Nov. 3, 1669. He pursued his studies in his native town and in Saumur, preached for 2 years near Langres, and in 1620 became pastor at Charenton, near Paris. He soon distinguished himself as a preacher, being one of the first of the reformed ministry who treated their texts in a practical light, instead of discussing them in the doctrinal and abstract way proper to a theological seminary. Some of his writings, especially his book of "Consolations against the Fear of Death," which has been translated into English and German, are still in use as books of devotion. It was to promote the sale of the English translation of this work that De Foe wrote his celebrated fictitious account of the apparition of Mrs. Veal, who came from the other world on purpose to recommend the perusal of "Drelincourt on Death."

DRENTHE, the poorest and least populous province of the Netherlands, bounded E. by Hanover, N. by Groningen, W. by Friesland, and S. by Overyssel; area, 1,029 sq. m.; pop. in 1858, 94,080. A considerable part of the province is occupied with marshes, heaths, and sand banks, but it yields in sufficient quantities buckwheat and potatoes, upon which the inhabitants subsist almost exclusively. The chief wealth of Drenthe consists in its horses, cattle, sheep, and poultry, all of which are esteemed of superior quality. It has manufactories of woollen fabrics, and its trade is facilitated by a canal from Assen to the Zuyder Zee. The principal rivers are the Vecht, Hunse, and Aa. The chief places are Assen, the capital (pop. about 2,500), Meppel (pop. 6,500), and Coevorden (pop. 2,500).

DRESDEN, the capital of the kingdom of Saxony and of a circle of its own name, situated on both banks of the Elbe, in a fertile valley, noted as the richest wine district of Saxony, and in the vicinity of a picturesque country celebrated under the name of the Saxon Switzerland; lat. 51° 6′ N., long. 13° 44′ E.; 116 m. by railway S. E. from Berlin, and 72 m. E. from Leipsic; pop. of the circle in 1855, 535,531, of whom 525,202 were Lutherans; of the city, including the garrison, 108,732. Steamboats here navigate the Elbe, and 5 railways connect the city with Berlin, Leipsic, Breslau, Prague, and Tharandt—the last to be continued to Freiberg. Dresden seems to have been originally a village of Wendish fishermen, and nearly 500 Wends still form a part of the population. As early as 1216 it was mentioned as a city, and in 1539, when Henry the Pious introduced the reformed religion, it had already passed through many vicissitudes, of which the great fire of 1491 was the most disastrous. After the fire a new town arose, which was fortified by George the Bearded in 1520–'28, and by Maurice the Elector in 1545, and embellished by all succeeding sovereigns, especially by Augustus II. and III., kings of Poland and electors of Saxony, who formed the famous picture gallery which is now one of the greatest attractions of the city. In the 17th and 18th centuries, especially during the 7 years' war, the city was afflicted by pestilence, famine, and the worst calamities of warfare; and it had to undergo a

still more severe trial at the beginning of the present century as the head-quarters alternately of Napoleon and of the Russian and Prussian army. The memorable battle of Dresden, in which Napoleon finally achieved a brilliant but bloody victory over the allies, took place Aug. 24–27, 1813, under the walls of the town. In 1830 we find the city convulsed by a local revolution, the people insisting upon municipal reform, which was granted by the charter of Sept. 4, 1831. The revolution of 1849 also proved disastrous to Dresden. The opera house and a part of the Zwinger were then burned, and other damage was inflicted upon the town. From all this, however, Dresden has since fully recovered. The whole aspect of the city bears the impress of an ancient and thorough civilization. It is surrounded by promenades, pleasure grounds, &c., and consists of 3 portions: the Altstadt, or old town, with its 3 suburbs; the Friedrichstadt, separated from the former by the Weisseritz brook; and the Neustadt, or new town, on the right or N. bank of the Elbe, connected with the other divisions by 2 fine bridges, one of which, 420 feet long, with 16 arches, received from Jean Paul Richter the name of "Dresden's triumphal arch;" the other, the "bridge of Mary," completed in 1852, is crossed by the railway to Prague. There are about 20 churches, some of great beauty, as for instance, the Frauen-Kirche and Sophien-Kirche for Protestants, and a church for Roman Catholics built after a design of Gaetano Chiaveri, with a famous organ, 50 statues of saints by Mattielli, a great altarpiece by Rafael Mengs, and other works of art. The Jews worship in a magnificent synagogue, and religious service in the Wendish language is held in the Kreuz-Kirche for the benefit of the Wendish residents of the city. The educational institutions of Dresden attract many students from foreign lands. In addition to the military academies, polytechnic institute, and medical institutions, there are 14 public schools, with a staff of about 200 teachers, including a gymnasium, 2 primary schools, 4 district schools, 4 local schools, 4 free schools for the poor, beside the seminaries connected with religious denominations, of which the Protestants have over 70. A reformatory institute for children, or ragged school, was founded in 1828, while at the same time a missionary enterprise to prevent crime among children was set on foot by the Pestalozzi association (*Pestalozzistift*). Foremost in beneficent influences among the many charitable institutions of Dresden are the *Frauenverein*, or association of ladies; the *Verein für Rath and That* (a society for dispensing advice and assistance); the *Verein für's Leben* (a society for supplying means of subsistence), which was founded in 1848; and the *Suppenhaus* (soup house), established in 1851. Commercial and industrial activity is not great in Dresden, Leipsic and the manufacturing districts almost monopolizing the trade of the country. The capital, however, presents a fair array of establishments in various branches of industry, its chief manufactures being glass, porcelain, earthenware, mirrors, mathematical and musical instruments, jewelry, gloves, silks, laces, gold and silver thread, painters' colors, white lead, soap, maccaroni, leather, carpets, cotton goods, and straw hats. It has also distilleries, breweries, a sugar refinery, a bell foundery, and a bomb and cannon foundery. The growing trade in cereals called for the establishment of a corn exchange in 1850. The fine chinaware which takes its name from Dresden is not made here, but in the neighboring town of Meissen. There are 3 associations for the promotion of trade and industry, 5 for various branches of science, and many other educational and humanitarian associations. About 26 newspapers and magazines are published there. Beside the many musical associations which have contributed powerfully in promoting the art and love of music in Germany, the city possesses a musical school in the Catholic or royal church, in which high mass is celebrated every Sunday, accompanied by an orchestra from the opera, led by the first masters of the art. Italian opera was predominant at Dresden until 1817, when the compositions of Weber and the performances of Madame Schröder-Devrient inaugurated a new and prosperous era for the German opera. The Dresden theatre is one of the most beautiful of Germany. The city has 27 public squares and a great number of splendid monuments. The railway depots are, as usual in Germany, buildings of great magnificence. Dresden has many superb palaces, especially the Brühl palace, formerly belonging to the minister of that name, afterward used as a residence by Napoleon, and since 1857 as that of the dowager queen Marie. Its chief beauty lies in the pleasure ground on its rear, which is called Brühl's terrace, and is the most fashionable and attractive public park of Dresden. Another favorite resort is the park adjoining the Japanese palace, so called from some oriental figures which adorn it, and occasionally called *Augusteum*, in commemoration of Augustus II., who originally laid it out. The academy of fine arts has been in operation since 1764, and consists of 3 different sections and a school for architects, which was added to it in 1819. The Japanese palace contains the museum of antiquities, occupying 10 saloons, a cabinet of coins, a porcelain cabinet containing more than 60,000 pieces of china, and the public library, consisting of about 300,000 volumes, 2,800 MSS., 20,000 geographical maps, 182,000 pamphlets, &c. Beside this and many private libraries, there is a library of 20,000 volumes in the palace of the princes, where there is also a cabinet of engravings, of porcelains, and of pictures. The Zwinger, a group of buildings surrounding an enclosure planted with orange trees and erected by Augustus II. as a vestibule to a new palace, contain the historical museum, formerly called the armory, celebrated for its splendid array of armor, and the cabinet of natural history. In the same building is a collection of mathemati-

cal and scientific instruments. In the chapel of the royal palace are paintings by Rembrandt, N. Poussin, A. Carracci, and Reni, while the throne room is embellished with large fresco paintings by Bendemann. Opening upon the yard of the royal palace is the celebrated green vault (*Das grüne Gewölbe*), containing an immense collection of precious stones, pearls, and works of art in gold, silver, amber, and ivory, which are arranged in 8 apartments, each exceeding the previous one in the richness of its contents. Their value is said to be over $5,000,000. The picture gallery, however, is the gem of the city. The present handsome red sandstone building, begun in 1846 and opened in 1855, forms one side of the Zwinger, and contains over 1,500 paintings, among which are Raphael's "Madonna di San Sisto," Correggio's "Night," Andrea del Sarto's "Sacrifice of Abraham," Leonardo da Vinci's "Francesco Sforza," 5 paintings of Titian, 14 of Rubens, 21 of Vandyke, and many celebrated works of Italian, Flemish, Dutch, French, and German masters of the ancient and modern schools. The best German work of art is Hans Holbein's "Virgin," and the best French are Claude Lorraine's landscapes. In the same building is the collection of plaster casts made by Rafael Mengs of statues of antiquity, and of the Elgin marbles in the British museum. Forming a supplement to the picture gallery is the collection of engravings, containing works of art of the highest value. It comprises about 300,000 plates, and is considered the finest collection of copperplates in Europe. In the 2d story of the Brühl palace are 6 pieces of tapestry executed after designs by Raphael, and a collection of 50 landscapes by Canaletto. Dresden is chiefly indebted to its art treasures for the high reputation which it enjoys at home and abroad, and for the name of the "Florence of Germany" which was conferred upon it by Herder. (See Lindau, *Geschichte der Stadt Dresden*, 1857.)

DREUX (anc. *Durocasis*, or *Durocasses*), a town of France, department of Eure-et-Loir, on the Blaise near its junction with the Eure, 20 m. N. N. W. from Chartres; pop. in 1856, 6,187. It has grain markets and tanneries, but little other trading or manufacturing industry. The beautiful chapel built to serve as the mausoleum of the Orleans family occupies the site of the church of St. Stephen, erected in 1142, and demolished in 1793. Dreux was captured and burned by the English in 1188, and again taken by them in 1424. In 1562 the Catholic army of Charles IX. and the Protestants under the prince of Condé fought in its neighborhood a very bloody battle, in which Condé was defeated and taken prisoner. Henry IV. of France took it in 1593 after an obstinate siege, since which it has been of less political importance.

DREW, a S. E. co. of Ark., drained by Bartholomew bayou; area, about 900 sq. m.; pop. in 1854, 4,337, of whom 1,541 were slaves. It has a nearly level surface, and a fertile soil. A great part of the land is covered by forests of cypress, ash, &c. The staple productions are cotton, grain, sweet potatoes, and grass, and in 1854 the county yielded 3,731 bales of cotton, 137,970 bushels of Indian corn, and 12,470 of oats. Capital, Monticello.

DREW, Samuel, a Methodist divine, born in the parish of St. Austell, Cornwall, England, March 3, 1765, died March 29, 1833. At the age of 10 he was apprenticed to a shoemaker, and while engaged in learning his trade he learned to read. One of the first books that attracted his attention was Locke's "Essay." Next he read Franklin's "Way to Wealth." In 1787 he commenced business on his own account, and made an attempt to study astronomy, but was not able to advance in that science in consequence of his ignorance of mathematics. His attention was next directed to the study of natural history, but not being able to obtain the requisite books he abandoned it, and resolved to devote his attention to mental philosophy. His first publication was an answer to Paine's "Age of Reason" (1798), which at once brought him into notice. His next work was an "Essay on the Immateriality and Immortality of the Soul" (8vo., 1802), which had passed through 8 editions in 1848, and has been translated into French. Then followed a work on the "Identity and General Resurrection of the Human Body" (8vo., 1809), and another on the "Being and Perfections of God" (2 vols. 8vo.). In his 24th year he became a local preacher among the Wesleyan Methodists. He was a man, in the language of Dr. Adam Clarke, "of primitive simplicity of manners, amiableness of disposition, piety toward God and benevolence to men, seldom to be equalled; and for reach of thought, keenness of discrimination, purity of language, and manly eloquence, not to be surpassed in any of the common walks of life." His last literary production was a "Life of Dr. Coke," written in 1817.

DROGHEDA, a town and port of Ireland, in the province of Leinster, counties of Meath and Louth, on the river Boyne, 4 m. from its mouth, and 32 m. N. from Dublin, by rail; pop. in 1851, 16,845. It was for a long time strongly fortified, and from an early period till about the close of the 17th century was always regarded as a post of great importance by the English. It was for three centuries the principal rendezvous of the numerous troops marched by government against the refractory and rebellious chieftains of Ulster and Leinster. It was gallantly defended in the civil wars of 1641 against a large besieging force under Sir Phelim O'Neill. It was stormed by Cromwell in 1649, and on account of the carnage then inflicted the name of the great protector is still abhorred by the inhabitants. In 1690 the town held out against the troops of King William III. until after the victory achieved by them at the famous battle of the Boyne, fought 2 miles from its walls, and which is commemorated by an obelisk 150 feet high raised upon the very spot where the aged Schomberg fell. Few of the

ancient fortifications of the town remain. The only perfect specimen is the St. Lawrence gate, consisting of 2 lofty round towers with the low gateway between. The Magdalen's steeple, a square structure of elegant proportions, is all that remains of a Dominican convent founded in 1224. Among many other ruins of old religious institutions are those of a Carmelite convent, and of a hospital of the knights of St. John of Jerusalem. The town is now the seat of extensive cotton and linen manufactories, tanneries, and breweries, and has considerable trade in corn and cattle. Its harbor has been much improved within a few years, and vessels of 250 tons can discharge at the quay. Steamers ply constantly between Drogheda and Liverpool, and a railway connects the town with Dublin. The registered shipping of the port in 1856 was 54 vessels of 6,018 tons; the entrances were 804 vessels, tonnage 107,123; clearances 634, tonnage 110,331.

DROITWICH (anc. *Salinæ*), a parliamentary and municipal borough of Worcestershire, England, 132½ m. by rail N. W. of London, pleasantly situated in the vale of the Salwarpe; pop. of the parliamentary borough in 1851, 7,096. It is celebrated for its salt works, which have been in operation for 1,000 years, and yield 50,000 or 60,000 tons of salt a year. The product of these works is shipped mostly to Gloucester by a canal upward of 6 m. in length, connecting with the river Severn. The brine contains 33 per cent. of salt, and is obtained from wells sunk within the town. Baths are established here for gouty and rheumatic invalids. It returns one member to the house of commons.

DROME, a department in the S. E. of France, formed of parts of Dauphiné and Provence, traversed by a navigable river of the same name, by the Isère, and by other affluents of the Rhone, and situated on the left shore of the latter river; area, 2,519 sq. m.; pop. in 1856, 324,760, comprising more Protestants than any other French department. Toward the E. are many picturesque and high mountains, the most celebrated of which are the *Montagne inaccessible* and the Montaiguille. The department produces famous wines, especially red Hermitage, which is made near the little town of Tain on the Rhone, and is also celebrated for its melons and truffles. Orange, olive, and chestnut trees abound here, and above all the mulberry tree, and the production of silk is consequently the principal industry of the department. With the exception of the fertile and beautiful valley of the Rhone, the soil is not favorable to agriculture, but mineral wealth, including iron, copper, and lead, is not inconsiderable; the mountains and forests abound with game, and apart from the important trade in wine, fruits, and silks, there are various manufactories of porcelain, bricks, beet root sugar, &c. This department comprises 4 arrondissements, 25 cantons, and 362 communes, and forms part of the 3d military division established in 1858, of which Lyons is the headquarters. Capital, Valence.

DROMEDARY. See Camel.

DRONTHEIM, or Trondhjem (Lat. *Nidrosia*), an E. province of Norway; area, about 18,000 sq. m.; pop. in 1855, 227,343. It comprises the districts of N. and S. Drontheim and part of Romsdal. N. Drontheim lies between Nordland, the Drontheim fiord, the mountains which divide it from Sweden, and the Atlantic; area, 8,832 sq. m.; pop. in 1855, 73,571. It is watered by the river Namsen. Chief town, Levanger. S. Drontheim occupies the S. shore of Drontheim fiord, and is bounded S. by the bishopric of Aggershuus or Christiania, and W. by Romsdal; area, 7,210 sq. m.; pop. in 1855, 96,304. Its largest rivers are the Nid-Elv, Guul-Elv, and Oerkel-Elv, and the chief town and capital of the whole province is Drontheim. Romsdal, part of which is included in the province of Bergen, occupies the S. W. part of the territory. The whole of Drontheim proper is mountainous, and much of it is well wooded. The coasts are indented by numerous bays, the most important of which is the Drontheim fiord, running 60 m. inland in an E. and N. E. direction, but describing with its windings a curve of 90 m., and the surface is dotted over with lakes. The inhabitants are engaged chiefly in the fisheries, cattle raising, iron mining, and to some extent in agriculture, but little grain is raised. Fruit, hops, flax, and hemp are the principal crops.—Drontheim, the capital of the province, and the third of the cities of Norway in importance and population, is situated in lat. 63° 25′ N., and long. 10° 23′ E., on a small gulf near the outlet of the river Nid, by which river and the sea it is almost entirely surrounded; pop. in 1855, 16,012. The most interesting edifice is the cathedral of St. Oluf, founded in the 11th century; and though dilapidated, the little of it that remains and forms part of the present cathedral is sufficient to show that it was originally a magnificent Gothic structure. The harbor of Drontheim is not deep, and is frequented only by small vessels. Its trade consists chiefly in exports of masts for vessels, of copper and iron, goat skins, and dried and salted fish. It has a public library, a collection of medals, a museum, and a Norwegian society of the arts and sciences, founded in 1760. The refined society and beautiful women of this city are much celebrated. Upon a rock in the midst of the harbor is the fortress of Munkholm, at first an ancient abbey, then a state prison, and now the chief fortification of the city on the sea side. On the land side Drontheim is commanded by a succession of picturesque heights. It was founded in 997, and for a long time was the residence of the kings of Norway, who in the 12th century were consecrated and crowned in its cathedral. As it was formerly built only of wood, it has suffered from repeated conflagrations, and been several times almost entirely reduced to ashes. The last conflagration took place in 1857.

DROPSY, a collection of serous fluid occurring in one or more of the closed cavities of the

body or in the cellular tissue, independent of inflammation. Inflammations of serous membranes, pleurisy, pericarditis, peritonitis, &c., are often attended with copious effusion; but the effusion here depends immediately upon the inflammation, and consists of the liquor sanguinis, not of serum alone. Dropsy is a symptom and not a disease, and is caused either by pressure exerted upon some part or the whole of the venous system, or by an altered state of the blood. In the vast majority of cases dropsy depends upon disease of the liver, the heart, or the kidneys. From the peculiarity of the hepatic circulation (see LIVER), when cirrhosis of the liver exists, the venous system of all the abdominal viscera becomes congested, and that congestion finally relieves itself by an effusion of serum into the sac of the peritoneum. In this way the swelling in ascites, dependent upon cirrhosis, begins in the abdomen, and the legs only become swollen secondarily. A scirrhus or other tumor by which the vena portæ is compressed produces dropsy exactly in the same manner as cirrhosis. When there is disease of the heart, that organ has more or less difficulty in emptying itself of the blood which is thrown into it; the difficulty commonly commences at the left side of the heart, and congestion of the lungs is a consequence; finally the right side becomes affected, there is congestion of the general venous system, and swelling takes place in the more dependent parts of the body; the great cavities, the abdomen and the chest, are afterward involved, and the dropsy becomes general. In Bright's disease the cause of the dropsy is probably to be sought in the deteriorated character of the blood (see ALBUMINURIA); in many cases disease of the heart is added to the affection of the kidneys, and increases the tendency to dropsy. Chlorosis, severe hemorrhages, any cachexia by which the character of the blood is greatly altered, are apt to be attended with more or less serous effusion into the cellular tissue. The treatment of dropsies is spoken of under the diseases of which they form a symptom.

DROSOMETER (Gr. δρόσος, dew, and μέτρον, measure), any instrument for measuring the quantity of dew that falls upon a definite area during the night. Dr. Wells, in his experiments upon dew, employed dry wool for this purpose, its increase of weight giving the quantity. Weidler made use of the bent lever balance, the pan being a plate of glass upon which the moisture condensed, and by its weight raised proportionally the counterpoise. The rain gauge may easily be made to serve the same purpose, the moisture being collected in the tube.

DROSTE, ANNETTE ELISABETH, Baroness Hülshoff, a German lyrical poetess, born Jan. 12, 1798, near Münster, died May 24, 1848, in a villa near the lake of Constance. Her whole life was consecrated to religion, study, and poetry. The feebleness of her health prevented her from mixing much with society, and, with the exception of a short stay at Bonn and Cologne in 1825, she passed most of her time in retirement in the country. Her poems were published at Stuttgart in 1844. She left many compositions, of which *Das geistliche Jahr nebst einem Anhang religiöser Gedichte* appeared in 1852. Medwin has translated some of her poetry into English.

DROUET, JEAN BAPTISTE, a member of the French convention, and the captor of Louis XVI., born in Sainte-Menehould, department of Marne, Jan. 8, 1763, died in Mâcon, April 11, 1824. After having served for 7 years as a common soldier, he returned to his native town, where he assisted his father, who was at the head of the post office. In the evening of June 21, 1791, the members of the royal family, on their flight to the frontier, stopped at the town for the purpose of changing horses, when Jean Baptiste identified the lady who travelled under the name of Baroness de Korff as Marie Antoinette, and the gentleman who accompanied her as Louis XVI., and caused them to be arrested. For this the national assembly voted him a reward of $6,000, which he is believed to have refused, and in Sept. 1792, he was chosen member of the convention by his native department. Here he became one of the most violent of the terrorists. He voted for the immediate death of the king, and on July 20, 1793, he proposed a wholesale butchery of the English residents of France. On Sept. 5 following he called upon the convention to organize a revolutionary army. In the same month he was sent by the convention on a mission to the northern army, where he fell into the hands of the enemy, who consigned him to the fortress of Spielberg in Moravia. This added to his popularity, and after having recovered his liberty in Dec. 1795, he was on his return to Paris received with every demonstration of enthusiasm, and not only declared eligible as a member of the council of 500, but appointed secretary of that body. He joined Babeuf's conspiracy, and was imprisoned, but made his escape. After the advent of Napoleon he dropped his republican convictions, became a sub-prefect, and fought in 1814 against the allies. During the Hundred Days he represented his department in the chamber of deputies, but under the restoration he was expelled from France. He succeeded, however, in passing the remainder of his life at Mâcon under the fictitious name of Merger. He was only identified after his death.

DROUET D'ERLON, JEAN BAPTISTE, count, a French general, born in Rheims, July 29, 1765, died in Paris, Jan. 25, 1844. A private soldier in 1792, he had risen in 1803 to the rank of lieutenant-general, and fought bravely at the siege of Dantzic, at Jena, and at Friesland in 1807, on which occasion he was severely wounded. Napoleon conferred on him the title of count of Erlon and a pension of $5,000. Subsequently he took a part in the conflicts in the Tyrol and in Spain, and was raised to the peerage in 1815, but Napoleon found fault with him at Waterloo. After the fall of the empire he lived in Germany until 1825, when he was permitted to return to France. He was reinstated in his

position as peer in 1831, and officiated as governor-general of Algeria in 1834 and 1835.

DROUYN DE LHUYS, Édouard, a French diplomatist, born in Paris, Nov. 19, 1805. He made his début under Louis Philippe as secretary of legation at Madrid; became chargé d'affaires in Holland; in 1836 returned to Madrid; in 1840 he was placed at the head of the commercial bureau in the French ministry of foreign affairs; in 1842 he was elected member of the chamber of deputies, in which capacity he voted, in 1845, against the government on the Pritchard indemnity question. This hostile vote led to his immediate dismissal from office. He then became one of the most active opponents of Guizot and the government of Louis Philippe, and was a prominent orator at the memorable reform banquets. After the revolution of 1848 he was elected to the constituent assembly, and subsequently officiated as minister of foreign affairs, and as ambassador in England. After the *coup d'état* of Dec. 2 he adhered to Louis Napoleon, and under the empire was once more made minister of foreign affairs. He took the task of asking the European governments to recognize the new emperor. Afterward he took also a conspicuous part in the negotiations relating to the Crimean war. He attended on behalf of France the peace conference at Vienna, where he evinced a readiness to side with the Austrian view of the question, which led to the appointment, May 7, 1855, of Count Walewski as his successor. Since then he has taken no prominent part in public affairs.

DROWNING. The specific gravity of the human body is very little greater than that of water, for though the muscles and the bones are heavier (the one being 1.085, the other 2.01), the fat (0.92) is specifically lighter, and the air within the thorax tends to restore the equilibrium. Owing to this, a very slight exertion enables a person to keep himself at the surface of the water; but any part of the person, an arm, &c., raised out of the fluid, acts like a weight imposed upon the rest of the body, and thus inexperienced persons are drowned by their own struggles. Death takes place by asphyxia; the blood in the lungs being unchanged by the action of air, the circulation through these organs is obstructed, and the blood becomes charged with carbon; insensibility is rapidly induced, and death takes place, frequently preceded by convulsive movements. The period during which the submersion may continue without death taking place varies in different persons. Dr. Lefèvre of Rochefort states that there was none among the Navarino sponge divers who could remain under water for 2 consecutive minutes; while according to Mr. Marshall, the best pearl divers of Ceylon rarely were submerged more than 50 seconds. But, according to some authorities, the divers of Ceylon have been known to remain 6 minutes under water; and Franchère, in his "Narrative of a Voyage to the N. W. Coast of America," states that he saw two Sandwich islanders dive in 14 fathoms of water, and that by his watch and those of his companions the time they remained under water was 4 minutes. In some instances bodies submerged but a minute, in despite of all attempts at restoration, have been found completely lifeless, while there are many cases on record in which recovery has taken place after a submersion of 5 minutes. In the "London Medical Gazette," vol. xxxi., a case is given of recovery after 14 minutes' submersion; the time here was calculated, but the circumstances render the calculation exceedingly probable. Cases of recovery are related after submersion for ½ or ¾ of an hour, but they are not sufficiently well authenticated. The explanation of recovery after prolonged submersion has been sought in the occurrence of fainting at the moment of the fall, and it is certain that during syncope the demand for air is very much diminished.—When the body is recovered a few hours after drowning, the skin is cold and pale, presenting sometimes patches of livid discoloration; the expression is placid, the eyes half open, the pupils dilated, the tongue swollen and pressed forward, and the lips and nostrils covered by a mucous froth; the fingers are sometimes found torn and abraded, and the hand grasping gravel or other substances which have been seized in a convulsive struggle at the bottom of the water. Internally the body presents few appearances which are characteristic of the mode of death; of these the presence of a mucous froth sometimes stained with blood, and perhaps of a little water in the trachea, and of water in the stomach, appear to be most noteworthy. The water contained in the stomach appears to be swallowed previous to death; after death the apposition of the sides of the œsophagus prevents the entrance of water into the stomach. When the body of a person is recovered after a short immersion in the water, means for resuscitation should immediately be had recourse to, and these should be perseveringly continued until recovery takes place, or the case is abandoned as hopeless. In a case related by Mr. Bloomfield 1½ hours elapsed before there was any appearance of returning animation; and in one by Dr. Douglas ("Medical Gazette," vol. xxxi., p. 449), success was met with only after 8½ hours. The plan proposed by the late Dr. Marshall Hall in 1855 is based on physiological principles, and has been found eminently successful in practice. For an account of it see Asphyxia.

DROYSEN, Johann Gustav, a German historian, born in Treptow, Pomerania, July 6, 1808. He was educated at Stettin and at Berlin, and between 1829 and 1840 discharged the duties of teacher at the Gray cloisters in the latter city, and of private tutor and professor at the university. In 1840 he went to Kiel as professor of history, and during a residence of 10 years was an active partisan of the duchies in the controversy between Holstein and Denmark. He was the author of the "Kiel address" of 1844, and in 1846 took part in the preparation of the protest signed by 9 professors of the university of Kiel. He also drew up a plan for the

government of Denmark and Schleswig-Holstein, which the outbreak of hostilities in the latter in 1848 prevented from being tested. Upon the establishment of the provisional government in Kiel he was sent as a plenipotentiary to the diet at Frankfort, where he proved himself an able advocate of the rights of the duchies. Subsequently he acted as a member of the Frankfort parliament. In 1851 he was called to Jena as professor of history, where he has since resided. Among his earlier works are translations of Æschylus and Aristophanes, a history of Alexander the Great, and a history of Hellenism. Subsequently he turned his attention to modern history, and has published "Lectures on the War of Liberation" (Kiel, 1846); "Life of Field Marshal Count York of Wartenburg" (Berlin, 1851); "History of Prussian Politics" (Berlin, 1855), his most important work.

DROZ, François Xavier Joseph, a French author, born in Besançon, Oct. 31, 1773, died Nov. 4, 1850. In 1803 he removed to Paris, where he became acquainted with the prominent philosophers of the day. After having previously published a variety of smaller works, which failed to attract attention, he succeeded in 1806 in making an impression upon the public mind by his *Essai sur l'art d'être heureux* ("Essay on Happiness"), which passed through numerous editions, and was translated by the Rev. T. Flint into English. In 1812 his *Éloge de Montaigne* made its appearance, followed in 1815 by his *Essai sur le beau dans les arts*, and in 1823 by his work *De la philosophie morale, ou des différents systèmes sur la science de la vie*, which was crowned with the Monthyon prize, and paved the way to his admission to the French academy. On occasion of his contest for election to this learned body, Lamartine was his competitor. In 1825 he wrote a book on the application of morals to philosophy and politics. He is also the author of an essay on political economy, and of a work on Christianity, which derives additional interest from the personal religious experiences added to the book under the title of *Aveux d'un philosophe Chrétien*, in which the author abandons his early theology and returns to the doctrines of the church of Rome. His most important literary achievement, however, is his *Histoire du règne de Louis XVI.* (3 vols., Paris, 1838–'42), with an introduction on the history of France from the time of Louis XIV.

DROZ, Henri Louis Jacquet, a Swiss mechanician, born Oct. 13, 1752, died in Naples, Nov. 18, 1791. In 1774 he removed to Paris, and became celebrated by his works, especially by his automaton representing a young lady playing on the harpsichord, following the music with her eyes and the movements of her hands, and, when done playing, rising and bowing to the audience. The most famous specimen of his inventive genius in this respect was a pair of artificial hands, which he devised for young La Reynière, who had lost his hands during a hunting expedition.—Pierre Jacquet, father of the preceding, born in La Chaux-de-Fond, July 28, 1721, died in Biel, in the canton of Bern, Nov. 28, 1790. In the divinity school of Basel he prepared himself for the church, but on his return home his attention became directed to the manufacture of watches and clocks, for which his native town is celebrated. While watching one of his sisters who was engaged in this employment, his own ambition was kindled, and he eventually succeeded in perfecting the different parts of clock work, and in supplying common timepieces with a musical machinery resembling the chime of bells and the sounds of the flute. He made many experiments for the purpose of effecting perpetual motion, and his most ingenious contrivance was a pendulum composed of 2 metals of unequal dilatability to counteract the effects of heat and cold. This was purchased by Philip V. of Spain, who bestowed a pension upon the artist. His most celebrated production was a writing automaton, which, by means of machinery within the figure, moved its fingers and hands, and formed letters. At the time of his death he was engaged upon the fabrication of a new astronomical clock.

DRUEY, Charles, a Swiss statesman, born in Feroug, in the canton of Vaud, in 1799, died March 21, 1855. Having studied law, he distinguished himself as an active member of the liberal party in his native canton, advocating several reforms in its church and school system, and after a triumph of his party in 1839 he became member of the state council. In 1841 he was elected first delegate from Vaud to the Swiss diet. Disagreeing with the majority of the great council upon a question relative to the monasteries of Aargau, he soon after retired from the administration, and became the leader of the opposition. A widely ramified political society, the *association patriotique*, extended his influence and popularity. When the expulsion of the Jesuits from the territory of the confederation was proposed by the canton of Aargau, he first declared against the measure, but finally for it, as agreeing with the opinion of the majority of the Swiss people. The great council of Vaud, however, gave unsatisfactory instructions to its delegation in the diet, in consequence of which the administration and constitution of the canton were overthrown by a popular movement in 1845. A provisional government was established, and a constituent council convoked. Of the former Druey became president, and afterward officiated in the same capacity in the state council. He was active in promoting the adoption of the new democratic constitution, and subsequently, as first delegate to the diet, was zealous in advocating the expulsion of the Jesuits, and the dissolution of the *Sonderbund* or separate union, formed by the Catholic minority of the cantons to defend their sovereign rights. He also promoted the energetic execution of those measures, and the foundation of the new federal constitution of 1848. Under this he was repeatedly elected a member of the federal council, and in

1850 he presided over that body as chief magistrate of the republic.

DRUIDS, a name given to the order of priests which in ancient times existed among certain branches of the Celtic race. As a term it has been variously deduced from the Saxon *dry*, a magician; from the German *druthin*, a master, or lord; from the Greek δρυς, and the Celtic *deru*, an oak; from the Hebrew *derussim*, or *drussim*, contemplators; from the Irish *drui* or *draui*, a sacred person, and from numerous other etymons; but the most probable derivation of it seems to be that given by the abbé Pierre de Chiniac, a French writer on the nature and dogmas of the Gallic religion, who refers it to the old Celtic compound *derouyd*, from *De*, God, and *rouyd*, speaking, a participle of the verb *rôuyddim*, to speak. It would therefore seem to mean those who speak for or of God, *i. e.* either the prophets or the theologians. Nor is the origin of druidism as an institution any more clear than the etymology of the name. As the druids did not allow their tenets and history to be committed to writing, and as the ancient Greek and Roman authors who describe them do so in the vaguest language, our knowledge of their peculiarities is necessarily limited. Pictet, in his work *Du culte des Cabires chez les anciens Irlandais* (Geneva, 1824), traces very decided affinities between druidism and the worship of the Cabiri in Samothrace. Pelloutier, in his *Histoire des Celtes*, on the other hand, argues that the druidical and Persian religions were identical. Maurice, in a dissertation on the origin of the druids ("Indian Antiquities," vol. vi., part 1), argues that they were the immediate offshoots and descendants of a tribe of Brahmins. Henri Martin, again, in his *Histoire de France*, discovers the Hindoo Sivaism in their reputed doctrines; while the Rev. W. L. Bowles, in the *Hermes Britannica*, derives them from the Egyptians; and Jean Reynaud, in a learned sketch in the *Encyclopédie nouvelle*, is inclined to refer them to the Zoroastrian Magi. It seems to be generally conceded that they were of eastern origin, because of the many and striking analogies between what we are told of their belief and practices, and what we know to be characteristic of the oriental nations. At the time when this mysterious order became known more clearly to history, *i. e.* in the first century before and after Christ, the druids inhabited chiefly Gaul and the islands of Britain. In Gaul their principal seats were in the west and centre, or in the modern Brittany, and along the Loire, while beyond the channel they were found in Wales and Ireland, and afterward in the island of Mona or Anglesea. According to some writers Brittany was their cradle; but the Welsh traditions relate that they entered Gaul from the remote east at the same time with that branch of the Celtic race which is denominated the Kymric or Cymraeg. At least it is evident that they did not prevail among the Belgic branches of the people of Gaul at the north, nor yet among the Aquitanian or Basque branches at the south. Their capital in Gaul was in the territory of a tribe called the Carnutes, corresponding pretty nearly to the province of Orléanais. Julius Cæsar is the ancient writer who has given the clearest account of the druids, and Mr. Godfrey Higgins, in his "Celtic Druids," the modern who has the most elaborately investigated their faith; but the Welsh triads are regarded by many as the most authentic sources of information in regard to them. Their characteristics, in the view of Mr. Higgins, consisted in the adoration of one Supreme Being, in the belief of the immortality of the soul and a future state of rewards and punishments, taking the form of a species of metempsychosis, in the use of circular temples open at the top, in the worship of fire as the emblem of the sun, in the celebration of the great Tauric festival (when the sun entered Taurus), and in the knowledge of an alphabet of 17 letters, though their instructions were always oral. If they acknowledged but one supreme God, they admitted other inferior deities, such as Hesus, Tarann, Belen, &c., to whom they paid a qualified worship. In their sacrifices to these their rites were sanguinary, and the bodies of human victims often smoked on the same altars with the carcasses of beasts. Their objects, however, were apparently moral, for they professed "to reform morals, to secure peace, and to encourage goodness;" yet with these high aims they connected pernicious superstitions and pretences to a magical knowledge. They assumed, says Cæsar, to discourse of the hidden nature of things, of the extent of the universe and of the earth, of the forms and movements of the stars, of the virtues of plants, and of the essence, power, and mode of action of the gods. On all these subjects their instructions were conveyed orally, and by means of verses, which required in the learner of them a novitiate of 20 years before they could be well committed to memory. The triads of the Welsh bards are supposed to be specimens of this species of verse. How well or ill founded their pretensions were it is now impossible to decide. Some knowledge of the movements of the heavenly bodies, beyond what simply pertained to the regulation of their religious festivals, they unquestionably possessed, inasmuch as they composed the year by lunations, which supposes an acquaintance also with the solar year. Various relics found in Ireland among the druidical remains, thought to be astronomical instruments designed to show the phases of the moon, are described by Sir William Betham in the "Transactions of the Royal Irish Academy." At the same time there was not a little of astrology, divination, and magic mixed up with their purer science. In their doctrine of medicine particularly, there was far more of superstition than of knowledge. To a great many plants they attributed a mystic sacred character; and most of all to the mistletoe, whose sanitary virtues, both physical and moral, were such, that they esteemed it an antidote to all poisons, and a cure for all diseases. It was gathered at certain sea-

sons, with the most formal and pompous ceremonies. As soon as it was discovered, twining the no less sacred oak, the druids collected in crowds about the tree, a banquet and a sacrifice were prepared, a priest in white vestments cut the twig with a golden sickle, two other white-robed priests caught it in a white cloak, two milk-white heifers were instantly offered up, and the rest of the day was spent in rejoicing. Perhaps they saw in the perpetual verdure of this plant an emblem of eternal life, or in its appearance during the winter, when all the rest of nature was sterile and dead, the independent life of Deity. Under similar mystic faith, doubtless, they plucked the *samolus*, or marsh wort, with the left hand, fasting, and without looking at it; and the *helago*, or hedge hyssop, after ablutions, or offerings of bread and wine, barefooted, and without a knife. The vervain likewise demanded distinct ceremonials. All these plants were regarded as powerful prophylactics and remedies, not only in respect to physical diseases, but to the dark workings of evil. They were carried about as charms, as well as amber beads, which the druids manufactured for warriors in battle, and which are still found in their tombs. A still more potent talisman was the serpent's egg, which, according to Pliny, oozed out of the mouths of serpents, when knotted together, and which they supported in the air by their hissings. That was the moment to seize it; and he who attempted to do so must suddenly dart from his hiding place, catch it in a napkin, and mounting a horse gallop off at full speed, to escape the pursuing serpents, until he had put a river between him and them. Among the druids, as among the Romans, auguries of the future were made from the flight of birds, and from an inspection of the entrails of sacrificed animals. Their profounder ceremonies, those which they celebrated in the depths of the oak forests or of secluded caves, are known to us only through the vaguest traditions, and in the stupendous but dilapidated stone monuments which strew the surface of France and Britain.—The druids were organized into a regular hierarchy, consisting of a triad, like almost every thing else among them, viz.: the bards, the vates or prophets, and the proper priests. The bards were poets not only of a religious but of a martial and satirical class. (See Bards.) The vates were the diviners or revealers of the future, who were charged with the conduct of sacrifices and other external ceremonies, and who, mingling in almost every event and relation of common life, stood as mediators or interpreters between the people and the more mysterious hierophants. These were the druids proper, or the priests, who dwelt in the depths of the oak forests, preserving the more interior and mystic doctrines of the faith, and consulting more directly the secret will of the divinity. They were also the teachers of the youth, who resorted to them in great numbers; and they retained to themselves also that highest means of power, the judicial function, which they exercised in cases of controversy and litigation. There was no appeal from their decision; all men, whether in a public or private capacity, had to submit to it, for the recalcitrant was condemned to excommunication, which cut him off from all sympathy and rendered him an outcast and an outlaw. Over the community or college of druids an arch-druid presided, whose authority was supreme and irrevocable, although his office was an elective one. The election was made by the suffrages of the whole body, but sometimes, in the rivalry of factions, led to serious conflicts of arms. At a fixed period every year they assembled at a consecrated spot in the territory of the Carnutes, which passed for the centre of Gaul, whither all resorted who had disputes to settle or decrees to solicit. It will be needless to add, that under such an organization the entire priesthood were exempted from all taxation or imposts, and from every burden of war or peace.—Affiliated to these 3 orders, without sharing their prerogatives, were prophetesses, or sorceresses, apparently divided into 3 orders also, according to their degrees of sanctity. Their rules were whimsical and contradictory, but their influence over the fears of the people was powerful. One branch of them could declare the secrets of futurity only to those who had polluted them; another was devoted to perpetual virginity; a third to long periods of celibacy, or they were allowed to visit their husbands but once a year; while others again had to assist at nocturnal rites, with their naked bodies painted black, their hair dishevelled, and abandoning themselves to transports of fury. Endowed with an imputed supernatural power, the Gallic mariner often went to consult them amid the reefs of the Armorican coast. "At night," says a historian, "when the tempests raged, as he skirted the savage promontory, he fancied that he heard strange cries and chants and wild melodies mingling with the wails of the wind and the eternal moan of the waves. On the summit of the misty crags he saw red phantoms gliding, with streaming hair and burning torches whose flashes were like lightning." These were the druidesses, weaving their mystic charms, healing maladies, conjuring up all living forms, raising or appeasing the elements, or extorting the secrets of fate. Their favorite resort was the island of Sena, where the 9 Senes dwelt, and the nameless islet opposite the mouth of the Loire, where once every year, between sunrise and sunset, they pulled down and rebuilt the roof of their temple; but if any one by chance let fall a particle of the sacred materials, she was torn to pieces, amid frantic dances, in which the Greeks saw the rites of their own Bacchantes, or the orgies of Samothrace. Being priests, philosophers, physicians, teachers, soothsayers, and judges, in whom were concentrated all knowledge and all power, who held relations with the elements and were the confidants of the gods, it is easy to conceive how the druids should attain to an almost absolute rule. That this rule was in many respects bene-

ficial, that they possessed and taught a higher civilization than that which had before prevailed, and that for a time they presented the only bond of unity which was possible in the barbarous and warring life of the Gauls, may be admitted; but it was also in the nature of their office, and among the inevitable results of the power they assumed, that it should degenerate into tyranny. They sooner or later, therefore, aroused the jealousy of another order in society, which Cæsar designates as that of the *equites* or warriors, or men of martial prowess, who had taken the lead in the political conduct and constitution of the tribes. It is supposed that these gradually overthrew the power of the druids in Gaul. Be that as it may, it is known that when that country was subdued by the Romans, the druidical religion gradually retired before the classic heathenism, and step by step withdrew, at first into Armorica, and then into Great Britain, where in the time of Nero it was assaulted and mostly suppressed. It lingered as a public worship longest in the island of Anglesea, whence it was finally driven out by the Roman troops amid a great deal of slaughter. Yet as a private superstition it continued to hold sway for many years thereafter over the minds of the Celtic tribes and their descendants. The only modern remains of druidism are those immense structures of stone, those *menhirs*, *cromlechs*, *dolmen*, and avenues, which, as we contemplate them in the immense ruins at Stonehenge, Avebury, and Carnac, still fill us with astonishment and awe. In fact, the soil of western and central France, as well as that of parts of Great Britain, is strewn with these gigantic memorials, whose original uses we cannot explain, but which the imagination inevitably connects with the dark and bloody rites of the druidical worship.

DRUM (Dan. *trom*, Ger. *trommel*), in music, a martial instrument of percussion, consisting of a hollow cylinder of thin wood or brass, covered at each end with vellum or parchment, the tension of which is regulated by small cords or braces on the outer side of the instrument acted upon by sliding knots of leather. The common drum is suspended at the side of the drummer, whence it is called the side drum, and is beaten upon at one end by sticks. An instrument similar in shape, but on a much larger scale, called the base drum, is beaten at both ends with drumsticks having leather pads on the knobs. Both kinds are highly effective in military bands, and seldom fail to excite soldiers under the fatigue of march or in battle. Another species of drum, called the kettle drum, consists of a thin copper basin, nearly hemispherical, the parchment covering of which is held by an iron rim, and tightened or relaxed by screws. Kettle drums are always in pairs, one instrument being tuned to the key note, and the other to the fifth of the key. They are generally supported on iron tripods. Instruments of percussion of the drum species have been familiar in the East from remote ages, and among savage races in all parts of the world are used in the celebration of religious rites as well as for the performance of music. They were common among the Egyptians, chiefly for military music, as early as 1600 B. C., some being long cylinders, similar to the tomtoms of India, which were beaten with the hand, while others were of a barrel shape and were beaten with sticks. Among the Greeks and Romans the drum, called the *tympanum*, had the form of the modern kettle drum or of the tamborine, and was beaten with a stick or with the hand. The drum was probably introduced into Europe by the Saracens and Moors, by whom it was called the *altambor*, whence the Spanish *tambor* and the French *tambour;* and in the first half of the 14th century it was generally adopted as an instrument of military music.

DRUMMOND, Henry, a member of the English parliament, noted for his wit and independence, born Dec. 5, 1786. He is the son of one of the foremost bankers of England, is a member of the royal academy of fine arts at Florence, and founder of a professorship of political economy at Oxford. He founded a church for the Irvingites, and has written much in favor of that denomination. He has also written extensively on various other theological, and on financial and political subjects, and published in 1859 a pamphlet against Mr. Bright's reform movement.

DRUMMOND, William, a Scottish poet, born at Hawthornden, co. of Edinburgh, Dec. 13, 1585, died Dec. 4, 1649. He spent about 12 years on the continent of Europe engaged in study and travel, but passed most of the remainder of his life on his family estate at Hawthornden, devoting himself to literature. He wrote a history of the five Jameses, comprising the history of Scotland from 1423 to 1542; but the work is of little value, and he is now chiefly remembered for his poetry and for his "Notes of Ben Jonson's Conversations with William Drummond of Hawthornden, Jan. 1619." As a poet he occupies an honorable position, and his versification sometimes bears a striking resemblance to that of some of Milton's poems. His sonnets, which form a considerable part of his works, are especially elegant.

DRUMMOND, Sir William, a British scholar, author, and diplomatist, born in Scotland about 1760, died in Rome, March 29, 1828. He first made his appearance as an author in 1794 ("A Review of the Government of Sparta and Athens," royal 8vo., London), was in the following year elected to parliament, sat also in the parliaments of 1796 and 1801, and was during the course of his life British ambassador at several foreign courts. In 1801, being then ambassador to Constantinople, he was made a knight of the crescent, an order instituted by Sultan Selim III. after the battle of the Nile. This gave him his title. He published a number of works, the most remarkable of which are: "Academical Questions" (4to., 1805), containing an attack on all kinds of dogmatism, embracing an exhibition of insoluble problems, and

tending to show the weakness of the human intellect; and "Origines, or Remarks on the Origin of several Empires, States, and Cities" (4 vols. 8vo., London, 1824–'29), his most considerable production. A work written by him, printed for private distribution merely, and entitled "The Œdipus Judaicus" (1811), brought upon its author much censure and criticism, in consequence of his attempting in it to explain away some of the narratives of the Old Testament as astronomical allegories. Drummond was an elegant scholar, and made an excellent translation of the satires of Persius.

DRUMMOND LIGHT. When quicklime is subjected to intense heat, such as is produced by the oxy-hydrogen blowpipe, the light emitted is exceedingly powerful and dazzling; the lime itself is slowly volatilized, and the surface around is covered with its sublimate. It was proposed by Capt. Drummond of the British royal engineers to employ this in the trigonometrical survey of Great Britain, whence it has been called the Drummond light. It has also been applied to the gas microscope, in which it gives the prismatic colors almost as bright as in the solar spectrum. A ball of lime only $\frac{2}{3}$ of an inch in diameter, as stated in the "Philosophical Transactions" for 1826, emitted a light equal in quantity to about 13 Argand lamps, or 120 wax candles; while in intensity or intrinsic brightness, it could not be less than 260 times that of an Argand lamp. Tried at Purfleet in a temporary lighthouse, it was found to cast distinct shadows upon a dark surface at Blackwall, 10 m. distant; and as the reflector was turned so that the light did not strike upon the spectator, an immense luminous cone was seen to sweep around with it, illuminating the horizon to a great distance. The wonderful intensity of this light would seem to render it by far the most suitable for lighthouses; but difficulties are encountered in its use which will probably continue to prevent this application of it. The deficiency of divergence in the rays emitted unfits it for a fixed light; and even if it could be applied to revolving lights, the difficulties attending the regular supply of the gases required render its constant maintenance (so essential for lighthouses) too precarious. M. Fresnel found that the light obtained by placing it in the focus of a great annular lens was exceedingly intense; but the divergence did not exceed 30′, so that in any revolving light of ordinary construction, the duration of the flashes would be too short to answer the purposes required.

DRUNKENNESS. When fermented or distilled liquors containing alcohol are taken in moderate doses, their first effect is to stimulate the heart and nervous system; the flushed cheek and quickened pulse show their influence on the one, while a rapid flow of ideas, a tendency to gayety, and a desire for muscular activity, arise from their action on the other. After these effects follow a sleep, somewhat prolonged, and a general derangement of the system, slighter or graver according to the idiosyncrasy of the patient. When larger quantities are taken, the phenomena of intoxication are produced; the nervous centres are more deeply implicated, and the effects upon the mind vary from the wildest excitement to the silliest drivel. The functions of the sensorium are deranged or perverted, thought is confused, vision and hearing are disturbed, articulation is thick and indistinct, and the voluntary muscles are no longer under the control of the will. Under such circumstances a sort of tetanic contraction of the muscles is often present, which curves the drunkard's body in a determinate direction, generally to one side. Sometimes all these phenomena are present; sometimes one or more of them are absent. One person can talk distinctly, and his reasoning powers are but slightly affected, but he reels as soon as he attempts to walk; another has the power of locomotion, but is betrayed by his thick speech and foolish look. From this condition, after prolonged sleep, one awakes with the digestive organs completely deranged, the strength prostrated, and the head aching. If the quantity taken be still greater, after temporary excitement, the patient passes into a state of coma. The countenance is generally pale, though sometimes flushed, the eyes suffused, the pupils dilated and insensible to light, the breathing slow and stertorous; the pulse, at first accelerated, becomes feeble, slow, and in bad cases extinct at the wrist; convulsions and strabismus sometimes occur. Such cases are always alarming, a fixed pupil and irregular breathing particularly so; when the latter symptom is marked, death is apt to follow. Death takes place from asphyxia, the venous system becoming gorged, the countenance pale or purple and swollen, and the surface cold. When a large quantity of spirits is swallowed rapidly, the patient sometimes falls almost immediately into a comatose condition, soon followed by death. From the above account it would appear that spirituous liquors first affect the cerebrum, as shown by the gay excitement and other manifestations of disordered intellect; next the sensory ganglia, as shown by the disturbance of sight, hearing, and voluntary motion; and finally the medulla oblongata and spinal marrow, causing at first imperfect and finally suspended respiration. When death is produced by the immediate effect of alcohol or distilled spirits, on *post mortem* examination, the whole venous system, the right side of the heart, the veins of the liver and lungs, and the sinuses of the brain, are found gorged with blood; the left side of the heart and the arteries are empty. Rarely, the stomach presents signs of inflammation as from the action of an irritant poison; more commonly, unless the subject was an habitual drunkard, its mucous membrane is unaltered. The brain is said to be firmer and whiter than ordinary, as if it had been for a short time immersed in alcohol. When a quantity of spirit so great as to threaten life has been swallowed, the use of the stomach pump, the administration of small doses of ammonia, and perhaps Marshall

Hall's "ready method" (see ASPHYXIA) in cases of asphyxia, are to be resorted to.

DRUSES, the popular name of a race and a religious sect of Syria, chiefly in the southern ranges of Lebanon and Anti-Libanus. Their name is derived from Darazi or Dursi, who, according to the Arabic historian Makrisi, appeared A. D. 1019, as a missionary of the Batenian sect, an offshoot from the Moslem stock, in Cairo. The Druses regard him as a heretical pupil of Hamsa, the Messiah of their system, and look upon the title which has been fastened upon them as a stigma, the only name which they acknowledge being that of Unitarians. The proper era of the Druses begins A. D. 1020, when Hamsa, a wandering fanatic, persuaded Hakem, the Fatimite caliph of Egypt, to declare himself a manifestation of God. The caliph was assassinated the next year, and Hamsa, retiring into Syria, continued to propagate the new faith among the mountain tribes. He and one of his followers, Moktana Boha-eddin, committed their doctrines to writing, and enjoined the strictest secrecy as to their nature. No member of another sect and no uninitiated Druse was to be permitted to see the sacred writings, and no revelation is to be made until the second advent of the lord Hakem and Hamsa his minister. A few copies of the sacred writings have, however, found their way to the libraries of Europe. The imperial library at Paris contains 5 volumes of them, the Vatican contains one, the imperial library at Vienna one, the library of the Leyden university 2, and the Bodleian library at Oxford 4. There are also several less important MSS. in the hands of private individuals; some are owned by the American missionaries in Syria. The first 3 volumes in the Paris library were brought from Syria in 1700 by the physician Nasr-Allah, and presented to the French king. The 4th volume was procured from the private library of M. Piques, who died in Paris in 1699. These volumes contain the exposition of the doctrines of the sect by Hamsa and Boha-eddin. They were translated into French by Petis de la Croix, in 1701. Their form is a small quarto. The 1st volume contains 14 pieces; the 2d, 26; the 3d, 15; the 4th, 13; the 5th, which is a fragment, contains 2 pieces. The Vienna, Vatican, and Leyden MSS., with 2 of the Bodleian, are duplicates of parts of the Paris MSS. Two of the Bodleian MSS. are supplementary, and contain matter not found in the writings of Hamsa. From a careful study of these sources, Sylvestre de Sacy (*Exposé de la religion des Druzes*, 2 vols., Paris, 1828) has been enabled to systematize the Druse theology. It is principally drawn from the Batenian and Ismaelite heresies, which arose within the Shiite division of Islam, in the 3d century of the Hegira, and were brought to Egypt by the invasion of the Fatimite caliphs. Traces of Gnosticism and of the Magian system of Persia are also found in the Druse writings. The characteristic dogma of the sect is the unity of God's being. His attributes are created and subordinate beings. He is incomprehensible, supreme, invisible, pure, the essence of true life. He can be known to his accepted children only through human manifestations. These have been numerous. The 10 Druse forms under which God has appeared are Ali, in India; Albar, in Persia; Alya, in Yemen; Moill and Kaim, in eastern Africa; Moess and Hadi, in Asia; Albou Zacharia, Mansour, and finally Hakem, in Egypt. The names are sometimes varied, but all the authorities hold that Hakem was the 10th and last earthly manifestation of God, and that no other is to be expected. He left the care of the faithful to 5 principal ministers, who are to direct them till the return of their divine lord. Of these the chief is Hamsa. His spiritual title is, the "Universal Intelligence." This Intelligence, the first born of Deity, was incarnated in the person of Hamsa, at the same time that Deity himself was incarnated in the person of Hakem. To him was committed the task of creation. He is what Christ is in the Arian theory. From him comes all wisdom, all truth. He is the medium by which the Lord communicates with the lower ministers, and through them with the human family. He dispenses power, and adjusts duties in the world; and he, in the last day, shall be the judge and the avenger. Hamsa, in this system, combines the functions of Jesus and Mohammed. The epithet which Boha-eddin applies to him is that of Messiah. Next to Hamsa is Ismail, the "Universal Soul." His origin was the rebellion of the "Rival," which made it necessary that the Intelligence should have in the world a supporter. His office is to inspire and sanctify souls, and prepare them to receive the heavenly doctrines. Next to Ismail is Mohammed, the "Word," born of the union of Intelligence with Soul. He has charge of Unitarian missions, and is enjoined to watch strictly the conduct and necessities of the brethren. He is the spiritual cadi, the chief bishop of the sect. The functions of the 4th minister, Selama, the "Preceding," seem to have been much the same with those of the 5th minister, Moktana Boha-eddin, the "Following;" for Selama is called the "right wing," Boha-eddin the "left wing." Both these ministers were called 3 years after Hakem's disappearance. They were probably intrusted with the charge of all knowledge and teaching except that of the Unitarian religion, which must come from the higher ministers. Boha-eddin had the special duty of organizing the Unitarian sect. He knew the retreat of Hamsa, consulted with him, and from time to time produced Hamsa's commands and directions. Below these 5 superior ministers are 3 styled the "Application," the "Opening," and the "Phantom." These ministers have each his earthly figure. They are the 3 feet of the candlestick which holds the candle of 5 elements. Beneath these there are 3 still lower classes, called Dars, Madhooms, and Mocassers, who form the connecting link between the earthly society and the heavenly orders, and hold their dignity only by virtue of their character and abilities. All of them are preachers, and have commission to destroy false

doctrine and to communicate the truth. The whole number of working ministers, expressed by the cabalistic word *sdk*, is 164.—The Druses hold that the most precious of substances were used for the composition of man's body, and that the world at the beginning had its perfect form. Men were made male and female, large and small, young and old, in myriads, in a fixed number, and no more souls have since been created. The race may change its figure and visible manifestations, but not its numbers. On the fall of man and the origin of evil, the Druse teaching is neither very clear nor very consistent. The minister of sin, the Rival, is as subtle and insinuating as the Hebrew Satan, but his work is not so well defined. This Rival stands between the Intelligence and the Soul, and his work of temptation is hindered by the counter work of both these celestial powers. The Druse reproduction of the story of paradise makes Enoch and Seth to be the rebellious pair whose sin entailed woe upon the race. The actual evils of sin are manifold—separation from God, confusion of knowledge, religious divisions, wars, jealousies, falsehoods. Sin broke the unity of the race, which the Druse religion aims to restore. The mediator is Hamsa. His mediation is not, however, vicarious, and the change which he works is not in the mind of God, but in the condition and spirit of men. He baffles Satan and remits sin, but does not strictly make an atonement. The Druse doctrine of free will and divine decrees is Pelagian. The length of every man's life, but not his individual acts, is foreordained. Transmigration of souls, which the Druses maintain, offers a convenient method of reconciling the theory of a fixed cosmogony with a righteous retribution. In passing from body to body, good men become continually better, bad men continually worse, though it is possible for them to change and become better. Ismail Temeami, the Soul, was formerly John the Baptist, and still earlier Elijah, while the soul of Hamsa was once in the body of Jesus. The Druse transmigration, however, is much more limited than the Indian or the Pythagorean; it denies that the souls of men are imprisoned in the bodies of the lower animals even for the sake of punishment. The souls of men, until the resurrection, keep the embodied form, except a few whose superior excellence permits them to exist as pure spirit. This resurrection will consummate the great spiritual plan. On that day the bodies of the faithful will be absorbed into God's own being, and transformed into spirit; all else will be destroyed. The saved will be few in comparison with the lost, but their condition will not be affected by any earthly memories. Until this day of resurrection a register of the acts of the Unitarians, good and bad, is kept by the Lord in a "safe place," where it will not "spoil nor decay." Punishment, in the mean time, consists in making the soul go downward to a lower society; reward, in elevating it to an ever higher sphere. The Druses not only reverence the holy names of Hebrew and Christian prophets, but they have a large calendar of their own canonized men. The life of man is divided into soul, body, and intelligence. Intelligence communicates to the soul the enlivening and divine spark. The work of the soul is to seek wisdom, and the substance of wisdom is to know God. Moral teaching is summed up in 7 commandments. The first is "truth in words," meaning in practice only truth to the religion and to the initiated; it is lawful to act and to speak falsehood to men of another creed, and in defence of the Unitarian faith. The 2d is "mutual help, watchfulness, and protection." The 3d is to renounce all other religions. The 4th is to be separate from infidels of every kind, not externally, but only in heart. The 5th, 6th, and 7th are semi-theological; the believer must "recognize God's eternal unity," must be "satisfied with God's acts," and "must be resigned to God's will." Under these 7 commandments numerous minor moral precepts are given, and special crimes are prohibited. Chastity, honesty, meekness, and mercy are Druse virtues; murder, theft, covetousness, cruelty, are sins. It is the deliberate opinion of intelligent writers, who have known and lived with them, that the average morality of the Druses is as high as that of any other eastern religious sect.—Of the character of the Druse worship there is but little precise information in their writings. That they have no prayer or preaching to which unbelievers can listen, has given rise to the report that they are without a religion. They observe no sabbath, they have no priestly class, their ceremonies are of initiation rather than ritual, and, except in their *holowes* and *ockals*, there is nothing to connect them with religious symbols. The *holowes*, or places of meeting, have little to distinguish them from common houses, except a somewhat larger room and more careful cleaning. They are bare of furniture, and show no sacred emblems. Every Thursday evening the brethren meet, opening their assembly freely to strangers, but allowing none to learn any more than they can see. The revenue of these holowes (for, like the convents of Europe, they have landed property) is dispensed in charity. The *ockals* (whose name is derived from the Arabic *akl*, intelligence) are the wise men of the Druse sect, who have taken all the degrees, and have charge of the highest religious interests of the community. They are chosen after long probation, in which severe self-denials, including abstinence from tobacco, are required. A year must pass before the first degree can be taken; and after initiation the strict rules of discipline continue to bind them. Any class and either sex may furnish candidates, and any one, however holy, is liable to fall from grace. The ockals have among the people only that position which the leaders have in the meetings of the society of Friends. They are not salaried, and work with their hands like the rest, but are universally respected. They take the lead in the

meetings, read the Koran or the Christian Scriptures if infidels of these sects are present, and their own religious books after infidels have gone. Some of them are ascetics, but asceticism is by no means required. Some of them will fight in time of war, though they are by profession bound to peace. They are the arbiters of disputes, and the saints of the people when they have passed from the earth. The proportion of ockals or initiated religionists to the whole number of the Druses is about one to four.—The form of government among the Druses is half feudal, half patriarchal. The sheiks, who are the strongest, most graceful, and most intelligent men of the various tribes, preserving very carefully the purity of blood, owning by hereditary tenure the best lands and the absolute service of their tenantry, rule by unwritten law, and are sustained by the traditional loyalty of their vassals. They are leaders in war and in sports, and direct almost despotically the economy and policy of the tribes. Some of them live in comparative state, but more often their fare and their habits are those of the common people, and they labor with the rest. Their commodious houses are rarely without guests. The sheiks of different tribes are often at strife together; but when the race is called to contend with other races they are united as one man, and obey implicitly the orders of their sovereign emir, with whom the general direction of the tribes by tacit consent resides. It is a league of mountain barons supporting a king elected without suffrage and governing without statute. The Druse country is chiefly a mountain region, and difficult to cultivate. Except in the level tract of Cœle-Syria, where a few of them dwell, the rains of winter are apt to destroy the labor of spring and summer. The patches of soil, too small and rough for the plough, must be turned up and watered by hand. Industry has overcome this natural disadvantage; and in no part of Syria does the face of the mountain show higher culture. The fig, olive, mulberry, and apricot, vineyards trained to grow in crevices of the rock, with small groves of evergreen, surround and embosom the villages which cling to the slopes, or fill the narrow valleys. Usually the village is placed near the entrance of a pass, so that in case of attack it can be more easily defended. From the level of the pathway the houses rise in terraces, till in some instances they reach the top of the mountain. The habits of the people are simple and primitive. Most of them till the soil; a few are artisans; the spinning and weaving are done by women in their houses, and the children of both sexes are kept at school. Every boy learns at an early age how to use the lance, the dagger, the sword, and the gun. The method of fighting is not in masses so much as by ambush and in small bands. Having no artillery, they are compelled to this style of war, and in it they have no superiors. If the war be one of defence, the soldiers ask for no pay; and when they go on expeditions of forage or plunder at the call of some other tribe, they are content with meagre bounty. Their code of martial honor is very precise; deceit between comrades is lasting shame, and cowardice is never forgotten. Success is a criterion of worth, and the chief who has been worsted in conflict is in danger of losing his place of honor. So frequent are the calls to warfare that the Druses would suffer if their habits were improvident like those of the surrounding Arabs; but the reserved fund, laid by in time of peace, and bequeathed from father to son, secures them against absolute want. Few are rich, but scarcely any are destitute. The relation of the sexes is far more honorable than among the Turks or Arabs. There is but one wife in the house, and her rights are admitted and protected; she can own personal property, retain the half of her dowry money after divorce, and is not compelled to marry against her inclination. An ockal regards his wife as in every particular his equal. The marriage customs of the people resemble those of the Arabs, with somewhat less of ceremony. There is no religious rite, but plenty of bridal presents. A birth, though an occasion of rejoicing if it be of a son, is attended by no special celebration. But the greatest parade is made at the burial of a sheik. All the neighboring sheiks with their retainers attend. All day long the ceremonies last, with howlings, frantic gestures, and doleful chants, followed by a solemn and impressive procession. At the tomb, sentences are repeated from the Koran, and the sheiks sit silent around while the will of the deceased is read. The burial of an ockal is marked by even more fervor of grief, especially if the sanctity of the man has been accompanied by narrow fortune. His dress is parted into fragments, which become sacred relics, and the tomb itself becomes a place of pilgrimage.—The number of Druses in the whole of Syria, from the plain east of Damascus to the western coast, is reckoned to be about 70,000. Some of these dwell in scattered families in the larger towns, and in the villages of the Maronites. In the towns at the foot of Mount Hermon, they make a considerable part of the population and have great influence. The Druses of the Anti-Libanus are a more warlike and restless class than their brethren beyond the Litany. But the proper home of the Druse people is in the Lebanon mountains, from the latitude of Beyroot to that of Tyre. The principal towns are Deir el Kamer, once the capital; Shwyfat, near Beyroot, where the emir Emeen, the present governor of the Druses, resides; Heittat and Allaye; Abeigh, where the American Protestants have a flourishing mission; Bakleen, Muctara, Bavook, and Ainshalti, where there is also a missionary station.—The history of the Druses is so interwoven with that of the surrounding tribes of the Maronites, and of Moslem and Christian strifes in Syria, that it is impossible to treat it separately. For 300 years, the emirs of the mountain, at the head of whom

was the family of Tnooh, were in perpetual conflict, now with the Franks as allies of the Damascus sultan, and now with the sultan himself for their own independence. Early in the 14th century they were the victims of Mohammedan persecution. The beginning of the 17th century was marked by bloody battles between the troops of the pasha at Damascus and the mountain tribes, and by still more bloody civil wars among the latter. In 1614 the emir Fakaradeen, the most famous and powerful of the Druse chieftains, resigned his authority to his son Ali, and visited Italy with a large retinue. He was received with distinction at the courts of Naples and Tuscany, and made a highly favorable impression by his ability and the dignity of his manners. A palace at Pisa was appropriated to his use, and he resided there 5 years, at the expiration of which he returned to Syria and was reinstated in his authority over his tribe. He extended his jurisdiction by conquest and policy until he became the virtual ruler of nearly the whole of Syria. He was finally subdued by the armies of the sultan, made prisoner and sent to Constantinople, where he was put to death, April 13, 1635. The districts of the mountain were finally parcelled to the various sheiks, as tributaries of the pasha. About 1771 these tribes made common cause against the Arab Metualis, whose rebellion against the Turks threatened to dislodge all the tributaries of the Ottoman power. Invaded by the Russians, the Egyptians, and more than all by the formidable Daher, pasha of Acre, they were driven from their homes, plundered and dispersed. Under the bloody pasha Jezzar, though the Druses suffered, yet on the whole their relative power was increased. The emir Bechir Shehaab, though a Christian by profession, belongs to the history of the Druses more than to that of the Christians in the Lebanon. His capital was in the heart of their mountains, and his policy was influenced by their dictation. Their most powerful sheik, Bechir Jumblatt, was his ally, adviser, and almost his rival. The alliance between these 2 powerful chiefs was broken about the close of 1824, when the extortions of the emir drove the Druses into revolt, and sent Jumblatt into voluntary exile. The sheiks of the various tribes rallied to avenge his cause, but were eventually defeated. Within the last 30 years the Druses have been repeatedly called to take up arms. They bore a part in the strife which resulted in the restoration of Syria to the Turkish sultan; in 1842 they were again in insurrection against the Turks; and more recently they have waged a harassing warfare against their rivals the Maronites. They live in continual readiness for battle; and their martial propensities are a source of constant apprehension to the other inhabitants of the mountain. In spite of their adoption of the religious customs of the Moslems, of their readiness to educate their children in Christian schools, of their use of the Arabic language, which they speak and write as purely as any tribe in Syria, and of their free intercourse with strangers, the Druses remain, even more than the Jews, a peculiar people. They are rarely converted; they marry within their own race; they adhere tenaciously to their traditions; and they baffle all efforts to discover their cherished secrets. They are stigmatized as infidels, robbers, and savages; yet they seek for knowledge, observe honor, and practise domestic and social virtues, in a way that compels the praise of intelligent Christian observers. In their religion there is no sign of idolatry; they are less fanatical than the sects around them, and they covet no proselytes. The bad name of that caliph whom they claim as their founder and worship as their god is fairly compensated by the pure lives of many whom they honor as saints, and by the heroism of their feudal leaders.—The fullest account of the Druses in the English language is contained in Col. Churchill's "Mount Lebanon" (3 vols. 8vo., London, 1853).

DRUSUS, Claudius Nero, commonly called Drusus Senior, to distinguish him from his nephew, Claudius, the son of Tiberius, born 38, died 9 B. C. His mother Livia Drusilla was divorced from her husband Claudius Tiberius Nero, and married to the emperor Augustus 3 months before the birth of the subject of this notice; and the latter, on the death of his father not long afterward, was committed to the guardianship of his stepfather. His noble bearing and the liberality of his political sentiments won him early popularity, which was increased by the exploits of his maturer years. His career was short and brilliant. His first military command was against the Rhætians, who were accused of having plundered subjects and allies of Rome, and whom he defeated as they were about to make a descent upon the plains of Italy. He afterward joined his brother Tiberius, and in conjunction with him thoroughly subdued this formidable tribe. In 13 B. C. he was appointed governor of Gaul, and in the following year defeated the Sicambrians, and afterward the Frisians. The rest of his life was mostly taken up with his campaigns against other German tribes, in the course of which he ravaged a great portion of their territory and penetrated as far as the Elbe. It was on his last expedition that he reached this river, and on his return he met his death, according to the commonly received account, from an injury received by the falling of his horse. Drusus was the first Roman general who penetrated to the German ocean. He dug a canal connecting the Rhine with the Yssel, and probably widened the outlet of the Zuyder Zee, so as to give a navigable passage from the Rhine to the ocean.

DRY ROT, a disease in timber to which public attention has been particularly directed only within the last 100 years. It commences within the body of the stick, however well this may be protected by paint or varnish, and, without any indication of its existence upon the outside, it goes on converting the fibre of the wood into

dry dust, and spreading from the internal parts outward. Common rot commences on the outside by the agency of atmospheric causes of change, and gradually works inward. Dry rot is most likely to affect timber in warm, close, and moist situations, where the wood becomes coated with a fine mould of a brownish white or dirty yellow color, which as it spreads ramifies into the forms of algæ or sea weeds, and becomes in the process of time by the filling in of its interstices dense and tough, like leather. This fungous growth has been seen to fill a hole bored into a sound oak timber of one of the old ships of the British navy, so that within 24 hours it had become so compact that it could be drawn out with a stick. It sometimes increases so rapidly that heavy sticks of oak timber are destroyed in a few months. In some of the mines of France, as stated in the *Annales des mines* (vol. vii., 1835), the timbers used for props seldom last longer than 15 months, and some are rendered unfit for use even in as many days. Locust substituted for the oak was found to be much more durable. There is thus a great difference in the liability of different kinds of wood to be attacked by this disease. Cedar, locust, teak, and live oak resist its attacks better than most other woods used in ship-building, and wood of close texture, as box, ebony, cypress, and mahogany, is rarely attacked by it. Pliny, who seems to have been acquainted with this cause of the decay of timber, observed that the more odoriferous a piece of timber is, the more durable. He also knew that the part of the timber most subject to rot was the sap wood, outside of the heart, and recommended the cutting of this away in squaring the stick. But kinds of wood, not the least liable to suffer from dry rot, have in favorable situations stood unharmed for several hundred years, apparently harder and more solid than when first hewn. Such situations are where the air can circulate freely around the timber, and it is protected from moisture; or where the air is entirely excluded, as in tight structures of masonry, or beneath the surface of the water, or where the wood is buried among antiseptic matters, as in a peat bog. Heart wood, being of close texture, without cells or sap, is not so readily attacked as is the sap wood. To some condition of the sap it is evident the decay is to be attributed; and it is now commonly understood to be owing to a vegetable growth which takes place within the pores of the wood, the sap having probably carried up the minute seeds of the fungus during the growth of the plant. This fungus is known to botanists by the name *merulius lachrymans*. The vegetation at first is scarcely perceptible; it appears in delicate white filaments, which spread toward the surface, interlacing with one another, and presenting the leather-like appearance as these fill up. The fibre of the wood is now attacked and corroded, and in a short time the ligneous mass becomes a loose cellular tissue, readily falling into powder. Frequently the surface remains sound, while the whole central part is thus decomposed; but occasionally this process commences at the surface. (M. Aubuisson, *Annales des mines*, vol. vii., 1835.) In the living tree this growth is not readily produced, but it seems to be nourished by the putrefactive fermentation of the juices of the plant, the commencement of which is dependent upon the presence of some acid. By arresting this fermentation the decay may be prevented, and various methods are successfully applied to effect this purpose. The dissipation of the fluids by evaporation produced by thorough seasoning, and then securing the wood from the entrance of moisture through its pores, is a common but imperfect method of protecting timber. If the seasoning is conducted under water the result is more completely attained, the juices appearing to be dissolved and entirely removed. Burying the wood for a time in the ground answers the same purpose. A third method consists in filling the pores of the wood with some substance which resists putrefaction, and is destructive to vegetable and animal life. None has been found to answer the purpose more effectually than corrosive sublimate. Its use was recommended by Sir Humphry Davy, and it was successfully applied by the late Mr. Kyan in the process called kyanizing, which consists in steeping the timber in a solution of this salt. Wood kept for a few hours in a boiling solution of copperas and then thoroughly dried is rendered exceedingly hard and durable. The sulphates of zinc and of copper also produce the same effect, and the chloride of zinc is highly recommended. A number of other salts may be substituted for these, avoiding those which are liable to deliquesce or attract moisture from the air, as this serves to keep the wood damp, and causes iron bolts and fastenings to corrode. Common salt is much used in ships, both of the mercantile and naval service. It has the objection of deliquescing, particularly if it contain much of the bitter salts, as the chloride of magnesium, and consequently the vessels are always damp, and liable for this reason to be unhealthy. The salt is packed between the timbers when the vessels are built, and is inserted into holes made in them for the purpose. It is always considered an important object for a new ship to get a cargo of salt on account of its permanent benefit to her timbers. Solutions of salts of pyroligneous acid have also been successfully used, the air being first exhausted from the wood by powerful air pumps, and the solution being then forced into the pores. Most of these processes are objectionable on account of the expense and trouble attending them; and as the second method above named has long been found sufficient, it continues to be commonly preferred. It is said to have been an ancient practice in England to steep the oak planks for threshing floors and those intended for the wainscoting of houses in running water. Recently it has been found that timber immersed for some time in salt water is made more durable; and even when

the dry rot has made considerable progress, the wood is preserved from further decay. Attention has been forcibly called to this fact by the results of the sinking of different ships belonging to the British navy, the timbers of which were affected by the rot. On being raised to the surface after an immersion of several months, the fungus had disappeared, and the wood afterward continued free from decay. It is probable that the durability of the planks used in the bends of vessels is owing to the steaming process to which they have been subjected, the juices which tend to produce fermentation being thus dissolved out as effectually as by steeping in water or burying in the earth. Seasoning in dry air, though it may cause the destructive juices to be hardened, and thus rendered harmless so long as they continue in this condition, is proved to be imperfect when the wood is exposed in damp situations. The moisture penetrating the pores redissolves these juices, and the fungus soon makes its appearance. Wood that has lasted perfectly well for 650 years has, by an exposure in unfavorable situations, been attacked in a few weeks by the dry rot.

DRYADS (Gr. δρυς, an oak, or large wild-growing tree), a class of nymphs in ancient Greek and Roman mythology. According to some they were the same as the hamadryads, and, being attached to particular trees, their life was limited by that of the tree in which they lived. Another account is that the dryads were the patrons of forests and trees in general, and were thus distinguished from the hamadryads, who inhabited each a particular tree.

DRYANDER, Jonas, a Swedish naturalist, born in 1748, died in London in Oct. 1810. He was educated at the university of Gottenburg, and took his degree of doctor in philosophy at Lund in 1776, on which occasion he published a dissertation in opposition to the theory of those naturalists who asserted that fungi might be the production of animals. He subsequently became the friend and pupil of Linnæus; and visiting England as the tutor of a young nobleman, he was introduced to Sir Joseph Banks, under whose roof he resided after 1782, in the capacity of librarian. He was also librarian of the royal and Linnæan societies, of the latter of which he was one of the founders, and at the time of his death vice-president. He wrote several papers on botanical subjects, and superintended the publication of the *Hortus Kewensis* and Roxburgh's "Plants of the Coast of Coromandel." He was one of the most accomplished of modern bibliographers, and his *Catalogus Bibliothecæ Historico-Naturalis Josephi Banks, Baroneti* (5 vols., London, 1798), is a model of admirable arrangement, and the most comprehensive catalogue of the kind ever published.

DRYDEN, John, an English poet, born in the parish of Aldwinckle All Saints, Northamptonshire, Aug. 9, 1631, died May 1, 1700. He belonged to a respectable Puritan family. His father was a magistrate under Cromwell. John, the eldest of 14 children, received a good education at Tichmarsh and at Westminster school. At the latter he showed his poetical gifts in a translation of the 3d satire of Persius and an elegy on the accomplished young Lord Hastings. He was graduated at Trinity college, Cambridge, in 1654, went home on the death of his father in the same year, and soon after returned to the university, where he remained until 1657. His relative, Sir Gilbert Pickering, a member of Cromwell's council, induced him to come to London, and gave him a petty clerkship. He celebrated the death of the protector in his "Heroic Stanzas;" but his connection with the Puritan party was the result of circumstances rather than sympathy. The restoration called forth his *Astræa Redux* in 1660, and the coronation of Charles II. another poem of panegyric soon after. At this period of his life he seems to have eked out the pittance which he received from his paternal estate by writing prefaces and other occasional pieces for the booksellers. The patronage of Sir Robert Howard bettered his fortunes, and he soon became known as a ready versifier and a stanch royalist. About the same time he began to write for the stage. His first play, the "Wild Gallant," produced in 1662, was not successful. It was followed by the "Rival Ladies" and the "Indian Emperor;" but scarcely had he gained the public ear when the plague and the great fire of London put a stop for a time to all theatrical representations, and drove him to a less profitable employment. He busied himself in composing his "Essay of Dramatic Poesy," in which he defends the use of rhyme in tragedy. In 1663 he was married to Elizabeth, daughter of the earl of Berkshire, and sister of Sir Robert Howard, a lady who added little to his fortune, and still less to his happiness. It was from the earl's seat in Wiltshire that he dated his *Annus Mirabilis*—the year of wonders (1666), in which he celebrates the great fire, the duke of York's victory over the Dutch, and other prominent events. His devotion to the court, no less than the merit of his verse, obtained for him in 1670 the post of poet laureate, vacant since the death of Davenant in 1668, with that of historiographer royal, the united salaries of which amounted to £200. On the revival of the drama he became an active and successful writer for the stage, and was soon engaged to furnish for the king's theatre 3 plays a year, for which he received 1¼ shares of the profits of the company. Though he did not fulfil this agreement, having produced only 18 plays in 16 years, the actors seem to have valued his services too highly not to take them on his own terms. But if he pleased the public, his exaggerated style did not escape the ridicule of the wits of the court. Villiers, duke of Buckingham, brought out in 1671 a comedy called the "Rehearsal," in which the poet laureate was satirized under the name of Bayes. Its brilliant wit won it an enthusiastic reception, and how deeply Dryden felt the blow may be judged from the revenge which he took 10 years afterward. Meanwhile he had to suffer

in another way. An "Essay on Satire," written by Lord Mulgrave, and attributed to Dryden, who seems indeed to have revised it, gained him the enmity of the earl of Rochester; and on Dec. 16, 1679, as he was returning at night from Will's coffee house to his home, he was set upon and cudgelled by 3 hired ruffians. In 1681 appeared his "Absalom and Achitophel," a satire on the plot for securing the succession of Charles's natural son the duke of Monmouth, in which, under the names of David, Absalom, and Achitophel, he represented the king, Monmouth, and Shaftesbury; while in Zimri, who

> —— in the course of one revolving moon
> Was chemist, fiddler, statesman, and buffoon,

he drew his old enemy, the author of the "Rehearsal," and fully repaid the smart he had felt under his satire. The success of the poem was unbounded; Dr. Johnson's father, an old bookseller, said he knew of no publication except Sacheverell's "Trial" which had ever reached so large a sale. A medal struck by the friends of Shaftesbury to commemorate the refusal of the grand jury to indict him for high treason, furnished the title and subject of a fresh political satire. "The Medal" soon appeared, and was answered by a score of rhymesters, one of whom, Elkanah Settle, by his "Medal Reversed," is said to have fairly divided with Dryden the praises of the town. "MacFlecknoe," published about 1682, was a biting satire on the poet Shadwell, and fell below Dryden's political writings in interest only because the subject was inferior. In 1682 were produced also the *Religio Laici*, a defence of the church of England, and the 2d part of "Absalom and Achitophel." Of this, however, the greater portion was written by Nahum Tate; Dryden contributed only 200 lines, but in these his rivals Shadwell and Settle were handed down to the ridicule of posterity under the names of Og and Doeg. A few classical translations, some miscellaneous poems, and 2 pieces for the stage, were his only compositions during the next 3 years, until he was called upon as poet laureate to mourn the death of Charles II., and celebrate the accession of James. Under the new monarch the religious doubts which seem to have troubled him several years before were solved by his submission to the Roman Catholic creed. The sincerity of his conversion, at a time when the change suited so well his worldly prospects, has been and must doubtless remain a moot point. He was sharply attacked by his contemporaries, and among the earliest of his pieces in defence of his faith appeared, in 1687, the "Hind and Panther," an allegory absurd in design, but forcible in execution, wherein the points of difference between the two religions are discussed in musical verse. The revolution of 1688 robbed him of his place, and reduced him once more to the necessity of writing for bread. From 1690 to 1694 he composed 4 plays, and during the next 3 years was busy with his translation of Virgil, for which he is said to have received £1,300. In 1698 he began his adaptations of Chaucer, contracting with a bookseller to furnish 10,000 lines for £300. This bargain produced his "Fables," consisting of many of the choice stories of Homer, Ovid, Boccaccio, and Chaucer, translated or modernized in flowing verse. The noble ode for St. Cecilia's day, often called "Alexander's Feast," formed part of this collection. It was the last of Dryden's great works, though he published some minor pieces afterward. He died of mortification of the leg, and was buried next to Chaucer in Westminster abbey, where Sheffield, duke of Buckingham, erected a monument over his remains in 1720. His wife and 3 sons survived him.—Dryden was reserved in his habits, but kind and benevolent. At Will's coffee house, the great resort of the wits of London, he was the oracle by common consent, and though his part in conversation was seldom brilliant, a pinch from Dryden's snuff box, says Sir Walter Scott, "was equal to taking a degree in the academy of wit." He was domestic in his tastes, an affectionate father, and, notwithstanding the bitter temper of his wife, a faithful husband. The licentious spirit of the time, which his dramas, so far from repressing, did every thing to encourage, found no reflex in his private conduct. His rhyming tragedies have little beside their diction and versification to recommend them; his comedies, with the exception of the "Spanish Friar," are beneath his fame; and though he wrote 27 plays, only one or two are now spoken of. Many of his dedications are disfigured by the most abject flattery, and his early poems are marked by the false taste, Gallicisms, and unnatural conceits which characterized the period of the restoration. It was only with the production of his first political satire that he developed his full powers and marked out a new path in which he had no rival. His bold sketches of character, wanting often in polish, but alive with individuality, have never been surpassed. From the death of Milton to his own death he was confessedly the first of the English poets; but we have too often cause for sorrow that the harmony of his verse, the happiness of his illustrations, and the brilliancy of his wit should be defiled by the coarseness of party rancor and the taint of a corrupt fancy. As a translator, Dryden's merits have been much discussed. He gave us the first good English version of the Æneid, but he could not reproduce the tenderness and quiet majesty of the Roman poet. In prose, he has left many specimens of strong, genuine English, mostly in the form of prefaces and dedications. Among the principal editions of his works are his dramas (6 vols. 12mo., London, 1718); miscellaneous works (4 vols. 8vo., London, 1760); prose works, edited by Malone (4 vols. 8vo., London, 1800); poems, edited by Warton (4 vols. 8vo., London, 1811), by Sanford (Philadelphia, 1819), and by Mitford (5 vols. 12mo., London, 1832; Boston, 1854); and a complete edition of all his writings, with notes and a memoir by Sir Walter Scott (18 vols. 8vo., Edinburgh, 1818). The

"Fables," ornamented with engravings after the designs of Lady Diana Beauclerc, were published in folio (London, 1797). The life of Dryden has also been written by Dr. Johnson, and forms the most eloquent and discriminating of all the "Lives of the Poets." A brilliant essay on his life and writings, by Macaulay, will be found in No. xciii. of the "Edinburgh Review."

DRYING OILS. A number of vegetable oils, as linseed, nut, poppy seed, and some others, exhibit a strong tendency to absorb oxygen from the air, and, when exposed in thin layers, to dry into a resinous kind of varnish. The addition of a small quantity of oxide of lead greatly accelerates the process. These oils are consequently well suited for mixing with coloring matters to form paint for wood work. They impart no color of their own, and serve to bind and secure the color to the wood, which they also aid to protect by their resinous coat. The so-called greasy oils have no such tendency to dry by exposure, but on the contrary become rancid.

DUANE, William, an American politician, and editor of the "Aurora" newspaper, born near Lake Champlain, N. Y., in 1760, died Nov. 24, 1835. At the age of 11 he was taken by his mother, then a widow and a Roman Catholic, to her native country, Ireland, and liberally educated; but his marriage at the age of 19 with a Presbyterian lady so offended his mother that she immediately dismissed him from home, and no reconciliation was ever effected. He learned the art of printing, and in 1784 went to seek his fortune in India. He rapidly amassed property, and became editor of an Indian journal, entitled the "World." Having taken sides against the local government in a dispute with some of its troops, he was seized and sent to England, and his large fortune was confiscated. Having in vain petitioned parliament and the East India company for redress, he began to devote himself to the periodical press of England, and became editor of the "General Advertiser," siding in politics with the party of Horne Tooke and others. In 1795 he returned to America, and became editor of the "Aurora," published at Philadelphia, which was made by his able management the most influential organ of the democratic party; so much so, that Jefferson attributed to its vigorous support his own election to the presidency. The change of the seat of government from Philadelphia to Washington caused the "Aurora" to decline in political importance. Duane retired from its editorship in 1822, and then travelled through the republics of South America, with whose struggles for independence he had long sympathized. On his return he published an account of these travels, and was appointed prothonotary of the supreme court of Pennsylvania for the eastern district, an office which he retained until his death. Mr. Duane served as an officer in the war of 1812, and published two works on military tactics, a "Military Dictionary" (Philadelphia, 1810), and a "Handbook for Riflemen" (1813), which were for some time standard authorities.

DUBAN, Félix Louis Jacques, a French architect, born in Paris, Oct. 14, 1798. He studied under Debret, and having gained the first prize for architecture at the school of the fine arts, was enabled to spend several years in Italy. His first work of importance was the completion of the *palais des beaux arts*, in the execution of which he is charged with having sacrificed harmony of proportion and strength to a fondness for ornamentation. In 1845 he was employed in the restoration of the ancient chateau of Blois, and in 1848 received from government the appointment of architect of the Louvre, with the general direction of the restoration of a part of the building. The façade on the river side, and the Apollo gallery, have been restored from his plans.

DUBLIN, a maritime county of Ireland, province of Leinster, bounded N. and N. W. by Meath co., S. W. by Kildare, S. by Wicklow, E. by the Irish sea; greatest length from N. to S. 32 m., greatest breadth 18 m.; area, exclusive of Dublin city, 348 sq. m., or 222,709 acres, of which 196,063 are arable; pop. in 1851, exclusive of the capital, 146,631. It has a coast line, including windings, of 70 m., comprising the natural harbors of Dublin bay, Killiney, Malahide, Rogerstown, and Lough Shinney, with harbors constructed by art at Kingstown, Howth, and Balbriggan. The rivers are the Liffey, Tolka, Dodder, and Bray. The general character of the surface is level, but on the S. boundary rises a range of hills, culminating in the peak of Kippure at a height of 2,473 feet, and separating the county from Wicklow. Near these extend the Dublin mountains, the central group of which is 1,000 or 1,200 feet high; toward the N. are picturesque valleys and cultivated heights, and on the coast are many bold promontories. The geological formation is mostly mountain limestone, bounded S. by a ridge of excellent granite. The soil is shallow, and in general not well adapted to agriculture, but careful drainage and manuring have rendered much of it productive. The principal crops are wheat, oats, barley, rye, potatoes, and turnips; the total extent of land under crops in 1855 was 108,746 acres. Grazing and the fisheries form important branches of industry. Lead and copper are mined to a small extent at Ballycorus. The manufactures are limited to stockings, cotton, and a few other fabrics. The channels of communication are the Grand and Royal canals from Dublin to the Shannon, and 4 railways radiating from the capital, viz.: the Dublin and Drogheda, the Great Southern and Western, the Midland Great Western, and the Dublin and Kingstown. The county returns two members to parliament.

DUBLIN, the capital of the above county and of Ireland, a municipal and parliamentary borough and seaport, at the head of Dublin bay, on both sides of the Liffey, lat. 53° 20′ 38″ N., long. 6° 17′ 29″ W., 292 m. W. N. W. from Lon-

don, and 63 m. W. from Holyhead; pop. in 1841, 232,726; in 1851, 258,361; at the same rate of increase it would reach in 1859 about 280,000 souls. The Liffey is navigable to the centre of the city, which is divided into two nearly equal portions. Its entrance is obstructed by a sand bar, on which at low ebbs there is not more than 9 feet water, although in spring tides it has 24 feet. At the mouth of this river in Dublin bay lies the harbor, formed by 2 piers or breakwaters, one projecting E. into the bay S. of the river, the other running out from the shore beyond Clontarf, N. E. of the city, and nearly meeting the former at an angle of 45°. The area thus enclosed at high water spring tides is 3,030 acres, and by systematic dredging the channel has been so deepened as to admit vessels of 1,400 tons. The wharves and docks connected with the custom house are capable of accommodating 40,000 tons of shipping, and 100 vessels can discharge at other quays on the S. There is a lighthouse at the end of the S. breakwater, and in other parts of the bay there are two other lights. A harbor of refuge has been constructed at Kingstown. The registered shipping of the port in 1856 was 501 vessels, tonnage 41,700; the entrances were 6,928 vessels, tonnage 913,062; clearances 3,881 vessels, tonnage 635,651. The trade of Dublin is chiefly with the midland districts, which it supplies with tea, coffee, sugar, tobacco, timber, deals, wines, and other foreign products, and with the English markets, to which it exports cattle and agricultural produce. With the United States its commerce is small, and confined mostly to timber. It has but few manufactures, and those of trifling value. Iron casting, cabinet making, and manufactures of the minor articles of jewelry and apparel, are thriving, but not to such extent as to afford employment to even a fraction of the population. Formerly 40,000 hands were engaged in silk weaving, but of late years this manufacture has dwindled away till it has now but 200 looms. The beautiful specimens of Irish poplins which were exhibited at the fair of 1853, gave rise to a demand for those fabrics, which has since increased. The well-known Dublin porter is an important item in the trade of the city, and the exports of it during the year ending May 4, 1855, were 87,905 hogsheads, nearly ½ being from the establishment of Guinness and co.—The modern part of Dublin is regularly built, without much architectural display, but with an appearance of substantiality and comfort. On the other hand, the lower part is occupied by filthy streets of wretched tenements, inhabited by a population as squalid as their dwellings. In hardly any other city are wealth and poverty in such close and marked contrast. The general aspect, however, to the stranger who follows the main thoroughfares, is very favorable. Generally speaking, the S. W. quarter is occupied by the poor, the N. W. by the middle classes, the S. E. and N. E. being the residence of the wealthy. The thickly populated part of the city has an extent of about 1¾ m. in each direction, but with the remainder it covers a space of 2½ by 2 m. It is well supplied with water, paved, and lighted with gas. Nine bridges, of which two are of iron, span the river, and an avenue called the Circular road, 9 m. long, encompasses the city. The public buildings are noted for their elegance. The bank of Ireland, in College green, was formerly used as the Irish parliament house. It is an extensive building, nearly semicircular in shape, with a fine Ionic colonnade. The apartment of the house of commons is now used as a teller's office, but the chamber of lords remains as when last used. Immediately opposite the bank is Trinity college, an imposing structure of the Corinthian order. It was founded under authority of Pope John XXII., closed in the time of Henry VIII., and reopened by Elizabeth, who incorporated it in 1592 as the college of the holy and undivided Trinity. It contains a small museum, and an extensive library, rich in ancient MSS. Trinity has a large faculty of professors, and at least 2,000 students. Two Roman Catholics were for the first time admitted to scholarships in 1856. The queen's university, incorporated by Queen Victoria in 1850, with power to confer degrees on students of the queen's colleges of Belfast, Cork, and Galway, holds the meetings of its senate at Dublin castle. The Roman Catholic university in Stephen's green was founded in 1854. Among the other literary and scientific institutions are the colleges of physicians and of surgeons, apothecaries' hall, and medical societies; the royal Dublin society, having museums of natural history and of agriculture, a botanic garden, a gallery of statues, a library numbering in 1857 over 30,000 volumes, a school of art attended by 484 students in 1857, and free lectures, attended by 22,036 persons in the same year; the royal Hibernian society of art, with an annual exhibition of paintings; the royal Irish academy of science, literature, and antiquities; the archæological society, society of engineers, mechanics' institute, statistical, geological, and zoological societies, with numerous other associations and reading societies, upward of 200 charity schools, and several libraries. An agricultural college, lately founded at Leopardstown, near Dublin, has a farm of 200 acres. The lectures in the recently established museum of Irish industry, with a government school of science applied to mining and the arts, were attended in 1857 by 6,416 persons, and the total number of visitors was 28,425. An act of parliament was passed, Aug. 10, 1854, to provide for the establishment of a "national gallery of paintings, sculpture, and the fine arts," for the care of a public library, and the erection of a public museum; and the first stone of the new building was laid in Dublin, Jan. 29, 1859. It will form a northern wing to the premises of the royal Dublin society, its gallery end facing Merrion square, and the corresponding southern wing will be devoted to the new museum. Although entitled the national gallery, it is also intended as a testimonial in commemoration of Mr. William Dargan's ex-

ertions in behalf of the great Dublin industrial exhibition of 1853. The probable cost of construction will be about £12,000. There were 28 newspapers and periodicals published in Dublin in 1858. The castle, the residence of the viceroy, stands on an elevation, but is not an imposing edifice. The Four Courts are a pile of building of Corinthian architecture, with a frontage on the Liffey of 500 feet, and occupied by the courts of queen's bench, chancery, exchequer, and common pleas. The custom house is altogether too extensive for the trade of the port; it is of the Doric order, and is surmounted by a cupola 125 feet in height. Other noticeable structures are the general post office, with an Ionic front, of considerable elegance; the city hall and exchange; commercial buildings, in which is the chamber of commerce; the queen's inns, linen hall, the weavers' hall, corn exchange, conciliation hall, the theatre, several barracks for constabulary and troops; Stephen's hospital for 300 patients; the Meath, city of Dublin, Sir Richard Dun's, and Richmond surgical hospitals, and royal hospital, designed by Sir Christopher Wren, for disabled soldiers; St. Patrick's hospital, erected from a legacy left by Dean Swift; lunatic asylums, infirmaries, foundling hospital, and a large number of benevolent institutions. Kilmainham, the county gaol, stands W. of the suburbs. Within the city are the Newgate, city and four courts, and marshalsea prisons, the bridewell, or house of correction, Smithfield penitentiary, penitentiary for females, and house of industry. Dublin is the seat of a Protestant and a Roman Catholic archbishopric, and has 2 cathedrals of the established church, those of St. Patrick and of the Holy Trinity, also called Christ's church, both of which are very ancient, and a modern Catholic cathedral. There are altogether about 75 churches, of which the established religion holds over 40, and the Catholics 9 or 10, beside 14 convents, and a house of the Jesuits. The cemeteries are: Goldenbridge for Roman Catholics; Prospect, 20 acres; Mount Jerome, 27 acres; Glasnevin, where O'Connell is buried. The "liberator's" friend has a tomb near him, with the epitaph "Honest Tom Steele." Curran is also buried here. Among the chief streets and public places of Dublin may be named Grafton street, passing into College green, in which is an equestrian statue of George III., and connecting by Carlisle bridge with Sackville street, where there is a column to the memory of Nelson; Dame street, containing many of the finest stores; St. Stephen's green, a square one mile in circumference, tastefully planted, and having a statue of George II.; College park, Fitzwilliam, Rutland, and Mountjoy squares. The celebrated Phœnix park comprises an area of 1,752 acres, and is the great resort of the people on gala days. A granite obelisk has been erected to Wellington on the left of the entrance. The Royal and Grand canals flank the city N. and S., and 4 railways open communication with Galway, Cork, Belfast, &c. Steam packets ply regularly to Holyhead, Liverpool, London, Bristol, Cork, Glasgow, &c. The environs of Dublin are remarkably beautiful. The bay, esteemed one of the finest in the United Kingdom, is 7 m. wide at its entrance, between Howth head and Kingstown, and extends inland about the same distance, with a somewhat increased width. The civic government is vested in a lord mayor, 15 aldermen, and 45 councillors. The city sends two members to parliament, and Trinity college likewise two.—Dublin claims a high antiquity. Curious Celtic remains were found in 1856 within the town walls of ancient Dublin. It is the *Eblana* of Ptolemy; Irish *Dubh-linn* (black pool); Danish *Dyflin*, and *Dyvelin*. In the early part of the 9th century it was taken by the Danes. The records of the next 3 centuries are little else than a succession of bloody battles. In 1169 it was taken by the English under Strongbow, who died and is buried there. In 1205 the castle was built; in 1190, 1282, 1283, 1301, and 1304, the city was burned; in 1405 the citizens made a descent on Wales for Henry IV. During the first half of the 16th century it was troubled by the Kildare family, one of whom, Lord Thomas Fitzgerald, among other exploits, murdered the archbishop. During Richard Cromwell's feeble protectorate the city was seized by the cavaliers, recovered by the parliamentarians, and again captured by the partisans of the king. In 1798 a conspiracy to seize the city and castle was frustrated by the arrest of Lord Edward Fitzgerald and others. In 1803 occurred Emmet's insurrection. Swift and Burke were natives of Dublin.

DÜBNER, Friedrich, a German philologian and critic, born in Hörselgau, Gotha, Dec. 21, 1802. In 1826 he was appointed professor in the gymnasium at Gotha, and during the 5 years that he held this position published philological articles in the periodicals, and especially made himself known by an edition of Justin. His principal studies, however, were upon the ancient comic authors, and he resigned his professorship in order to proceed to Italy to collate the original manuscripts. At this time he was invited by Didot to Paris to assist in preparing a new edition of Stephens's *Thesaurus*, a call which the valuable manuscripts contained in the Parisian libraries induced him to accept. He became employed upon the *Bibliotheca Græca* which Didot had undertaken, and his erudition gave to that splendid collection its completeness and scientific value. He alone contributed the critical editions of the *Moralia* of Plutarch, of Arrian, Maximus Tyrius, and Himerius, and the scholia to Aristophanes and Theocritus. He also took part in preparing the Parisian editions of St. Augustine and St. Chrysostom. Since 1842 he has published numerous school editions of the classics, and has been a frequent contributor to the *Revue de philologie* issued at Paris.

DUBOI, a town of Hindostan, in the province of Guzerat, district of Chumpaneer, 40 m. N. E. of Baroach; lat. 22° 8′ N., long. 73° 25′ E. It is surrounded by fortifications nearly 3 miles in circuit, and occupies the site of an ancient

Hindoo city, the ruins of which are still visible, and exhibit vast quantities of hewn stone, while the whole district, being of alluvial formation, furnishes scarcely a pebble.

DUBOIS, a S. W. co. of Ind., bounded N. by the E. fork of White river, and intersected by Patoka creek; area, 420 sq. m.; pop. in 1850, 6,321. It has a slightly diversified surface, and is covered with thick forests. The quality of the soil is good, and the staples are Indian corn and live stock. The productions in 1850 were 287,905 bushels of Indian corn, 38,590 of oats, 15,213 of wheat, 1,241 tons of hay, and 12,269 lbs. of wool. There were 5 grist mills, 6 saw mills, 2 tanneries, 8 churches, and 273 pupils attending public schools. Stone coal is abundant. Organized in 1818. Capital, Jasper.

DUBOIS, Antoine, a French surgeon, born in Gramat, department of Lot, June 18, 1756, died in Paris, March 30, 1837. While attending lectures on philosophy at the Mazarin college in Paris, he supported himself by giving lessons in writing, and afterward studied medicine under Desault, became the assistant of that eminent physician, and gradually rose to the head of his profession in France. He acted over 30 years as professor of clinical surgery and obstetrics; but with the exception of several remarkable articles which he contributed to the *Dictionnaire des sciences médicales*, he never reduced his system to writing. The *maison de santé*, which was founded by the government and of which he was nominated surgeon in chief in 1810, is known to this day as the Dubois hospital, in remembrance of his eminent services. He was a great favorite of Napoleon, whom he had accompanied to Egypt, and on the occasion of the birth of the duke of Reichstadt he attended Marie Louise.

DUBOIS, Guillaume, a French cardinal and minister under the regency of the duke of Orleans, born in Brives-la-Gaillarde, department of Corrèze, Sept. 6, 1656, died in Versailles, Aug. 10, 1723. He was the son of an apothecary, went at an early age to Paris, and studied there in one of the colleges, where he was employed as a valet by the principal. Subsequently he became a private teacher, and eventually tutor to the duke of Chartres. By flattering the passions of his young pupil, who afterward became regent of France, under the title of duke of Orleans, he paved the way for his own elevation. Dubois persuaded him to marry Mlle. de Blois, a natural but legitimized daughter of Louis XIV., and was rewarded with a rich abbey in Picardy, and sent on a diplomatic mission to England. On his return to Paris he acted as private secretary of the duke of Orleans; and afterward, when on the death of Louis XIV. the duke was invested with the regency of France, Dubois became a member of the council, and exerted a prominent influence upon foreign affairs. He concluded in 1717, in concert with Lord Stanhope, the famous triple alliance of France, England, and Holland against Spain. After becoming minister of foreign affairs, he succeeded in baffling the conspiracy of the Spanish ambassador Cellamare, which was instigated by the Spanish prime minister Alberoni, the object of which was to make Philip V. of Spain regent of France in place of the duke of Orleans. A war with Spain ensued, which resulted in the removal of Alberoni and the adhesion of Philip to the English, French, and Dutch treaty, which henceforth was called the quadruple alliance. Elated with his triumph, the ambition of Dubois knew no bounds, and it was fully gratified by his being appointed archbishop of Cambray, and eventually cardinal, prime minister, and member of the French academy. His administration of affairs was marked by a certain degree of vigor, and he was unquestionably a person of great ability; but his life on the whole presents a hideous array of selfishness and vices, and his nomination to high office in church and state belongs to the incidents which were characteristic of the dark history of France in the 17th and 18th centuries. When the operations of the Scotch financier Law brought the country upon the verge of universal bankruptcy, and while the regent was spending his time in pleasure and debauchery, Dubois availed himself of the disasters of France and the weaknesses of his master to amass an immense private fortune, his revenue amounting to 3,000,000 francs, beside the benefits accruing from the 7 abbeys of which he was the incumbent, independent of the see of Cambray. A record of his private life appeared in 1789, and his memoirs in 1817. Those published in 1829 are not authentic.

DUBOIS, Jean Antoine, a French abbé and missionary, distinguished for his services in India, born in Saint-Remèze, department of Ardèche, in 1765, died in Paris, Feb. 7, 1848. He spent 32 years in the East Indies, and on his return published "Letters on the State of Christianity in India" (London, 1823), which produced much controversy in England from the fact of his having frankly expressed therein his disbelief in the possibility of the conversion of the Hindoos. He wrote several remarkable works relating to the religion and the traditions of India, and many contributions to the *Bulletin des sciences*, and to the journals of the Asiatic societies of London and Paris, of which he was a member. His most celebrated work, entitled "Description of the Character, Manners, and Customs of the People of India, and of their Institutions, religious and civil," was purchased for £800 by the East India company, published at its expense in London in 1816, and afterward published in French under the title of *Mœurs, institutions, et cérémonies des peuples de l'Inde* (Paris, 1825).

DUBOS, Jean Baptiste, a French critic and historian, born in Beauvais in Dec. 1670, died in Paris, March 23, 1742. The best known of his numerous works is his *Histoire critique de l'établissement de la monarchie Française dans les Gaules* (3 vols. 4to., Paris, 1734). The theory which he maintains in this work, that the occu-

pation of Gaul by the Franks was a settlement and not a conquest, has been warmly contested by Montesquieu and others. Of his *Réflexions critiques sur la poésie et la peinture* (2 vols. 12mo., Paris, 1719; 6th ed., 1755), an English translation was published in London in 1748.

DUBS, Jakob, a Swiss statesman, born at Affoltern, in the canton of Zurich, in 1822, has gained distinction by his advocacy of reform in the administration of justice and in education, and written several valuable treatises on both subjects; has occupied various high functions in the government of his native canton; officiated in 1857 as president of the federal court, and from July 7, 1856, to the same date in 1857, as president of the federal council of states.

DUBUFE. I. Claude Marie, a French painter, born in Paris about 1790. He studied with David, and for many years attempted historical paintings on a grand scale, which met with little favor. In 1827 he exhibited 2 pictures of a sentimental character entitled *Les souvenirs* and *Les regrets*, which, in spite of much hostile criticism, became very popular through the medium of engravings. After executing several works of a similar character, he turned his attention to portraits, in which he has been successful. He painted the likenesses of many distinguished persons, including Louis Philippe and his daughter, the queen of the Belgians. A number of years ago two large pictures by Dubufe, representing the temptation and expulsion of Adam and Eve from paradise, were extensively exhibited in the United States. II. Édouard, son of the preceding, born in Paris about 1818, studied under his father and Paul Delaroche, and for some years followed the sentimental style of his father's *Souvenirs* and *Regrets* with success. Afterward he painted scriptural subjects, but of late years, following the example of his father, he has confined himself almost exclusively to portrait painting. Among his most successful recent works are portraits of the empress Eugénie, Rosa Bonheur, and of the members of the congress of Paris.

DUBUISSON, Paul Ulrich, a French author, born in Laval in 1746, guillotined March 23, 1794. He went when young to Paris, and wrote for the stage with small success. He was one of the most jealous of authors, and was accustomed to fill his prefaces with abuse of the contemporary writers who surpassed him, the actors who refused to flatter him, the journalists who jested at him, and the public who neglected him. Finally, he went to America, and subsequently to Belgium, whence he returned to France a few years before the outbreak of 1789. He embraced the cause of the revolution with enthusiasm, became associated with the Jacobin club, and having taken part in the schemes of Hébert, Ronsin, and Anacharsis Clootz, he shared the fate of those revolutionists. He published a number of tragedies and comedies, a volume of "Critical and Political Letters upon the Colonies of France," and a "History of the American Revolution."

DUBUQUE, an E. co. of Iowa, bordering on Illinois and Wisconsin, bounded N. E. by the Mississippi river, watered by Fall river and the Little Maquoketa; area, 600 sq. m.; pop. in 1856, 25,871. It has a hilly surface, clothed with extensive tracts of timber. The soil is adapted to Indian corn and wheat, which form, together with grass and dairy produce, the chief staples. In 1856 the productions were 12,779 tons of hay, 233,931 bushels of wheat, 236,108 of oats, 564,236 of Indian corn, 124,457 of potatoes, and 178,574 lbs. of butter. Dubuque county is one of the richest mineral regions of Iowa, and yields annually vast quantities of lead. Limestone underlies most of the surface. The county was named in honor of Julien Dubuque, by whom the lead mines were first worked. Capital, Dubuque.

DUBUQUE, the largest city of Iowa and seat of justice of Dubuque co., situated on the right bank of the Mississippi, directly opposite the boundary line of Wisconsin and Illinois, and 450 miles N. of St. Louis; pop. in 1850, 3,108; in 1854, 6,634; in 1856, 15,000; in 1859, estimated at 17,000. It is the oldest town in the state, having been first settled by white men in 1788, when Julien Dubuque, a French Canadian, under a grant from the Spanish government, commenced operations in the lead mines on the present site of the city. Its permanent settlement commenced in June, 1833, when the U. S. government took possession of the land, which the Indians by treaty had vacated the year before. Before the end of the first year of its settlement it had a population of about 500. A town government was organized in 1837, and a city charter was adopted in 1841. In 1838 its "corporation tax" was $524; in 1858, upward of $100,000. The assessed value of the real and personal property is $8,000,000. The business part of the city is situated on a plateau of land about ¾ of a mile wide, narrowing to a point a mile below the centre of the city. This plateau has a gradual ascent to the base of the bluffs, which are steep and rise to the height of more than 200 feet. Ravines here and there lead up through them into the open and undulating country. Beautiful houses of unusual size and finish stand upon their summits, in the midst of a young growth of shrubbery. In front of the city are sloughs, which are being filled by the enterprise of 3 wealthy improvement companies, and thus the extent of the business quarter will shortly be nearly doubled. The land is mostly of a gravelly nature, is therefore generally dry, and hence the city is remarkably healthy. Dubuque has the largest and best constructed school houses west of the Mississippi, and its public schools are modelled on the graded system. It has also Alexander college, a female college, and several private schools, Protestant and Catholic. It has 1 Baptist church, 1 Christian, 1 Congregational, 3 Roman Catholic, 1 Lutheran, 3 Methodist (including 1 German), 2 Presbyterian, and 1 Universalist. It has a branch of the state bank and several

banks of deposit. A U. S. building designed for a custom house, post office, &c., is in process of erection; the material employed is a beautiful stone from quarries near Nauvoo, Ill. The city has been lighted with gas since the summer of 1855. The Illinois central railroad terminates at Galena, opposite Dubuque; the Milwaukee and Mississippi railroad is gradually approaching Dubuque; the Dubuque and Pacific railroad is in progress westward, being already open to Nottingham, 39 m. distant; the Dubuque western is open to Anamosa in Jones co., 40 m. S. W.; the Dubuque and Bellevue is in course of construction southward along the right bank of the Mississippi; and the Dubuque, St. Paul, and St. Peters, and Dubuque and Turkey Valley roads, are projected. Commercially, the situation of the city is advantageous. Lying on the Mississippi, the great natural outlet of all the states on its western side, and being the radiating point of several railroads, it must speedily become the great shipping port north of St. Louis. The agricultural and mineral products of the northern half of Iowa, the lumber from Wisconsin, and almost every other article of traffic in western commercial towns, is here seeking a market or the facilities for transshipment. The value of merchandise exported in 1854 was $1,573,408, and of that imported $4,933,208; the value of exports in 1855 was $3,689,266, and of imports, $11,266,845. In 1856 the imports of dry goods amounted to $3,595,200, and the sales and exports to $3,749,547; the imports of groceries to $3,423,000, and the sales and exports to $3,936,450. The next in importance of the articles of commerce were hardware and iron (sales and exports, $1,109,475), clothing ($332,720), boots and shoes ($298,071), and drugs and chemicals ($247,118); amount of lumber imported, 89,440,880 feet; number of shingles, 8,984,000. The Dubuque and Dunleith ferry company has 2 steam ferry boats, one of which plies constantly. The Dubuque and Minnesota packet company has a line of 15 steamboats engaged in the upper Mississippi trade; two of them leave Dubuque daily for St. Paul. The city has 3 daily newspapers, 2 tri-weekly, 1 semi-weekly, 5 weekly, and 1 monthly. Measures are in progress for the construction of water works. Establishments for the manufacture of shot, white lead, threshing machines, reapers, steam engines, mill machinery, &c., are in operation. The lead mines of Dubuque have yielded fortunes to hundreds of men, and yet the task of working them is but just begun. Several very rich "leads" were struck in the summer of 1858. Mining companies have recently been formed, and with organized capital and suitable machinery the work of mining will be carried on more extensively and to much better advantage. Zinc is also abundant in the city limits, and will one day be rendered a source of wealth.

DU CANGE, Charles du Fresne, a French historian and philologist, born in Amiens, Dec. 18, 1610, died in Paris, Oct. 23, 1688. He was educated in the Jesuits' college in his native city, and at the age of 13 spoke and wrote Greek and Latin freely. In 1631 he was admitted as an advocate before the parliament. From that time, however, he gave himself up to literature, and in 1678 produced his first and one of his most useful works, the *Glossarium ad Scriptores Mediæ et Infimæ Latinitatis* (3 vols. fol., Paris), a new edition of which, in 7 vols. 4to., appeared in Paris in 1844. As a companion to this, he published a glossary of the impure Greek of the middle ages (2 vols. fol., Paris, 1688). Both are works of the highest value to the student of mediæval history, and the former was augmented by the Benedictines, who added to it at different times 7 volumes. Du Cange also produced a *Traité historique du chef de Saint Jean Baptiste* (4to., 1665); an annotated edition of De Joinville's *Histoire de Saint Louis IX.* (fol., 1668); and a *Historia Byzantina illustrata* (Paris, 1680). His published works, however, comprised but a small part of his labors. His MSS., the voluminousness of which is almost incredible, have been collected and catalogued in the university of Paris, and measures have been taken for their publication in Paris. A monument to this profound scholar was erected in Amiens in 1850.—See *Essai sur la vie et les ouvrages de Du Cange*, by Léon Feugère (Paris, 1852).

DUCAREL, Andrew Coltee, an English antiquary, born in Normandy in 1713, died in London, May 24, 1785. He was educated at Eton, and at St. John's college, Oxford, and made a journey to Normandy in 1752, which supplied materials for a work entitled "Anglo-Norman Antiquities" (first published in 4to. in 1754; enlarged and republished in fol., London, 1767). He thus opened the way for other learned antiquaries of his country, who during the past century have frequently visited and described the religious monuments of a province where so many traces of connections between Norman and English families exist. His work was received with great favor, and though subsequent researches have proved the inaccuracy of some of its statements, yet it is still valued for the materials which it contains. It has descriptions and representations of some monuments since destroyed. In 1762 he was elected a member of the royal society, and the next year he was appointed, with Sir Joseph Ayloffe, to put in order the state papers at Whitehall. It was his custom annually to travel incognito with one of his friends during the month of August, taking with him Camden's "Britannia" and a set of maps, and thus to examine minutely all places of interest. Among his other publications were a "Series of more than 200 of the Anglo-Gallic Coins of the Ancient Kings of England, illustrated in 12 Letters" (4to., London, 1757); the "History and Antiquities of the Archiepiscopal Palace at Lambeth;" and numerous papers in the "Philosophical Transactions."

DUCAS, Michael, a Byzantine historian of the 15th century. He was a descendant from an

imperial family, and himself held a high position at the court of Constantine Palæologus, the last emperor of Constantinople. After the conquest of that city by Mohammed II. he took refuge with the prince of Lesbos, Dorino Gateluzzi, and was appointed by him and his successors to various diplomatic missions. He accompanied his master to Constantinople, when he went to do homage to the sultan, and his prudence and skill succeeded in saving the independence of Lesbos. Under Nicholas Gateluzzi, however, the wrath of Mohammed was called down upon the island, and it was united in 1462 to the Ottoman empire. Though Ducas survived this event, nothing more is known of his life. It is probable that he retired to Italy, and wrote in his old age the history which has come down to us. This work, divided into 45 chapters, begins with an outline of universal chronology, and does not become detailed and truly instructive till the reign of John Palæologus I., and it terminates abruptly in the middle of a sentence, at the capture of Lesbos in 1462. It is the most difficult of all the Byzantine histories, written in a barbarous style, but is judicious and impartial.

DUCAT, a gold coin, which has been long in circulation in a large part of Europe. The first ducats are said to have been struck in the 12th century in Sicily by Roger II., and to have received their name from the device which was inscribed upon them: *Sit tibi, Christe, datus, quem tu regis, iste ducatus.* A little later ducats of various kinds became current in Italy, and especially in Venice; and they spread thence through Switzerland, the Germanic states, Russia, Sweden, Denmark, Holland, and Spain. In Spain, however, at present, the ducat is only a money of exchange. In Germany the ducats, being made in 1559 a legal coin of the empire, soon displaced the gold florins, and were generally struck with the likeness of the sovereign princes upon them. The ducats of Austria and Holland are the only ones which have acquired a very extensive circulation. Those of Holland are the most widely spread, bearing an emblem of a knight armed cap-a-pie. This emblem was for a short time exchanged for the likeness of King Louis of Holland. The value of the ducat varies somewhat in different countries, but it is generally little more than that of 2¼ American dollars. There are also silver ducats in France and Spain, having half this value. (See Coins.)

DUCHÂTEL, Charles Marie Tanneguy, count, a French economist and politician, born in Paris, Feb. 19, 1803. Prior to 1830 he took an active part in editing the *Globe*, one of the leading organs of the liberalists. In 1827 he published a work on pauperism, which competed unsuccessfully for the academic prize, and in which he showed himself a disciple of the principles of Malthus, and proposed as a remedy for the sufferings of the poorer classes the formula of "labor, economy, and prudent marriages." He began his parliamentary career in 1832, was named secretary-general of the finances in 1833, and in 1835 was appointed to the ministry of commerce. He resigned with his colleagues in Feb. 1836, but became a member of a new cabinet 6 months later as minister of the finances The new *doctrinaire* ministry, however, was soon overthrown, being followed by the administration of Molé, and Duchâtel now became one of the most energetic leaders of the opposition. At the accession of the cabinet of Soult and Guizot in 1840 he came again into power as minister of the interior, and retained this position with but a short interruption till the revolution of 1848, since which he has lived in retirement. The measures supported by him both as deputy and minister were generally of a financial character, but he also took a prominent part in the establishment of railways and telegraphs in France.

DU CHÂTELET, Gabrielle Émilie (Le Tonnelier de Breteuil), marchioness, noted for her intimacy with Voltaire, and for her literary attainments, born in Paris, Dec. 17, 1706, died in Lunéville, Aug. 10, 1749. She was married at an early age to the marquis du Châtelet-Lomont, and afterward divided her time between science and dissipation, in both of which she became a proficient. Not even a love affair with the fascinating duke de Richelieu could withdraw her from her studies. In 1733 she became the mistress of Voltaire, and the next year removed with him to Monjeu near Autun, and afterward to the château of Cirey, where the marquis extended to her paramour the indulgence he had always shown to herself. Here they passed several years in unrestrained freedom, both actively engaged in literary pursuits, especially in the study of the English philosophers, Newton and Locke. The marchioness composed her *Dissertation sur la nature et la propagation du feu; Institutions de physique*, a synopsis of Leibnitz's philosophy, and various other essays; while Voltaire wrote *Le siècle de Louis XIV.*, *Mérope*, *Alzire*, and *Mahomet*. During a visit to the court of Stanislas, the ex-king of Poland, at Lunéville, the faithless lady fell in love with the marquis de Saint Lambert, a captain in the guard, by whom she had a daughter, and a few days after giving birth to this child she died at the palace of Lunéville. Several of her works were published posthumously, including *Principes mathématiques de la philosophie naturelle* (translation of Newton's *Principia*, with a commentary, 1756); *Doutes sur les religions révélées, adressés à Voltaire* (8vo., Paris, 1792); *Lettres inédites à M. le comte d'Argental* (12mo., Paris, 1806).

DUCHÉ, Jacob, an American clergyman, born in Philadelphia in 1739, died there in Jan. 1798. He was graduated at the college of Philadelphia, afterward the university of Pennsylvania, in 1757, and completed his education at Cambridge, England. In 1759, having received a license from the bishop of London, he was ordained an assistant minister of Christ church in Philadelphia, of which in 1775 he became rector. He was a man of brilliant talents and impressive eloquence, and at the meeting of the second congress in 1775, just after the outbreak of the war

of the revolution, he was invited to open the congress with prayers. By sermons delivered before congress, and before the patriots of the army, he established his character not only for eloquence but for patriotism; and being in 1776 chosen chaplain to congress, he resigned his salary for the relief of the families of those patriots who had fallen in battle. Yet he lost confidence in the cause of independence, and in 1777 addressed a letter to Washington in which he pictured the hopelessness of resistance, and urged him to cease his desperate and ruinous efforts. Washington transmitted the letter to congress, and, Duché having fled to England, his estate was confiscated as that of a traitor. He returned to America in 1790, but never regained influence or position. He published while in London 2 volumes of sermons, written in an easy and elegant style, which passed through several editions. His wife was a sister of Francis Hopkinson, and his daughter married John Henry, whose political manœuvres in 1812 caused some excitement. The literary character of Duché has been variously estimated. Wharton and Graydon term him weak and vain; Sabine attributes to him brilliant talents, impressive oratory, and fine poetic taste; while all unite in denouncing him, in the language of John Adams in 1777, as "an apostate and traitor."

DUCHESNE, André, a French historian, whose labors gained him the title of the father of French history, born in Isle Bouchard, Touraine, in 1584, died in 1640. He was geographer and historiographer to the king, and died by being crushed under a cart, while on his way from Paris to his country seat. Beside his published works he left more than 100 volumes in MS. Among the most important of the former are *Historiæ Normannorun Scriptores Antiqui* (fol., Paris, 1619); *Historiæ Francorum Scriptores* (fol., Paris, 1633–'5); and some genealogical histories.—His son, François, born in 1616, died in 1640, was also historiographer to the king, and wrote a history of the popes (2 vols. fol., Paris, 1653).

DUCHESNE DE GISORS, Jean Baptiste Joseph, a French painter, born in Gisors, department of Eure, Dec. 8, 1770, died there, March 25, 1856. He removed to Paris at an early age, and made himself prominent in 1812 by a remarkable portrait of Napoleon. After the restoration of the Bourbons he became court painter. His miniature of the duchess de Berry is considered a unique specimen of the art. He was much employed by the royal families of England and Belgium, and between 1840 and 1848 was engaged in executing a commission from the French government to continue the series of paintings on enamel in the Louvre commenced by Petitot. He also executed a series in enamel for Queen Victoria after the miniatures of Sir William Ross. Some of the latter, painted in his 82d year, are of the highest excellence.

DUCIS, Jean François, a French poet, born in Versailles, Aug. 22, 1733, died there, March 31, 1816. He made his first appearance in the literary world as the author of the unsuccessful tragedy of *Amélise*. He afterward adapted several of the plays of Shakespeare to the French stage, and in this had considerable success. Of his original dramatic works the best is his *Abufar, ou la famille Arabe*. In the latter part of his life he wrote some shorter poems which are graceful and sweet. He was an adherent of the Bourbons, and refused the place of senator, with 50,000 francs a year, offered him by Napoleon, though he was at the time in great poverty. His works were published at Paris in 1819 in 3 vols.

DUCK, a name applied to birds of the family *anatidæ*, of the order *anseres* or *natatores*. The familiar external characters are a large flattened bill, covered with a soft epidermis rather than horn, and with its sides armed with lamellæ or small teeth-like processes; the tongue is fleshy, with dentated margins; the wings are moderate; the feet at or near the centre of equilibrium; the anterior toes joined by a web; the neck is long. The number of vertebræ is large, especially in the neck; the sternum and pelvis are large and wide, the former with a well developed keel, and posteriorly with 2 openings or deep indentations; the fibula is not entirely anchylosed to the tibia. The gizzard is fleshy and large; the intestines are about 5 times as long as the bird, and the cæcal appendages often ⅓ as long as the body; the trachea and inferior larynx generally bulbous. The ducks are divided into 3 subfamilies, *anatinæ* or river ducks, *fuligulinæ* or sea ducks, and *erismaturinæ* or spiny-tailed ducks. I. The *anatinæ* have the bill equal in width and height, depressed at the tip, which has a hard nail, and the inner portion of the lateral margins lamellated; the tarsi are compressed, and generally as long as the inner toe; the hind toe is bordered with a slight membrane from base to tip. These ducks prefer fresh water, feeding along the edges of streams rather than diving, eating small mollusks and soft aquatic plants; some feed on the land, and roost and build their nests in trees; they are powerful fliers, and have a wide geographical range. In the genus *dafila* (Leach) is the pin-tail duck (*D. acuta*, Linn.), having the bill lead-colored with a black spot at the tip, a long slender neck, the wing speculum of a purple or coppery red with deep green reflections and black border, the feathers with broad white tips, and a long and pointed light gray tail, dark brown in the middle; in the adult male the head, cheeks, throat, upper part of front neck, and sides are dark brown; a small part of hind neck dark green, almost black; the upper parts in general undulated with narrow bars of brownish black and yellowish white; wings grayish; upper tail coverts cream-colored; an oblique white band on the side of the neck; lower parts white, undulated like the back or the sides, and lower tail coverts black, white-edged at the side. The female and young are variegated with brown and brownish white; the speculum is dusky green, and the long tail feathers are

wanting; they are sometimes called gray ducks. The male is about 29 inches long to end of tail, extent of wings 36 inches, weight about 2 lbs.; the females are smaller. It is most commonly seen on the inland ponds of the west and south of the United States from early autumn to spring, in company with teals, widgeons, and mallards; the breeding place is in the far north, in passing to and from which the birds are seen on the coast. They are very graceful on the water, rarely dive, and are less shy than most others of the family; a favorite article of food is the beech nut; they will also eat tadpoles, leeches, insects, and even dead animal matter; the flesh is much esteemed for food. Several species are found in South America, Europe, Africa, and Asia, migrating to temperate regions from the north. The typical genus *anas* (Linn.) includes the mallard or common wild duck, the origin of the domesticated species. The mallard (*A. boschas*, Linn.) has a bright purple speculum with green reflections and black border, the secondaries broadly tipped with white, and the secondary coverts with white ends and black border; the head and neck deep green, a white ring around the middle of the neck; the breast reddish brown; fore part of back light brown, the rest darker, and rump black with green reflections; upper surface of wings grayish brown; sides and lower parts pale gray with dusky bars; the length is about 24 inches, extent of wings 36, and weight 2½ to 3 lbs.; the females are smaller, of a brownish color, with a less brilliant speculum and the head and neck with dusky streaks. This species is smaller but more beautiful than the domestic races which have sprung from it; the wild bird may be known from the tame by its soft and pliable feet, which in the latter become hard and wider from walking over gravel and roads. The mallard is found abundantly from New York southward and westward, being replaced to the northward, according to Audubon, by the velvet duck (*oidemia fusca*, Linn.); it is rarely seen on salt water, except when migrating. The flight is strong and rapid, easily commenced from land or water; when alarmed it utters many loud quacks; it is truly omnivorous, devouring any thing eatable, even carrion and small animals that come in its way; beside man, its principal enemies are hawks and owls, the raccoon, lynx, and the snapping turtle. The flesh of the young birds is much esteemed; the large hybrids produced from the mallard and Muscovy duck are excellent for the table; this species also breeds with the black duck and the gadwall, the latter hybrid being very handsome, retaining the yellow feet and barred plumage of the one and the green head of the other parent. The black or dusky duck (*A. obscura*, Gmel.) is so called from its general dusky plumage; the speculum is green, with purple reflections and black border, and the secondaries are tipped with white. In shape and habits it resembles the mallard, and no doubt could be easily domesticated; the flesh of the young birds is excellent, and the feathers are soft and elastic. The shoveller duck (*spatula clypeata*, Linn.), or spoon-bill as it is called by sportsmen, has the bill twice as broad at the end as at the base, much rounded, with the sides at the base so closely pectinated as to resemble the teeth of a fine comb; the head and neck are glossy green, upper part of breast white, rest of lower parts chestnut, except the lower tail coverts, and a black band across the vent; sides yellowish with dark pencillings; secondaries greenish, the inner with terminal white spots; primaries dark brown, with white shafts; lesser wing coverts light blue; speculum golden green; rump greenish black, white at the sides; tail dark brown, with pointed feathers broadly edged with white; length about 21 inches, extent of wings 32, weight 1½ to 1¾ lbs. It associates with teals, mallards, and gadwalls, and is omnivorous; its flesh is much prized, and Audubon says that no sportsman who is a judge will pass a shoveller to shoot a canvas-back; it is comparatively a rare duck, and is most common in the southern and western states. The Australian genus *malacorhynchus* (Swains.) is nearly allied to the shoveller. The Muscovy duck (*cairina moschata*, Linn.), more properly called musk duck, is distinguished by the rounded red tubercle or carbuncle on the top of the bill at the base; the color is glossy black, with the wing coverts white; by its lobed hind toe it connects the river ducks with the next subfamily. It is of large size, being about 33 inches long; it has an odor of musk, proceeding from the coccygeal glands, which is communicated to the flesh; in its pure state it is difficult to raise, but it breeds well with the mallard, and in this domesticated state its plumage is more white, and the musky odor is absent. It is supposed to have originally come from South America, whence it has spread over the world. To the river ducks belong the genera *tadorna* (Leach), the European sheldrake, this name in America being applied to a merganser; *aix* (Boie), the wood or summer duck; *mareca* (Steph.), the widgeon; *querquedula* (Steph.), the green-winged teal; *pterocyanea* (Pr. Bonap.), the blue-winged teal; and *chaulelasmus* (Gray), the gadwall; these will be described under their respective common names. II. The sea ducks, or *fuligulinæ*, have the bill higher than broad, depressed at the tip, which is armed with a broad strong nail; the wings are moderate and pointed, the tail generally short and wedge-shaped, the tarsi compressed and much shorter than the middle toe; the toes long and united by a full web, the outer as long as the middle; the hind toe short, with a deep membranous web. These ducks are generally marine, feeding on mollusks and small fish, which gives to their flesh a strong flavor; most are excellent fliers. The genus *fuligula* (Steph.) includes the scaup duck and the ring neck. The scaup duck (*F. marila*, Linn.) has the head, neck, fore part of back, and breast black, glossed with purple and green, and the last two tinged with brown; the rest of the upper parts and ab-

domen brownish black; the middle back, scapulars, secondaries, front of abdomen, and sides grayish white, with undulating fine black lines; middle of breast white; wings light brownish gray; speculum on the brownish black secondaries white; the length is about 17 inches, extent of wings 29, and weight 1½ lbs.; the females are more brown and white. This duck, which is called broad-bill and blue-bill, is found along the Atlantic coast and also on the western rivers; it arrives from the north in October in large flocks, which at first may be easily decoyed; when wounded, it is very difficult to obtain on account of its diving, and from its fishy taste is hardly worth shooting; its flight is rapid and high. The ring-necked duck (*F. rufitorques*, Pr. Bonap.) has a tufted head, which with the upper neck is greenish black, with purple reflections; on the neck is a brownish red ring, widest in front; a triangular white spot at the base of the lower mandible; upper parts generally brownish black, lower parts grayish white; outer secondaries with slate-colored webs, tipped with white; tail brownish gray; the length is about 18 inches, and the extent of wings 28. The female has a white band on the forehead, upper parts brownish, below white. It is met with on the coast and in the interior; it swims, dives, and flies well; its flesh is said to be excellent, not having the fishy flavor of the scaup duck. Other species of the genus are found in the northern parts of Europe and Asia, and one in New Zealand; the European tufted duck is the *F. cristata* (Linn.). The genus *nyroca* (Flem.), including the canvas-back (see Canvas-Back), which by some authors is put in the preceding genus, is represented here also by the red-head (*N. ferina*, Linn.); this species has a bluish bill, black toward the end; in general appearance it resembles the canvas-back, except that the head and upper neck all round are dark chestnut, and the back is grayish brown, barred with fine white lines; the length is 20 inches, extent of wings 33, and weight 2½ lbs.; in the female the head and neck are brown like the back. The red-head, like the canvas-back, is very common in the Chesapeake, but is rare north of New York; its flesh is as good as that of the canvas-back, and it is often sold for it to the inexperienced; it arrives about November, leaving for the north to breed in early spring. The genus *clangula* (Flem.) contains several well known species, among them the golden-eyed duck (*C. Americana*, Pr. Bonap.); this bird has a black bill, with a white spot between the base and eye; head with a crest of feathers more than an inch long; iris bright yellow; head and upper neck rich green with purple reflections; rest of neck and plumage generally white; back and wings blackish, with a patch of white on the latter formed by the secondaries and tips of the coverts; sides of rump grayish; the length is 20 inches, extent of wings 31, and weight about 2¼ lbs.; the female is dull brown above, white below, with dusky wings. This species arrives with the other sea ducks in the autumn from their breeding places in the north; it is found from high arctic latitudes to Florida, both on the coast and in the interior; its food consists of mollusks, crustaceans, and small fish, which it procures by diving. Its flight is strong and very rapid, and accompanied by a sound which has caused this bird to be called whistler; the flesh has a fishy taste, which is relished by some; though shy and difficult to approach, it will generally alight at the decoys of the gunner on the coast. The buffel-headed duck (*C. albeola*, Linn.), or spirit duck, is a miniature representative of the golden-eye; the bill is blue; the head crested; a patch behind the eye, going over the head, and band on the wings, white; rest of head and hind neck glossy green, with purple reflections; fore neck, breast, and sides pure white; abdomen dusky white; tail and upper coverts grayish brown; back and wings black, the latter with a white patch; the length 14½ inches, extent of wings 23, weight 1 lb.; the female is sooty brown above, breast and abdomen soiled white, fore neck ash-colored, with a white band on the sides of the head. This duck receives its common name from the disproportionate size of the head compared with the body; from its diving habits it is also called dipper; the flight is very rapid, and its distribution extensive; its flesh is fishy. The harlequin duck (*C. histrionica*, Linn.) is a beautiful and singularly marked species, and much prized as a cabinet specimen; the bill is yellowish olive; a broad black streak passes over the top of the head, margined with reddish brown; front of the eye and a spot behind it white; a slightly curved white line on the neck; sides of head and neck purplish blue; a complete ring of white below the middle of the neck; a band of white in front of the wing, passing on the breast, edged with black; fore back light blue, becoming black behind; scapulars white, and secondaries tipped with the same, forming a bar on the wings; fore breast light blue, abdomen brownish; quills dark brown, tail grayish black; under the tail at base a white spot; the length is 17 inches, extent of wings 26½, and weight 1½ lbs.; the female is grayish brown. It is rare on the coast south of Massachusetts, but common to the north, especially in the British provinces; it is shy, an excellent flier and diver, difficult to obtain, and not much prized as food. The long-tailed duck (*heralda glacialis*, Linn.), called also "old wife" and "old squaw," has the bill black at the base, orange yellow at the end, with a bluish gray nail; iris carmine; a grayish white patch from the bill to behind the ear; upper part of head and nape black, narrower in front; neck all round and fore breast chocolate-brown; back and wing coverts brownish black; scapulars margined with light brown. This is the male summer plumage; in winter, the head, neck, fore back, and scapulars are white; upper parts brownish black, as are the 4 middle tail feathers; lower parts and the outer tail feathers white. The 2 median tail feathers extend several inches

beyond the others; length to end of tail feathers 23 inches, and extent of wings 30. The feathers are dense and blended, enabling the bird to resist the extreme cold of the arctic regions; in the winter it is found in all the Atlantic districts; it is timid, a swift flier and ready diver; the flesh is tough and fishy. The pied duck (*camptolaimus Labradora*, Gmel.) has the wing coverts and secondaries white, forming a large patch on the wings; the cheeks are furnished with bristly feathers; the bill is orange at the base, black at the end, with the sides of the upper mandible very thin, and the under deeply serrated; a black band on the top of the head; rest of head and upper neck white; in the middle of neck a broad black ring, the same color passing down the back; lower neck white; upper breast and sides black; lower plumage brownish black, as are the primaries and their coverts; the length is 20 inches, extent of wings 30, and weight nearly 2 lbs.; the female is bluish gray above, ash-gray below, with secondaries and sides of head white. This species, called the skunk and sand-shoal duck, does not seem to go further south than Chesapeake bay; it is essentially a marine bird, rarely entering rivers; it procures by diving over sand bars shellfish and small fry; its flesh is not considered a delicacy. The genus *somateria* (Leach) contains the eider and the king duck, which will be described under the former title. The genus *oidemia* (Flem.) includes those sea ducks which are erroneously called coots in New England. The velvet duck (*O. fusca*, Linn.) has the plumage generally black, with a spot under the eye and a large patch on the wings, formed by the secondaries, white; hence the name white-winged coot; the base and sides of the bill black, the sides bright red, and the nail orange or flesh-colored; iris bright yellow; the length is 22 inches, extent of wings 39, and weight about 3½ lbs.; the female is sooty brown, the lower parts lighter. These birds are seen in large flocks in the autumn along the Atlantic coast, when they are shot in great numbers from boats stationed near the shore; on account of the density of the plumage they require a heavy charge to kill them; though breeding in lakes and rivers, they are rarely seen during migration away from the sea. The flesh is dark, with a fishy flavor, but is relished by some persons. The surf duck (*O. perspicillata*, Linn.) has a bill of a reddish orange color, paler on the sides, with a black patch at the side of the base of the upper mandible; the plumage is black, except a white patch on the crown and hind neck; the eyes white; legs and feet reddish orange; the length is 20 inches, extent of wings 33, and the weight 2½ lbs; the female has a brownish tinge to the black plumage. This is also called coot, and associates with the preceding species, which it resembles in its habits; it is frequently called black duck; it is shy, and difficult to shoot except on the wing; the flesh is tough and fishy. The American scoter, or butter-bill coot, has a bill of a deep orange color at the base and black at the end; the general color of the plumage is black, bluish on the hind neck, the scapulars tinged with green; tail graduated; the length is 19 inches, and the extent of wings about 32. This associates with the other species of the genus. The *O. nigra* (Linn.) is a European bird. It is probable that the American scoters, like other birds breeding in the far north, are occasionally seen in Europe. III. The spiny-tailed ducks, *erismaturinæ*, have the bill elevated at the base and depressed at the tip, with a nail; the wings are short and concave, with the ends of the quills incurved; the tail is lengthened, of narrow, rigid feathers, slightly protected with coverts above and below; the tarsi are shorter than the middle toe, compressed; the toes long, united by a full web, the hind toe long with a broad web. These ducks are short fliers from the smallness of their wings, and their geographical distribution is not extensive. In the genus *biziura* (Leach), peculiar to Australia, there hangs from the lower mandible a large compressed wattle; the wings are very short, and furnished with 2 blunt tubercles at the shoulder. The best known species is *B. lobata* (Shaw). The ruddy duck (*erismatura rubida*, Wils.) has a grayish blue bill, the iris hazel, and the eye situated very high up; upper part of the head black, terminating in a point behind; sides of the head white; chin with a yellowish brown tinge; upper parts and sides reddish brown; lower parts white, with dusky bars; the tail black, short, and rounded; wings blackish brown; the length is 15 inches, extent of wings 22, and weight 1¾ lbs. The plumage varies much at different ages. It is common in Chesapeake bay, where it is called salt-water teal; it is found all along the coast and on the Ohio and Mississippi rivers. It is an excellent diver, but is by no means shy; when young and fat the flesh is tender and of good flavor. The saw-bill ducks will be described under MERGANSER, to which subfamily they belong.—The domestic duck is derived principally from the mallard, mixed in some cases with the musk duck and the gadwall, and perhaps the black duck. The variety considered the best here is the Aylesbury duck, from the town of that name in Buckinghamshire, England; many thousand pounds sterling worth of ducks are sent annually to London from this place, and almost all the broods are hatched under hens, as being more certain sitters; the most prized are pure white, with pale bill and legs. The advantages of this breed are their great size, easy management, and productiveness; they are early layers and good hatchers, and easily raised; beside, they are ornamental, with fine, white, downy feathers, pure skin, and white, delicate, and savory flesh; from their size they are the most profitable; at the age of 8 months a pair should weigh from 10 to 12 lbs. The large Rouen duck, originally from France, very prolific in eggs, is about 30 inches long; the back is sooty black; it is generally believed to be a half domesticated

species escaped from man's restraint, and afterward again subjected to him; it breeds readily with the common variety. Other varieties are the Flemish crested, black and white Poland, and Silesian ducks; the musk duck is a distinct species. The Chinese are famous for rearing immense numbers of ducks, which are hatched by artificial heat applied to the eggs placed in boxes of sand; they are fed with boiled crawfishes and crabs cut in small pieces and mixed with boiled rice; they are kept in boats, 300 or 400 in each, going out to feed in the morning and returning when wanted at the voice of their master. When it is considered that many thousand boats, each the residence of a family, crowd the river near Canton and other Chinese cities, an idea of the immense number of the ducks may be formed. In many parts of India a large and profitable trade is carried on in these birds. Tame ducks are in general easily reared, as, being omnivorous, they pick up a great part of their own living for a large part of the year. As the duck is generally a careless mother, a hen is almost always made to hatch out the ducklings, and most persons are familiar with the anxiety of the foster mother when her young brood takes to water for the first time. As a general thing the rearing of ducks is considered less profitable than that of other poultry.

DUCKWORTH, Sir John Thomas, an English admiral, born in Leatherhead, Surrey, Feb. 28, 1748, died in Plymouth, April 31, 1817. He entered the navy in 1759, was made a lieutenant in 1770, a post-captain in 1780, and in the action of June 1, 1794, in which the French fleet was defeated by the English squadron under Lord Howe, commanded a 74-gun ship. In 1798 he contributed to the conquest of the island of Minorca, and in 1799 was made rear admiral. Having afterward become vice-admiral, he defeated a French fleet in the bay of St. Domingo in 1806, for which he received the thanks of both houses of parliament, an annuity of £1,000 a year, and other rewards. He sat for a time in parliament, was governor and commander-in-chief of Newfoundland from 1810 to 1815, and on his recall to England was appointed governor of Plymouth. He was made a baronet in 1813.

DUCLOS, Charles Pineau, a French author, born in Dinan, Brittany, Feb. 12, 1704, died in Paris, March 26, 1772. He studied in Paris, at first with a view to the law, but his tastes and association with the prominent wits of the day inclined him to the pursuit of letters. The first work which gained him reputation was his *Histoire de la baronne de Luz* (1741), the success of which was equalled or surpassed by that of the *Confessions du comte de* * * *, published the next year. His *Histoire de Louis XI.* was not so well received by the public, and was suppressed by the government in 1745, though in 1750 he became historiographer of France. A collection of moral essays, entitled *Considérations sur les mœurs de ce siècle*, is the chief basis of his reputation. He contributed largely to the *Mémoires* of the academy of inscriptions and belles-lettres, of which he became a member in 1739, and to the 4th edition of the dictionary of the French academy, to which he was admitted in 1747. His writings are disfigured by the characteristic indecency of his age, to which his dissolute life naturally disposed him. They have been collected and several times republished (10 vols. 8vo., Paris, 1806; 3 vols. 8vo., 1821).

DUCORNET, Louis César Joseph, a French artist, born in Lille, Jan. 10, 1806, died April 27, 1856. He was born without arms, but by patience and courage was enabled in childhood to obviate in a great measure the effects of this misfortune by making his feet perform all the ordinary offices of hands. His father hoped to turn this pedal dexterity to some advantage by educating him to become an engraver of music or a writing master. Young Ducornet, however, had conceived a taste for painting, and so much astonished Watteau, professor at the school of design in Lille, by the drawings which he executed with his feet, that at the age of 13 he was received into the school as a pupil. Three years later he obtained the first prize for a drawing of the human figure from nature, on which occasion his native city settled upon him a pension of 300 francs, which was subsequently increased by the government to 1,500. Enabled by this means to pursue his studies in Paris, he produced in 1828 his "Parting of Hector and Andromache," which he presented to the city of Lille. After the revolution of 1830 his pension was withheld. During the remainder of his career he painted numerous pictures of history and *genre*, and portraits, which have obtained considerable popularity, less on account of their merits, perhaps, which are considerable, than of the extraordinary circumstances under which they were executed. One of his latest works, "Edith finding the Body of Harold" (exhibited in 1855), was painted for Napoleon III. Ducornet was not only destitute of arms, but there were certain malformations in his lower limbs which seemed to present insurmountable obstacles to the acquisition of proficiency in his art. He nevertheless used his brushes with remarkable dexterity, passing them from one foot to the other with rapidity, and making the most delicate strokes with perfect ease and accuracy. He had but 4 toes on each foot, but the wide space thereby left between the great toe and the next one, by enabling him to grasp his brushes and maul stick firmly, rather facilitated the operation of painting. He was of a vivacious temperament, and in an animated conversation was in the habit of gesticulating with his legs as an ordinary person would with his arms. His father was his inseparable companion, frequently carrying him on his shoulders that his feet might not become incapacitated for painting.

DUCTILITY (Lat. *ductilis*, from *duco*, to draw), the property of bodies in virtue of which they may be drawn out in length without fracture. Malleability is a similar property, and

both are sometimes found in the highest degree in the same substance; thus, gold may be drawn out into the finest wire or beaten into the thinnest leaf. Iron from its fibrous texture admits of being drawn into delicate wire of great strength, but it appears deficient in the laminated structure by which it may be hammered into fine leaves. The arrangement of bodies according to their ductility is nearly the same as that according to their malleability. Gold is the most ductile of all substances; others succeed it thus: silver, platinum, iron, copper, zinc, tin, lead, nickel, palladium, cadmium. Though this property is possessed in the highest degree by most of the metals, it is also shared by other bodies, as by glass when softened by a red heat. In this condition, by merely inserting a hooked wire into the soft mass, a thread is drawn out of more uniform size than could be obtained by this simple method from the most ductile metal. Attaching the thread to the circumference of a revolving cylinder, the glass is coiled around it in a fibre nearly as fine and flexible as that of the silkworm. The highly elastic gums possess a certain degree of ductility, and wax acquires the same property when it is softened by heat. Other bodies become ductile when mixed with some fluid to make a paste, as clay or flour with water, whiting mixed with oil to make putty, &c. As seen in glass and wax, a change of temperature affects the ductility of some bodies. Some are rendered more ductile by increasing their temperature nearly to the fusing point; gold, silver, lead, &c., are not thus affected; brass and the variety of bar iron know as red-short are less ductile when heated than at the ordinary temperature. It is on the property of ductility that the preparation of metallic wires depends. These are drawn through successive holes in a steel plate, each hole of less diameter than the preceding; and for very fine wires a coating of another metal serves to protect the inner wire, which is afterward isolated by dissolving the outer metal in some solvent which does not affect the other. Platinum thus protected by silver was drawn out by Dr. Wollaston in wire only $\frac{1}{300}$ of an inch in thickness.

DUDDON, a river of England, celebrated by Wordsworth in a series of sonnets. It rises near the stones which mark the junction of the counties of Cumberland, Lancashire, and Westmoreland, flows 20 m. in a S. direction, and discharges its waters into the Irish channel by a broad estuary, forming at low tide an immense surface of sand flats nearly dry.

DU DEFFAND, Madame. See Deffand.

DUDEVANT, Amantine Lucile Aurore Dupin, a French novelist, celebrated under the assumed name of George Sand, born in Paris, July 5, 1804. Her father, Maurice Dupin, died when she was scarcely 4 years old, leaving her to the care of her grandmother, the countess de Horn, who was the illegitimate daughter of Marshal Saxe, the natural son of Augustus II., king of Poland, and of the celebrated countess Aurora de Königsmark. She received her first education at the family country seat of Nohant, near La Châtre, where she led a somewhat eccentric life. She subsequently spent nearly 2 years at an aristocratic boarding school in Paris known as *le couvent des Anglaises*, where she became a devout Catholic, and at one time entertained a design of taking the veil. In 1820 she returned to Nohant, and on the death of her grandmother a few months later, lived with some friends in the vicinity of Melun. Here she became acquainted with a young man of 26, Casimir Dudevant, to whom she was married in Sept. 1822. The young couple took up their abode at Nohant, but after a few months of comparative bliss came to the conclusion that their tempers, habits, and tastes could not harmonize. Disagreement increased yearly through trifling causes, and the estrangement was embittered by pecuniary embarrassments. Finally in 1831 Mme. Dudevant, desirous of trying her fortune as a writer, obtained permission of her husband to pass 3 months out of every 6 in Paris. She consequently repaired to the metropolis, and through her countryman Jules Sandeau, whom she had previously known at La Châtre, was introduced to Henri Delatouche, then editor of the *Figaro*. She contributed a few articles to that paper, but not possessing the extemporaneous facility requisite for a journalist, she found herself entirely dependent upon the meagre allowance of 1,500 francs paid by her husband. In order to reduce her expenses, and to visit unnoticed the public galleries, libraries, and theatres, she assumed the dress of a male student. Meanwhile she wrote a novel in conjunction with her friend Jules Sandeau, who succeeded in finding a publisher. This first performance, entitled *Rose et Blanche*, and bearing the name of Jules Sand, was received favorably enough to encourage the publisher to take another novel from the same hands. Sandeau had nothing ready, but his associate had just completed during a stay at Nohant a book which appeared in May, 1832. This was *Indiana*, which had a brilliant success. Jules Sandeau, modestly declining any share in a work which was, in part at least, ascribed to him, resumed his full name; and by Delatouche's advice the lady kept the shortened appellation of Sand, with the prefix George. About the same time it was rumored that the successful author was a woman, and this added to the interest created by *Indiana*. This was soon followed by *Valentine*, a scarcely less striking and more perfect production, which was also eagerly received. "George Sand" became then a favorite novel writer for the *Revue des deux mondes*. In 1833 she produced *Lélia*, the boldest if not the greatest of her efforts, which caused a profound sensation by the principles of infidelity and social disorder which it seemed to advocate. From this time the author was looked on with dread and suspicion by many of her former admirers. To recruit her health, she now started for Italy in company with Alfred de Musset, the poet; but they separated in

Venice, he returning to France after a severe illness, and she remaining to write her *Jacques*, *André*, and *Les lettres d'un voyageur*. On her return to France in the beginning of 1835, she met Michel de Bourges, the eloquent lawyer, who drew her into politics, Lamennais, with whom she debated the highest questions of religion, and Pierre Leroux, who was her initiator into the doctrines of socialism. Their influence was perceptible in several of her subsequent works, such as *Simon*, *Spiridion*, and *Consuelo*. The difficulties with her husband had so increased that a separation was desirable for both; and through the management of Michel, who had become her counsel, she obtained a decree by which she was separated from her husband, and restored to the management of her own fortune and the guardianship of her children. Her life now became comparatively settled; she made Nohant a resort for her friends, and attended to her children's education, without neglecting her literary labors. In 1838, for the benefit of her son's health, she spent a winter in Majorca, where she was accompanied by the pianist Chopin. In 1845 she turned her pen to new and more congenial subjects, and began to write pastoral novels unparalleled for charm, simplicity, and artlessness; among these are *François le Champi* (first produced as a play in 1849), *La petite Fadette*, and *La mare au diable*. The revolution of Feb. 1848, brought her again into the political arena, and she is said to have upheld with her pen many of the measures of Ledru-Rollin, then a member of the provisional government; but a few months afterward she returned to her favorite country seat and her wonted occupation. In 1854 she published in the *Presse* newspaper an interesting autobiography, entitled *Histoire de ma vie*, which does not go beyond the year 1845. *La filleule* deserves a special notice among her recent productions; the latest of which are *La Daniela*, *L'homme de neige*, and *Elle et lui*, in the *Revue des deux mondes*. She has also written several plays, of which *François le Champi* has been the most successful; her last effort in this line was an adaptation of Shakespeare's "Midsummer Night's Dream," performed in Paris in 1857. Many of George Sand's works have been translated and published in the United States, *Consuelo* and *Teverino* among the number. Among the distinguished names in modern French literature, for beauty and vigor of style she is without a peer.

DUDLEY, a town, parish, and parliamentary borough of Worcestershire, England, but locally comprised in the co. of Stafford, which entirely surrounds it; pop. in 1851, 37,962. The town stands on a hill about 8 m. from Birmingham, and contains 4 churches and a number of chapels of various denominations. The charitable foundations, such as free schools, infirmaries, and industrial schools, are numerous. In addition to these there are a grammar school founded in the reign of Elizabeth, many literary and scientific societies, and a museum of natural curiosities. The neighborhood furnishes almost inexhaustible supplies of iron, which is here manufactured and transported by canal to all parts of the kingdom. Coal is obtained in like abundance. At a place called Queen's Cross there is a coal mine in a state of ignition, the smoke and gas from which issue from the crevices in the rocks. Such phenomena are by no means uncommon in Dudley; subterranean fires of this description have broken out here at times for upward of a century. The limestone quarries of the neighborhood are remarkable. The stone is usually excavated from the solid rock, leaving vast caverns, the roofs of which are supported by limestone pillars. One of these caverns is 2 m. long, and traversed by a canal by which the quarried material is conveyed away. In the 8th century Dudo or Dodo, a mythical Saxon prince, is said to have built on an eminence near here a strong castle, the ruins of which still remain. It is of oblong shape, and has a tower at each end. In 1644 it was garrisoned by a body of royalists under Col. Beaumont, and held out for 3 weeks against the parliamentary forces. Dudley sends one member to the house of commons.

DUDLEY, the name of an English historical family, descended from John de Somerie, who acquired the castle and lordship of Dudley in the reign of Henry II. The barony passed by marriage from the house of Somerie to that of Sutton in the reign of Edward II. John Sutton (Lord Dudley, died in 1487) was distinguished as a soldier in the wars of the roses, and left 2 sons, Edward and John. A grandson of the latter was Edmund Dudley, the extortionary minister of Henry VII., who was executed for high treason under Henry VIII. (Aug. 18, 1510). His son John Dudley (1502–1553) was created Viscount L'Isle by Henry VIII. (1542), earl of Warwick by Edward VI. (1547), and after effecting the ruin of the duke of Somerset was made duke of Northumberland (1551). He persuaded the young king Edward to set aside his sisters Mary and Elizabeth from the succession, and bequeath the crown to Lady Jane Grey, who belonged to a branch of the royal family, and had married Lord Guilford Dudley, a son of Northumberland. The attempt proved a failure, and Northumberland perished with his son and daughter-in-law on the scaffold. His son Ambrose (1530–1589), usually called the good earl of Warwick, to which dignity he was restored by Elizabeth (1561), served in youth in the Netherlands, and was afterward a distinguished ornament of the English court. He died childless.—Robert, younger brother of the preceding, earl of Leicester, the favorite of Queen Elizabeth, born about 1531, died in Cornbury, Oxfordshire, Sept. 4, 1588. He came early into the service of Edward VI., by whom he was knighted. In 1550 he married Amy, the daughter and heiress of Sir John Robsart, the nuptials being solemnized in presence of the young king. In the first year of Mary he was imprisoned and condemned with his father for the attempt to transfer the succession to

Lady Jane Grey, but the sentence of death was soon remitted, and he was afterward restored in blood. On the accession of Elizabeth he met with rapid preferment, his elegant and courtly address winning for him the chief place in the personal esteem of the queen. He was made master of the horse, knight of the garter, and privy councillor, and was enabled to maintain the splendor of his station by grants of manors and castles. The queen was delighted with his society, and their intimacy was the occasion of scandal, and of a belief that he was encouraged to aspire to the hand of his sovereign. In 1560 his countess died, not without suspicion of violence, in the lonely mansion of Cumnor, in Berkshire, where she was living in retirement; and when, soon after, the English queen proposed the marriage of Dudley with Mary of Scotland, the latter declined the offer, on the ground that Dudley was the chosen spouse of Elizabeth, who wished only to exalt his dignity by giving him an opportunity to reject the hand of some other princess. In 1564 he was created baron of Denbigh and earl of Leicester, and was elected chancellor of the university of Oxford, as he had formerly been high steward of that of Cambridge, and his favor at court caused other important offices throughout the kingdom to be conferred upon him. He soon after engaged in an intrigue with Lady Douglas Howard, widow of Lord Sheffield, who bore him a son, and claimed to have been privately married to him. In 1575 he was at the height of his power, and had the honor of entertaining the queen for 17 days at his castle of Kenilworth, in Warwickshire, on the decoration of which he is said by Dugdale to have expended £60,000, and the pageants and festivities on the occasion were hardly surpassed in magnificence even in that splendid reign. At what time he abandoned Lady Sheffield for the countess of Essex is uncertain, but in 1576 he secretly married the latter, immediately after she had become a widow. This marriage was at length revealed to Elizabeth, who was so enraged that she was with difficulty dissuaded from committing him to the tower, and she never forgave the woman who had gained his love. Even the young earl of Essex, in the height of his influence, pleaded for his mother in vain. A virulent and skilfully written book against him, entitled "Leicester's Commonwealth," was published in 1584, and was many times reprinted under different titles. The queen at length pronounced the anonymous author of it an "incarnate devil," and commanded her council to contradict it on her own personal knowledge and authority. In 1585 he commanded the English forces in the Netherlands, and received from the United Provinces the office of captain-general, and the whole control of their army and finances. This triumph of his ambition offended Elizabeth, and his ill success in the field against Alexander Farnese disappointed the Hollanders. In 1586 he was called back to England to give his advice in the case of the queen of the Scots, and recommended that she should be secretly despatched by poison; and in 1587 he returned to Holland, where his administration was so unpopular that he was soon recalled. In 1588, when the Spanish armada menaced the kingdom, he received an almost unprecedented share of the royal authority, being nominated to the new office of lord lieutenant of England and Ireland; and he commanded the forces at Tilbury for the defence of the capital, which were reviewed by the queen. He set out thence for his castle of Kenilworth, but was attacked with a violent malady, and died on the way. Notwithstanding his dissolute life, he affected in his letters a religious style, frequented sermons, observed fasts, and gave lands for charitable endowments. He erected the hospital at Warwick, and gave its mastership to a Puritan divine. The first marriage of Leicester is the theme of Sir Walter Scott's novel of "Kenilworth."—Sir Robert, son of the preceding by Lady Sheffield, born in Sheen, Surrey, in 1573, died near Florence in 1639. He fitted out a maritime expedition at his own expense, with which he sailed to America in 1594, and captured some Spanish vessels. In 1596 he distinguished himself at the taking of Cadiz. On his return to England he attempted to establish his legitimacy and secure his paternal estates, but was defeated in his efforts by his father's widow, the countess of Essex. He soon after, though a married man, seduced the daughter of Sir Robert Southwell, fled with her to Florence, and, assuming the title of earl of Warwick, was made chamberlain to the grand duchess of Tuscany, and duke of the holy Roman empire. He now added to his former title that of duke of Northumberland. Meanwhile his estates in England were confiscated, and he was outlawed, but at the Tuscan court his honors increased. By draining a vast morass between Pisa and the sea he made Leghorn a large and beautiful town. He improved its harbor, caused the duke to declare it a free port, drew many English merchants to settle there, and having received for his services a liberal pension, built a noble palace in the capital, and beautified his country seat of Carbello, 3 miles from Florence. He patronized literature, and was himself the author of several works, the best known of which is his *Del arcano del mare*, a remarkable collection of tracts on commerce and navigation (Florence, 1630, 1646; there is a copy in the British museum dated 1661).—The castle of Dudley belonged to the family of Sutton till in 1697 it passed by marriage to that of Ward. John Ward (died in 1774) was created (1763) viscount of Dudley and Ward, and this viscounty continued till it became extinct at the death of John William Ward (1781–1833), who entered the house of commons in 1802, and became secretary of state under Canning, April 3, 1827. He was a friend of Lord Byron.

DUDLEY, the name of several royal officers of Massachusetts.—Thomas, governor of the province, born in Northampton, England, in 1576, died in Roxbury, Mass., July 31, 1652. In 1630

he came to Massachusetts with the commission of deputy governor, and he was afterward chosen governor in the years 1634, 1640, 1645, and 1650. He was a man of integrity and piety, though intolerant, like most of his generation.—Joseph, governor of the province, son of the preceding, born Sept. 23, 1647, died in Roxbury, April 2, 1720. He was graduated at Harvard college in 1665, served in the Indian war in 1675, was sent to England as agent for the province in 1682, appointed president of New England in 1686, superseded by Andros a few months later, and made chief justice. He went to England again in 1689, was chief justice of New York from 1690 to 1693, then 8 years lieutenant-governor of the isle of Wight, and finally governor of Massachusetts from 1702 to 1715. He was a man of high moral character, and a scholar.—Paul, son of the preceding, and chief justice of the province, born Sept. 3, 1675, died in Roxbury, Jan. 21, 1751. He was graduated at Harvard college in 1690, and afterward studied law in London. He returned to Massachusetts in 1702, with the commission of attorney-general. In 1718 he was appointed judge, and on the death of Lynde in 1745, became chief justice. By his will he bequeathed £100 to Harvard college, the interest of which was to be applied to the support of an annual lecture. This lecture is called from its founder the Dudleian lecture, and, according to the direction of the founder, is delivered on one of 4 subjects which are treated of in succession. The 1st of these is natural religion; the 2d, the Christian religion; the 3d, the errors of the Roman Catholic church; and the 4th, to explain, maintain, and prove the validity of the ordination of ministers according to the ancient custom in New England. He was a fellow of the royal society, and beside 12 treatises chiefly on natural history, in the "Transactions" of that association, published a work against the church of Rome.

DUDLEY, Benjamin Winslow, an American surgeon, born in Spottsylvania co., Va., in 1785. He received his education at Transylvania university, Lexington, Ky., and attended lectures at the medical school of the university of Pennsylvania in Philadelphia, where he took his medical degree in 1806. In 1810 he went to Europe for the further study of his profession, where he remained as the pupil of Sir Astley Cooper, the elder Cline, and Abernethy, in London, and Larrey, Dubois, and Boyer, in Paris, till 1814. On his return he established himself in Lexington, Ky., in July, 1814, and on the day of commencing practice, performed two difficult operations, that for strangulated hernia, and trephining in a case of fractured skull. The operation for stone in the bladder, always a formidable one, though of comparative frequency, has won him a high degree of reputation. He has operated for this disease 207 times and only lost 5 patients, and has had occasion to repeat the operation in but one instance. Recently he has applied a ligature to the carotid artery for aneurism within the skull with success, where trephining had been tried before by another surgeon for supposed water on the brain. For the last 5 years Dr. Dudley has withdrawn from active practice. He resides at Lexington, Ky., and has published several medical essays.

DUDLEY, Charles Edward, an American senator, born at Johnson Hall, Staffordshire, England, May 23, 1780, died in Jan. 1841. After the death of his father he came with his mother to Newport, R. I., in 1784. On reaching manhood he entered into trade in that town, and made at least one voyage to the East Indies as supercargo of a ship. He subsequently removed to New York, where in July, 1809, he was married to Blandina, daughter of Rutgers Bleecker, one of the most eminent of the Dutch families of that city. Two years later he removed to Albany. He was elected state senator for 3 successive terms in 1820–'25, mayor of the city in 1821 and 1828, and in 1829 U. S. senator to serve out the unexpired term of 4 years of Martin Van Buren, who had resigned to assume the duties of governor of the state of New York. Mr. Dudley was particularly fond of astronomical science, and had long cherished the hope that it would receive greater attention in this country. His wishes received their accomplishment in 1856, in the erection and endowment of the Dudley observatory at Albany, to which his widow has contributed the munificent sum of $70,000. This institution is supplied with the best instruments for astronomical purposes to be obtained in the United States or Europe, and with all the appliances necessary for rendering it a complete observatory.

DUDLEY, Sir Henry Bate, an English clergyman and author, born in Fenny Compton, Warwickshire, Aug. 25, 1745, died Feb. 1, 1824. Not finding the emoluments of his curacy sufficient for his convivial tastes, he turned his attention to literature, established several newspapers, among others the "Morning Post" and "Morning Herald," and also wrote some dramatic works. His original name was Henry Bate, but in accordance with the will of a relative who left him some property, he assumed in 1784 that of Dudley. He was made a baronet in 1812, and subsequently obtained a prebendal stall in the cathedral of Ely.

DUEL, a premeditated combat between two persons, with deadly weapons, for the purpose of deciding some special difference or quarrel. It is of very ancient origin, considered in a comprehensive sense, though what is now understood specifically by the term dates from the first half of the 16th century. The accounts of single combats that occurred in antiquity are numerous, and are to be found in both sacred and profane history, and in poetry. The celebrated single combat of T. Manlius Torquatus with a gigantic Gaul in the war of 361 B. C., and other instances, prove that the duel was not unknown to the Romans, though the story that Antony challenged Octavius to single combat may be an invention. The Greeks, too, were no strangers to it, and many a single com-

bat of mortals and gods is immortalized in the Iliad; and the fight between David and Goliath has often been mentioned to show that the Jews and other Asiatics were acquainted with the practice. The Arabs of Mohammed's time knew it, and it may be asserted that it has been recognized in almost every community. The barbarians who overran the Roman empire gave to duelling its modern character, which is believed to have had its origin in the wager of battle, or judicial combat, the object of which was to vindicate the innocent. To rude races, by whom courage was held in the highest honor, the belief was natural that success in combat was the test of truth. The trial by combat was legalized as early as A. D. 501; the practice extended, and was maintained for centuries after the modes of thought in which it originated had disappeared. It was recognized as legal in England as late as 1818 by the highest law court, and was abolished by parliament in 1819; but in France its judicial character was never formally admitted after 1547. It belonged to the list of ordeals, and the solemnities that attended its observance were calculated to impose upon men's minds, and to give it the force that proceeds from permanence. Jurists and churchmen upheld it, and monarchs were its patrons and regulators. This class of duels became so common that various attempts were made to lessen their number. By the truce of God, 1041, they could not be fought from Wednesday to Monday, the days intervening being sacred to Christ's passion. In 1167 an edict forbade duels upon claims that did not exceed 2½*d.*, a circumstance that shows their absurdity, for even allowing largely for the change in the value of money, the sum mentioned was less than a dollar. The occurrence of the crusades and the study of the civil law had some effect in abating personal combats.—France was the country in which the duel was most common, and in the reign of the chivalric Francis I. it assumed the character which it has ever since maintained. That king laid down the principle "that the lie was never to be put up with without satisfaction, but by a base-born fellow;" and lies were divided into 32 categories, each having its own particular mode of satisfaction. But it was the king's conduct that had the most influence on the minds of fighting men. The personal quarrel between him and the emperor Charles V. was one of the scandals of that age, and grew out of the determination of the former to break the promises which, as a prisoner, after the battle of Pavia, he had made to the latter, in order to obtain his freedom. The emperor accused the king of violating his pledge, and proposed to make his accusation good with his sword. Francis returned the lie in coarse terms, and offered to meet his rival in arms at any place he might name. Charles named the banks of the Bidassoa, the very spot where he had restored Francis to liberty. By quibbling, the king prevented the meeting he had appeared to desire. The violence of the disputants excited much attention, and from their high rank a most pernicious example was set to the hot spirits of the time. It became the custom to decide disputes with the sword, and from that period dates the modern duel "as far as it relates to mortal combat upon a mere point of honor." It was reported that Francis had offered to fight an eminent German who had offended him, but who had declined the proffered meeting. Duelling became the rage in France, and has so continued until now. The lapse of 3 centuries appears not to have changed the character of French duelling, and the combats in which some of Henry III.'s *mignons* distinguished themselves were in no respect worse than that in which a Paris editor was stabbed by an army officer in 1858. The party dissensions and civil wars of France that raged during the last 30 years of the rule of the house of Valois, and in the early part of the reign of the first Bourbon king, naturally tended to make duelling more common and more savage than it could have been under other circumstances. It was the age, too, of assassination, which shows that duelling does not necessarily imply the existence of the sentiment of honor. Henry IV. has been praised for the efforts which he made to prevent duelling, but his practice was in flagrant opposition to his edicts, and few sovereigns have done more to make single combats fashionable. It is asserted that in his reign 4,000 persons fell in such combats, and that he granted 14,000 pardons for duelling; yet among his edicts was one that made duelling a crime against royalty, punishable with death. He further required that persons who had quarrelled should submit their grievances to the governor of their province, to be laid before the marshals of France and the constable, thus seeking to carry out the idea which had originated with Charles IX., to establish the jurisdiction of the court of honor. Louis XIII. treated duellists as his father had, though justice was done in the case of the infamous Bouteville, one of the Montmorencys, and the worst duellist of his day, who, by the influence of Richelieu, was brought to the scaffold. Louis XIV. set his face against duelling, and the autocratic position to which he attained enabled him to lessen its frequency, though it had been increased by the wars of the Fronde, in the early part of his reign. Edict after edict was issued by him against it, and courts of honor were instituted for its prevention. The regency revived duelling, which Louis XV. sought to stop, but with little effect. John Law was a noted duellist, and the duke de Richelieu was another, while St. Evremont and St. Foix carried dueling to such perfection that they well nigh made it a farce. The reign that ushered in the revolution had its share of duels, a party to one of which was the count d'Artois, afterward Charles X., his antagonist being the duke de Bourbon-Condé, while two of the most famous swordsmen were the chevalier d'Eon and the chevalier de St. Georges. The duke de Lauzun, who served in the forces that were sent to aid the

United States, was a noted duellist. It is a curious circumstance that in the last duel of any moment fought under the old monarchy, the principal party was a man who has exposed admirably the absurdity of duelling, and who was imprisoned for fighting by the court of honor, which was presided over by Richelieu, then more than 90 years old. The first tendency of the revolution was to suppress duelling, both on partisan and patriotic grounds. It was looked upon as aristocratic, and the life of every man was said to belong to his country. When the reaction commenced duelling was revived, and all the more readily and universally because of the ascendency of the military. Napoleon was averse to duelling, but had to tolerate it, even while expressing his contempt for duellists. The story that Sir Sidney Smith challenged him at Acre, and that he answered he would fight a Marlborough, is an invention; but when Gustavus IV. of Sweden sent him a message, his answer was that he would order a fencing master to attend him as a plenipotentiary. The most celebrated duels in France since the revolution were between Gen. Gourgaud and Count Ségur, Col. Pépé and Lamartine, Bugeaud and Dulong, Armand Carrel and Émile de Girardin (in which the former lost his life), Thiers and Bixio, Proudhon the socialist and Félix Pyat. Since 1837 duellists and their seconds are liable to the criminal law in France for any homicide or manslaughter resulting from the duel, but in the conduct of the trial much discretionary power is left to the prosecuting magistrate. There have been female duels in France; a celebrated one was fought under the regency between Madame de Nesle and the countess de Polignac, for the possession of the duke de Richelieu. There was another female duel as late as 1827, and in 1828 one between a young girl and a soldier who had betrayed her, and between a French and a German woman, who were both in love with a painter.—Italy has not been much behind France in duelling, and it was the land of punctilio in those days when the duel was establishing itself in the latter country. The Italians excelled in the use of the lighter descriptions of weapons, and among the multitudes of them who swarmed over the world, adventurers of all kinds, not a few were teachers of the use of arms. Public opinion favored duelling, but it could not prevent assassination, which was as frequent as if the other art of killing had been unknown. The Italians are accused of conducting their duels treacherously, but the practices charged on them might easily be paralleled by facts taken from the history of French duellists. —Single combats were of ordinary occurrence in Spain during the long contest between the Christians and Mussulmans, and duelling was sometimes encouraged by laws which at other times were directed against it. In 1519 Charles V. issued an edict for its suppression; though, as we have seen, it was his conduct in his dispute with the French king that gave to the practice its power in modern times. Of late years individual combats have been rare in Spain, and it was probably his Irish blood that caused the Carlist O'Donnell to challenge the Christino Lopez—a challenge that was accepted, but led to no fight. Duelling is even less common in Portugal than it is in Spain.—Duels were favored by the northern races, and in Denmark women were not allowed champions as in other countries, but compelled to do their own fighting, though certain advantages were permitted them, which enabled them to assert their superiority. In Norway this species of combat was held in high honor, but in Sweden it was nominally forbidden under severe penalties. Gustavus Adolphus was especially opposed to duelling, and on one occasion prepared a gallows for that party who should survive a particular combat; yet he offered the "satisfaction of a gentleman" to an officer whom he had struck.—In Germany duelling is much less in vogue than in France, excepting among students in the universities. In Austria and Hanover the ancient laws on the subject, inflicting long and rigorous imprisonment upon those who kill or maim their antagonists, are still in force, and in the latter country the sentence of death may still be pronounced whenever homicide results from a predetermination of fighting for life or death. A law was passed in Saxony, Aug. 13, 1855, punishing such extreme cases of premeditated homicide with imprisonment, varying from 4 to 20 years; but in all other cases it is limited to a short time, not only in Saxony, but throughout Germany. Tribunals of honor for military men have existed in Prussia since July 20, 1843, for the purpose of reconciling the contending parties when it can be done without prejudice to the military code of honor. If reconciliation is impossible, the duel takes place; if no injury is done, the imprisonment never exceeds 6 months; and even if it prove fatal, never more than 4 years. The duel which created the greatest sensation in Berlin within the last few years was fought in 1856 between Hinckeldey, the president of police, and Rochow, a nobleman and an army officer, in which the former lost his life.—Russia has known little of the duel, the fantastical point of honor being there mostly incomprehensible. Russians when abroad, however, have shown a readiness to fight in single combat quite equal to their steadiness in the battle field. The Poles have proved themselves stanch duellists, and the judicial combat was frequent in old Poland. The Netherlands have closely imitated France, both in duelling and in abortive attempts to suppress it. A new law on duelling was passed in Belgium in 1841.—It has been asserted that single combats were introduced into England by the Normans. They are said to have instituted the wager of battle, from which duelling proceeded, and which it is believed was unknown to the Saxons. Yet Lappenberg states that "William the Conqueror speaks of the judicial combat as a known English custom." It was a favorite mode of procedure, and was not formally abolished until the last

year of the reign of George III.; and as late as 1774 it was defended by some of the greatest men of England. In the chivalrous times there were numerous personal combats in England, but they hardly come under the head of duelling; and duels may properly be said to have commenced in that kingdom about the same time that they did in France, so wide-spread was the effect of the evil example of Francis I. and Charles V. In the reign of James I. there were many duels between British subjects, one of the most noted of which was that fought between Lord Bruce and Sackville, afterward earl of Dorset, in which the former was killed. The cavaliers were a class of men with whom the point of honor was likely to be in as high favor as it was with Lord Herbert of Cherbury, whose fantastic notions had been increased by his residence in France, and whose sensibility on the subject of ladies' "topknots" is among the ludicrous moral features of the duello. Scott has, in "Woodstock" and in "Peveril of the Peak," exhibited their ideas on the subject. One of the sermons delivered by Chillingworth before Charles I. contains a warm expostulation against duelling. Cromwell was a foe to duelling. After the restoration it became still more common, from the spread of French ideas. Some of the English duels of that time were of a character in perfect keeping with its loose morality. The duke of Buckingham killed Lord Shrewsbury; Lady Shrewsbury, on whose account the duel was fought, attending the duke as a page, and then passing the night with her lover. In Anne's reign, the duel between the duke of Hamilton and Lord Mohun, in which both fell, caused much feeling, from its political character, and the atrocities that marked it. Duels became more numerous as society became more orderly, and many of the most distinguished Englishmen took part in them. William Pulteney, leader of the opposition, fought Lord Hervey. Wilkes was engaged in 2 duels. The Byron and Chaworth duel happened in 1765. Throughout the reign of George III. duels were frequent; among those who fought in England were Charles James Fox, Sheridan, Pitt, Canning, Castlereagh, the duke of York, the duke of Richmond, Sir F. Burdett, and Lord Camelford; the last named, a member of the Pitt family, was the great duellist of the time, and fell in a duel in 1804. In the present reign, as well as in those of George IV. and William IV., there have been some noted duels; the strangest of which was that between the duke of Wellington and Lord Winchelsea, in 1829, the duke challenging the earl because of the latter's hot reflections on his conduct at the time he determined upon emancipating the Roman Catholics. The duke fired at his antagonist, who fired in the air, and then apologized. Perhaps no duel of our time had less excuse, because the challenger's character for courage was so completely established. Mr. Roebuck, after admitting that there are circumstances under which duelling is necessary—an admission that shows the strength of the custom—says: "In the duke of Wellington's case, no such imputation could have been hazarded, and his forbearance under insult would have been esteemed by his country as a magnanimous disregard of vexatious annoyance, and would have been appreciated as a proof both that his temper was under the serene control of reason, and that he disdained to avail himself of this wretched means of exhaling his passion, or satisfying his revenge. The nation felt humiliated when they learned that their great hero had submitted to the folly of a duel." Wellington might have pleaded the example of Marlborough, who sought a duel with Lord Paulett, in 1712, which the latter took care to prevent. In 1835 Mr. B. Disraeli challenged Mr. Morgan O'Connell. Among the most conspicuous duels in England of late years was that fought between the earl of Cardigan and Capt. Tuckett in 1840.—Ireland is that part of the British empire in which duelling has always been most in vogue. In the latter part of the last century there was scarcely an Irishman of note who had not been "out," and many of them had fought often. Grattan, Curran, Lord Clare, Flood, Burrowes, Barrington, Toler, and many others, men of high positions, were among the Irish duellists of those times. In 1815 Daniel O'Connell fought with and killed Mr. D'Esterre, a member of the Dublin corporation, which the former had stigmatized as a "beggarly" body; and the death of his antagonist is said to have caused Mr. O'Connell great grief. He afterward became involved in a dispute with Mr. (subsequently Sir Robert) Peel, that would have led to a duel if he had not been arrested. Mr. Peel wished to fight the gentleman who was to have been Mr. O'Connell's second.—In Scotland duels have not been so common as in Ireland, yet the Scotch have always evinced something more than readiness to go to "the field of honor." In 1822 Mr. James Stuart, well known by his work on the United States, killed Sir Alexander Boswell, son of Johnson's biographer, in a duel, which grew out of gross newspaper attacks on the former. Mr. Stuart was tried and acquitted. Mr. Francis Jeffrey, who was of counsel for the defence, went almost the entire length of upholding duelling, and boldly assumed that the man who slew another under the circumstances that caused Mr. Stuart to slay Boswell was not guilty of murder in any sense. The court, while it charged that killing in a duel was murder, declared that there was no evidence of malice on the part of Mr. Stuart, and praised his conduct on the ground; and when the acquittal was given, the court congratulated him on the result. These incidents, and the stress which the court laid on the licentiousness of the press, through which Mr. Stuart had been assailed without provocation, show how strongly even the opinion of enlightened men has been pronounced in favor of duelling. It is a singular fact that Boswell, when a member of parliament, took the principal part in getting two old Scotch statutes repealed that were directed against duelling, one of which

made the mere fighting of a duel, though it should have no evil result, punishable with death. —Duelling has been known in the United States from the very beginning of their settlement, the first duel taking place in 1621, at Plymouth, between two serving men. Mr. Sabine thinks it possible that in the ludicrous punishment inflicted on these chivalrous combatants we can find the cause of the difference in opinion on duelling that exists between the North and the South. They were sentenced to be tied neck and heels together for 24 hours, but a portion of the punishment was remitted. Castle island, in Boston harbor, is said to have been a duelling ground for Englishmen. In 1728, a young man named Woodbridge was killed in a duel on Boston common, by another young man named Phillips. They fought without seconds, in the night time, and with swords. Aided by some of his friends, Phillips got on board a man of war and escaped to France, where he died a year afterward. A great sensation was caused, and a new and severe law against duelling was enacted. There were few duels in the revolution, the most noted being those between Gen. C. Lee and Col. John Laurens, in which the former was wounded, and between Gens. Cadwallader and Conway, in 1778, in which the latter received a shot in the head from which he recovered. Button Gwinnett, one of the signers of the declaration of independence, from Georgia, was killed in a duel with Gen. McIntosh, in May, 1777. In 1785 Capt. Gunn challenged Gen. Greene twice, both being citizens of Georgia, and threatened a personal assault when the latter refused to meet him. Greene wrote to Washington, acknowledging that if he thought his honor or reputation would suffer from his refusal he would accept the challenge. He was especially concerned as to the effect of his conduct on the minds of military men, and admitted his regard for the opinion of the world. Washington approved of his course in the most decisive terms, not on moral grounds, but because a commanding officer is not amenable to private calls for the discharge of his public duty. Gen. Hamilton was killed in a duel with Col. Burr in 1804, the latter being vice-president, and the former the greatest leader of the opposition. This duel is always allowed the first place in the history of American private combats. That which stands next is the duel between Capts. Barron and Decatur, the latter being killed, and Barron severely wounded. Henry Clay and John Randolph fought in 1826, and Col. Benton, in closing his account of the fight, says: "Certainly duelling is bad, and has been put down, but not quite so bad as its substitute—revolvers, bowie knives, blackguarding, and street assassinations under the pretext of self-defence." Gen. Jackson killed M. Dickinson in a duel, and was engaged in other "affairs." Col. Benton killed a Mr. Lucas, and had other duels. In 1841 Mr. Clay was on the eve of fighting with Col. King, then a senator from Alabama, and elected vice-president in 1852. Mr. Cilley of Maine fought with Mr. Graves of Kentucky in 1838, near Washington, and the former was killed. This duel caused nearly as much excitement as that between Hamilton and Burr. Both parties were members of congress. Duels have been numerous in California since that country became a part of the United States, and some of them have been of a very severe character. Formerly they were very common in the U. S. navy, and valuable lives were lost. It is related of Richard Somers, who perished in the Intrepid, and who is said to have been a mild man, that he fought three duels in one day. Capt. Bolton (then Finch) shot Lieut. White, on an island in Boston harbor, in 1819; but White forced the duel on him, and fell. In 1830 President Jackson caused the names of 4 officers to be struck from the navy roll because they had been engaged in a duel. These encounters have not been so common in the navy of late years as formerly. The army has furnished duellists, some of them of the highest rank in the service. In the northern states, the force of opinion is strong against duelling; yet, at the beginning of the century, duelling was there common, and several duels were fought in New England, while the "code of honor" was in full force in New York and New Jersey. Five shots were exchanged between De Witt Clinton and John Swartwout, in 1802; and a challenge passed between Mr. Clinton and Gen. Dayton of New Jersey, in 1803.—Duels have been not unfrequent in the different parts of British America, and in Canada and the other provinces the state of opinion resembles rather that which prevails in our southern states than the opinion of neighboring New England.—By the common law, when one of the parties to a duel is killed, the survivor and the seconds are guilty of murder; and the participation in a duel where there is no fatal result, either as principal or second, is regarded as a misdemeanor. Many of the states of the American Union have, however, modified this rule by legislative enactment, and while in some of them the killing of a man is punishable with death, in others a term of imprisonment with forfeiture of political rights is substituted. Some states require certain officers of state to make oath either that they have not within a certain time been, or will not be, concerned in a duel; and in nearly all, the duellist and his abettors are disqualified from holding office or exercising the elective franchise for life, or for a term of years, according to the issue of the duel. In the American naval and military service, an officer implicated in a duel with a brother officer, either as principal or second, is liable to be cashiered, upon conviction by a court martial; and an equally stringent provision exists in the articles of war regulating the British military service. All the legislation that has been directed against it in the United States—and it is much—has been fruitless; and the labors of individuals of the highest character have been equally barren, in more than half the Union.—See J. G. Millingen, "The History of Duelling" (2 vols. London,

1841); Lorenzo Sabine, "Notes on Duels and Duelling, with a preliminary Historical Essay" (12mo., Boston, 1855).

DUER, John, an American jurist, born in Albany, N. Y., Oct. 7, 1782, died on Staten island, Aug. 8, 1858. He was the son of Col. William Duer of the revolutionary army, and on his mother's side a grandson of Gen. William Alexander, the claimant of the Scottish earldom of Stirling. In his 16th year he entered the U. S. army, but after two years left the service to pursue the study of the law and of general literature. He commenced the practice of his profession in Orange co., N. Y., whence about 1820 he removed to the city of New York, where he resided until his death. In 1825 he was appointed one of the commissioners to revise the statute law of the state, and afforded valuable assistance in the preparation of the first half of the work, his professional labors preventing him from giving more than occasional advice to his colleagues on the remainder. In 1849, after an honorable career at the bar, he was elected a justice of the superior court of New York city, a position which he filled until his decease. After the death of Chief Justice Oakley in May, 1857, he became the presiding justice of the court. He was a delegate to the convention which amended the state constitution in 1821, but seldom took an active part in public affairs. In 1845 he published a "Lecture on the Law of Representations in Marine Insurance," and in 1845–'6 a treatise on the "Law and Practice of Marine Insurance" (2 vols. 8vo.), which has become a standard authority in the United States. In 1848 he delivered a discourse on the life, character, and public services of Chancellor Kent, which was published, and at the time of his death was engaged in editing "Duer's Reports" of the decisions of the superior court. The 6th volume, which he did not live to complete, was revised by him while confined to his bed by a severe fracture of the thigh. Justice Duer was held in great esteem for his eminent judicial abilities, as well as for the dignity and impartiality with which he discharged the duties of his office.—William Alexander, brother of the preceding, a distinguished jurist, born in Rhinebeck, Dutchess co., N. Y., Sept. 8, 1780, died in New York, May 31, 1858. After serving for a short time in 1798 as a midshipman in the navy, he commenced the study of law, was admitted to the bar in 1802, and having practised for a few years in New York, removed to New Orleans to form a professional partnership with Edward Livingston. Compelled by his health to return to the north, he opened an office in his native village, and between 1814 and 1820 was a member of the state assembly, taking a prominent part in the debates on the establishment of canals and other important questions. In 1822 he was appointed judge of the supreme court in the 3d circuit, an office which he held until the close of 1829, when he was elected president of Columbia college. He discharged his academical duties with great benefit to the institution until 1842, when he retired on account of ill health, and took up his residence in Morristown, N. J. He is the author of a treatise on the "Constitutional Jurisprudence of the United States," of which an enlarged edition appeared in Boston in 1856; of a memoir of his maternal grandfather, Gen. William Alexander; and of various occasional addresses before historical and literary societies. In the early part of his life he was a frequent contributor of literary articles to the periodical press of New York.

DUFAU, Pierre Armand, a French publicist, and director of the imperial institution for the blind at Paris, born in Bordeaux, Feb. 15, 1795. His first important literary undertaking was a continuation of Velly, Villaret's, and Garnier's general history of France. In 1824 he published a collection of the fundamental laws of the nations of Europe and America, with notes upon the history of liberty and of political institutions in modern times. About the same date appeared his work on the "Partition of European Turkey between Russia, Austria, England, and the Greeks, with the Mediation of France." From 1830 to 1840 he was one of the most active writers of the moderate liberal party. He assisted in editing the *Temps* and the *Constitutionnel*, and was for a time chief editor of the latter journal. He was a teacher in the royal institution for the blind from 1815 to 1840, and its director from 1840 until within a recent period, when he retired with the title of honorary director. He took part also in founding and supporting other charitable institutions, and fulfilled several public functions until obliged to devote himself exclusively to the interests of the establishment confided to him. He continued, however, to write treatises upon political sciences, and for the amelioration of the condition of the blind, and was at the same time a contributor to some of the leading French cyclopædias. Many of his later works were crowned by the academy of sciences, and one of his earlier essays on the abolition of slavery in the French colonies (1830) by the society of Christian morality. He has also published, under the name of Armand, several light theatrical pieces. His latest works are: *Statistique comparée des aveugles et des sourds-muets* (4to., 1854), and *De la réforme du mont de piété*, a memoir presented to the academy of moral science in 1855.

DUFAURE, Jules Armand Stanislas, a French statesman and lawyer, born Dec. 4, 1798, was councillor of state in 1836, minister of public works in 1839, a member of the chamber of deputies from 1834 to 1848, and a champion of constitutional liberty until 1844, when he became the leader of a new moderate party midway between the opponents and supporters of the government. Although opposed to the agitation which caused the downfall of Louis Philippe, he adhered to the new republic in 1848, was elected to the constituent and legislative assemblies, and officiated as minister

of the interior from June 2 to Oct. 31, 1849. He was arrested on Dec. 2, 1851, but released on the following day. He has since devoted himself exclusively to the practice of the law, and holds a distinguished position at the bar of Paris. In 1858 he was one of the council for the defence in the trial of Montalembert.

DU FAY, Charles François de Cisternay, a French savant, born in Paris, Sept. 14, 1698, died July 16, 1739. In 1733 he was elected to the academy of sciences, and he was the only member of that body who has ever read papers in each of its 6 different departments that were deemed worthy of publication. He made new researches concerning phosphorus, the barometer, the refracting power of crystals, the magnet, and electricity. He introduced the theory of two kinds of electricity, the vitreous and the resinous. Among the chief services which he rendered to science were those which he performed as director of the *jardin des plantes*. Du Fay spent 10 years in rearranging and improving it, and made it the first establishment of the kind in Europe. At his request Buffon, who was as yet only known by his papers read to the academy, was appointed to succeed him in its superintendence.

DUFF, Alexander, D.D., LL.D., a Scottish missionary, born in the parish of Kirkmichael, in the co. of Perth, Scotland, in 1806. At a very early age his mind was directed to the ministry in the established church of Scotland; and with the view of preparing himself for its duties, he entered the university of St. Andrew's at the age of 15, and was graduated in due course. While a student he became intimate with Dr. Chalmers, who exercised a profound influence on his character and the direction of his career. He studied theology in St. Mary's college in the same university, and in the summer of 1829 was duly licensed to preach. During the later years of his academical studies he was the associate and bosom friend of a little circle, all of whose members became well known in the missionary field, among whom were the late John Adams and the late John Urquhart. These young men, while studying for the ministry, spent much of their leisure time in visiting the poor, distributing tracts, holding prayer meetings, and organizing and superintending Sabbath schools in destitute parts of the surrounding country. By none of the churches in Scotland had any effort yet been made to spread the gospel among the heathen. A more earnest spirit had indeed been gaining ground in the established church, and under the auspices of Dr. Inglis, aided by Chalmers and Thomson, and others of the evangelical party, a mission to India was resolved upon. Mr. Duff was selected as their first missionary, and having been ordained to the office of the ministry, he set sail toward the close of 1829. During his voyage to India he was twice shipwrecked, first on a reef while rounding the cape of Good Hope, and again on the coast of Ceylon, and narrowly escaped a third shipwreck when near the mouths of the Ganges. By the first of these mishaps he and his wife lost every thing that belonged to them. His plans of operation, his valuable library, and the fruits of his careful and laborious study, were all lost. His pocket Bible, which was picked up by a sailor among the rocks a day or two after the wreck, was alone saved. Arrived in India, a stranger among strangers, he was yet received and welcomed by many of his countrymen; but these, for the most part, were disinclined to further the special object of the Christian adventurer. They did not oppose him, but neither had they the heart to succor him. The well-known Rammohun Roy, however, who from his position and character could exercise considerable influence over the natives, entered warmly into the views of Duff, and with his assistance a school was commenced under a banian tree. Five young men assembled to receive instruction from the Scottish missionary. The shade of the banian tree was soon too narrow to protect the scholars from the fervor of the Indian sun, and it became indispensable to provide suitable accommodations for the protection and advancement alike of teachers and taught. From the very outset it was the purpose of Mr. Duff to lead his pupils through the entire range of British literature and science, and with all this the work of the missionary was never for a day lost sight of. The readings in classical literature and the scientific and philosophical lectures were all conducted with a definite end in view—the enfranchisement of the native mind, and the diffusion of the truth in philosophy and science, accompanied with the daily reading and critical and experimental exposition of the Scriptures. Mr. Duff's labors very soon began to tell, and the worth of the man, from the beginning, was apparent both to the native population and their British rulers. His honesty, perseverance, and zeal, in connection with his varied gifts and talents, soon gave a commanding influence to him and the Scottish college which he had established. In 1843 a crisis occurred in the history of the institution. It grew out of the disruption in the church of Scotland. On May 18, 1843, nearly 500 ministers of that church surrendered their livings into the hands of the state, rather than submit in the exercise of their official duties to the interpretation of the law relating to induction to benefices as given by the supreme judicatory, and confirmed by parliament. This they did on the ground that that interpretation was contrary to the law of Christ as laid down in the Scriptures. The aggregate value of the livings vacated was $10,000,000. When intelligence of this disruption reached Calcutta, Dr. Duff, and the brethren who had at intervals come to his help, had to consider the question whether they could retain their connection with the Scottish church, now, by the interpretation given to the law regarding benefices, thoroughly Erastianized, or whether they ought to throw in their lot with the seceding party, organized under the name of the Free Protesting church of Scot-

land. There was much to induce them to remain as they had been—the labors of 12 years, the complete organization of their edifices and plans, past success, the prestige of connection with a wealthy and endowed church, the sympathies of the government, and then, on the other hand, their ignorance as to the extent and ability of the Free church to aid them in the erection of new buildings, and in the carrying out of their well tried system. However, guided by a clear conviction of duty, Dr. Duff and his brethren at once and unanimously declared their adherence to the Free church, and vacated their honored and beloved institution, with all its valuable library and apparatus; and we believe they have had no cause to regret the step. On the death of Dr. Thomas Chalmers in 1846, the office of principal and professor of theology in the Free church college in Scotland was offered to him, but was refused. He returned to Europe in 1851 to recruit his broken health; but instead of finding there the necessary repose, he entered on the revival of the missionary spirit among the British people, and for that purpose visited the churches even in the remotest British isles. In 1854 he made a voyage to America, and during the months of February, March, April, and May, he visited the principal cities in the northern and western states, and passed through Canada. While he was in New York the various evangelical churches met by representation, and gave him a fraternal welcome, and the university of New York conferred on him the honorary degree of LL.D. In 1855 he returned to India, where he still remains, devoted with untiring industry to his missionary labors.

DUFFY, Charles Gavan, an Irish journalist and politician, born in Ulster in 1816. He embraced the profession of journalism at an early age, and for several years edited an influential newspaper at Belfast. At the same time he pursued the study of the law, and was subsequently called to the bar, but he has never practised. In 1841 he went to Dublin, where in 1842 he established the "Nation," a publication strongly in the interest of O'Connell and the advocates of repeal of the union; and in 1844 he was compromised in the proceedings instituted against O'Connell and the prominent repealers. In 1847 he joined the party of young Ireland, and in the succeeding year was tried with Smith O'Brien, Thomas Francis Meagher, and others, for sedition, but was acquitted. He then resumed the direction of the "Nation," in which he advocated various social reforms for Ireland, and between 1852 and 1856 represented New Ross in parliament. He has since emigrated to Australia, where he has been a member of the colonial legislature, and also of the ministry. He is the author of "Ballad Poetry of Ireland," and other publications.

DUFOUR, Guillaume Henri, a Swiss general, born in Constance in 1787. He was educated in Geneva, and after the annexation of that city to France in 1807, studied at the polytechnic school in Paris. Having entered the French army, he obtained a commission in 1809, served in the last campaigns of Napoleon, and distinguished himself during the Hundred Days. When Geneva was restored to Switzerland, he became a citizen of the republic; was continued in the rank of captain, which he had received under the empire, and in 1827 was promoted to that of colonel. In 1831 he was made chief of the staff of a corps destined to defend the neutrality of the republic. Intrusted with the management of the military school at Thun, with the survey of Switzerland, and, as quartermaster-general, with the reorganization of the federal army, he performed his duties with zeal and ability. When the organization of the Sonderbund, and the apprehended intervention of foreign powers, seemed to threaten the existence of the confederation in 1847, Dufour, at the age of 60, was chosen by the diet commander-in-chief of the federal forces, and not only rapidly suppressed the civil war, but also raised the reputation of his country in the eyes of Europe. His moderation on that occasion equalled his military ability. Being a conservative in politics, the events of 1848 lost him some part of his popularity; but he has since rendered important services to his country as a negotiator with foreign powers, especially in the question of the relations of Ticino and Neufchâtel with Austria and Prussia. Shortly before the termination of the Neufchâtel affair, he was again appointed commander-in-chief of the federal army in consequence of the warlike preparations of Prussia. He is the author of several works in French, the most important of which are: *De la fortification permanente* (1824; 2d edition, 1850); *Géometrie perspective*, &c. (1827); *Mémoires sur l'artillerie des anciens et sur celle du moyen âge* (1840); *Manuel de tactique* (1842).

DUFRÉNOY, Pierre Armand, a French geologist and mineralogist, born in Sévran, Seine-et-Oise, in 1792, died in Paris, March 20, 1857. His mother (born in 1765, died in 1825) was a poetess of some distinction. He entered the polytechnic school in 1811, and the school of mines in 1813. His first essay appeared in 1819, and was followed by a great variety of papers on mineralogy and geology, which gained for him a high reputation in the scientific world. His explorations in southern France and in the Pyrénées led him to develop the theory of metamorphism, according to which the production of many of the newer rocks is explained by the action of heat upon those of older date. He explored the vicinity of Naples, and in his work on the subject (*Des terrains volcaniques des environs de Naples*) he maintains that Herculaneum and Pompeii were destroyed by a landslide from Vesuvius, and not by lava ejected from the crater. In concert with Élie de Beaumont he explored between 1823 and 1836 various parts of France, England, and northern Spain, and the remarkable geological map of France which appeared in 1841 was the result of their labors. He was intrusted with a mission to England for the

purpose of investigating the effect of the substitution of the hot for the cold blast in furnaces employed for melting iron. He also investigated the methods of various metallurgical operations in Great Britain, and published in conjunction with Élie de Beaumont, Coste, and Perdonnet, an elaborate and valuable report entitled *Voyage métallurgique en Angleterre* (2d ed. 1837–'39, 2 vols. 8vo.). He was one of the most active members of the academy of miners, director of the *école des mines*, and professor of mineralogy and geology. He introduced a new classification of minerals based upon crystallography, and promoted in various other ways the study of mineralogy and meteorology. The 4th and last volume of the 2d and enlarged edition of his *Traité de minéralogie* appeared in Paris in 1859, with an additional volume of illustrations.

DU FRESNE, Charles. See Du Cange.

DU FRESNOY, Charles Alphonse, a French painter and poet, born in Paris in 1611, died at Villiers-le-Bel, near Paris, in 1665. His pictures are correct, but not otherwise remarkable, and he is now chiefly remembered as the author of a Latin poem entitled *De Arte Graphica*, the "Art of Painting," which has been 3 times translated into English, viz.: into prose by Dryden (4to. London, 1695), by Wills (4to. 1754); and into verse by William Mason, with notes by Sir Joshua Reynolds (4to., York, 1783).

DUFRESNY, Charles Rivière, a French dramatist, born in Paris in 1648, died there, Oct. 6, 1724. He was descended from Henry IV. by one of the mistresses of that monarch, known as *la belle jardinière*. In consequence of his descent and his talents, he enjoyed the favor of Louis XIV., but his improvident habits were constantly involving him in embarrassments. He wrote some excellent comedies, had great skill as a landscape gardener, and was known as a pleasant companion and a wit. It is related of him that he married his washerwoman in order to avoid paying her bill. Among his comedies which obtained the most success, may be mentioned *L'esprit de contradiction*, *La coquette de village*, and *Le faux sincère*. His *Poésies diverses* are also praised. A selection of his works was published at Paris in 2 vols. in 1805.

DUGANNE, Augustine Joseph Hickey, an American poet and novelist, born in Boston in 1823. He has been a frequent contributor to the periodical press, having written between 20 and 30 novelettes and romances, and a great number of miscellaneous papers under various signatures. His poetical works consist of the "Iron Harp," "Parnassus in Pillory," a satire, the "Mission of Intellect," a poem delivered in New York in 1852, the "Gospel of Labor," delivered before the N. Y. mercantile library association in 1853, and a number of short pieces originally appearing in newspapers and magazines, which were published in a large illustrated edition, in Philadelphia, in 1856. He is also the author of the "Lydian Queen," a tragedy performed at the Walnut street theatre, Philadelphia, in 1848. Among his writings are a "Comprehensive Summary of General Philosophy," published at Philadelphia in 1845, and a "Class Book of Governments and Civil Society," printed in 1859 in New York. One of his latest productions is the "Tenant House," a work prepared from information acquired while he was a member of the legislature of New York.

DUGDALE, Sir William, an English antiquary, born in Shustoke, Warwickshire, Sept. 12, 1605, died Feb. 10, 1686. He was educated partly in the free school of Coventry, partly by his father, was made pursuivant at arms extraordinary under the name of Blanche Lyon in 1638, rose by degrees in the herald's college until he became garter principal king at arms in 1677, and was knighted. In 1641 exact drafts of all the monuments in Westminster abbey and in many of the churches of England, with copies of their inscriptions, were made under his superintendence and deposited in Sir Christopher Hatton's library. With Roger Dodsworth he projected the publication of the charters and descriptions of all the monasteries of the kingdom; and after having attended King Charles at Edgehill and followed him to Oxford, he improved a long stay in that town by collecting from the Bodleian and other libraries there materials for this great work. From the tower records, the Cottonian library, and the papers of André Du Chesne which he examined in Paris, he gathered still more information; and in 1655 the first volume of the work appeared in Latin at London, under the title of *Monasticon Anglicanum;* the 2d and 3d vols. were issued in 1661 and 1673; a new and enlarged edition, in 6 vols. crown folio, was published in 1817–'30, with plates, the cost of drawing and engraving which amounted to $30,000. This edition was reprinted at London in 8 vols. fol. in 1846. Several abridgments of the original work have been made in English. Among Dugdale's other contributions to history are the "Antiquities of Warwickshire" (fol., 1656), one of the best works of the kind ever published, and the author's *chef d'œuvre;* "History of St. Paul's Cathedral" (fol., 1658); "History of Imbanking and Drayning of divers Fenns and Marshes" (fol., 1662), undertaken at the instance of several gentlemen who were interested in the draining of Bedford Level; "*Origines Juridiciales*, or Historical Memoirs of the English Laws, Courts of Justice, Forms of Trial, Punishment in Cases Criminal, Law Writers," &c. (1666); the "Baronage of England, or an Historical Account of the Lives and most memorable Actions of our English Nobility" (3 vols. fol., 1675–'6); "A Short View of the late Troubles in England" (Oxford, 1681); "Ancient Usage in bearing of such Ensigns of Honor as are commonly called Arms" (Oxford, 1682); "A Perfect Copy of all Summons of the Nobility to the Great Councils and Parliaments of this Realme, from the XLIX. of Henry the IIId. until these present Times" (London, 1685). Dugdale also completed the 2d volume of Sir Henry Spelman's *Concilia*. His works are ad-

mirable for their accuracy, and his industry was almost incredible. His "Life, Diary, and Correspondence," with an index to his MS. collections, many of which are preserved in the Ashmolean museum at Oxford, was published at London in 1827 by William Hamper, F.S.A. —His son, Sir John Dugdale, was Norroy king-at-arms, and published a catalogue of the English nobility.

DUGONG, a herbivorous cetacean, of the genus *dugungus* (Lacépède), or *halicore* (Illiger), the only genus of its family, and the only undisputed species of the genus; the Malay name is *duyong*, and the scientific *halicore Indicus* (Desm.) or *H. dugung* (F. Cuvier). The general shape is fish-like; the head is proportionately small, and separated from the body by a slight cervical depression; there is no dorsal fin, and the horizontal tail is crescent-shaped; there are no posterior limbs, but the anterior are like cetacean paddles without any trace of nails or division into fingers. The upper lip is very large, thick, obliquely truncated, forming a blunt snout such as would be made by cutting off an elephant's trunk near the mouth; the anterior portion is covered with soft papillæ with a few stiff bristles; the lips have a corneous edging which assists it in tearing sea-weeds from the bottom. In the old animal the incisors are 2 above and none below, large, but nearly covered by the tumid and movable lip; in the young, the 2 upper permanent incisors are preceded by 2 deciduous ones, and there are 6 or 8 lower incisors which fall and are not succeeded by any permanent ones. The molars in the adult are $\frac{2\cdot2}{2\cdot2}$, simple and elliptical, in the young $\frac{6\cdot6}{6\cdot6}$, far back on the horizontal portion of the jaw; the grinding surface presents an outer rim of enamel, with the central ivory portion slightly depressed; they have no proper roots, and grow as long as they can be of use to the animal. The skin is thick and smooth, with a few scattered bristles; the color is bluish above and white beneath; the mammæ are 2, and pectoral; the fins are used not only for swimming, but for crawling along the bottom. The cranial bones are dense and large, with loose connections where any sutures exist. The intermaxillaries are very large, extending back as far as the middle of the temporal fossæ, and bent down at a right angle over the symphysis of the lower jaw, terminating nearly on a level with its lower margin; this is necessary for the accommodation of the incisors, one of which is in each intermaxillary; for this reason also the nostrils are displaced upward, different from the allied manati, so that their opening is turned up as in the typical cetacea; indeed this animal comes nearer than its congener to the whales in its forked tail, absence of nails, and superior opening of the nostrils. The whole skull (and especially the frontal bones) is comparatively short; the parietal crests are widely separated; there is no bony tentorium, no sella turcica, very few and small openings in the cribriform plate of the ethmoid bone, and the optic foramina are converted into a long and narrow canal. The lower jaw corresponds to the angle of the intermaxillaries, and is bent downward at the symphysis; on its anterior surface are 3 or 4 rough and shallow alveoli, sometimes containing rudimentary incisors, according to Sir Everard Home. The cervical vertebræ are 7, separate; the dorsals 18, with spinous processes bent back and elongated from the first to the last, and of the same length as the transverse; the lumbar 3, with long spinous and transverse processes; one sacral, to which rudimentary pelvic bones are suspended; caudals about 24, with chevron bones for the anterior $\frac{3}{4}$, and becoming flattened posteriorly. The ribs are 18, less thick and dense than those of the manati, the 1st 3 attached by cartilages to the sternum; the shoulder blade is large, with the anterior angle rounded, the posterior extended backward with a concave margin; the spine is prominent, and the acromion and coracoid processes are pointed; the humerus is short, thick, with a prominent deltoid ridge; the radius and ulna are very short, rounded, anchylosed together at each end; the carpal bones are 4, in 2 rows; the thumb is rudimentary, its metacarpal bone small and pointed; the other metacarpals are flattened, with 3-jointed phalanges. The tongue is thick, the anterior upper surface with cuticular spines, and on each side at the base a horny, retroverted, pointed process. The stomach is divided into 2 portions, the cardiac large and globular, the pyloric narrower; at the constriction between the 2 are 2 tubular cæcal prolongations as in some pachyderms, and at the cardiac end is a rounded glandular mass as in some rodents; the intestines are 14 times as long as the body, and the cæcum is simple and heart-shaped. The liver is transversely oblong, with 1 large and 3 small lobes; the gall bladder is present, elongated, receiving bile directly from the hepatic ducts; the spleen is very small and rounded. The heart has its ventricles deeply cleft, not however affecting the circulation; the capacity of the pulmonary artery is very great, to accommodate the delay of the blood in the lungs during submersion. The lungs are very long, flattened, $\frac{1}{4}$ as long as the body; the superficial air cells are large, the dorsal extent is great, the trachea divides high up, and the bronchi are long, as in marine turtles; the cartilages of the bronchial tubes are continued spirally into each other. The sense of smell must be dull; the eye is very small and convex, with a nictitating membrane beside the lids; the external orifice of the ear is hardly perceptible; the nasal openings are 2 parabolic slits, whose semi-lunar edge performs the office of a valve which can be opened and shut at pleasure; the interior of the cheeks, according to F. Cuvier, is entirely covered with strong hairs. The usual length of the dugong is from 8 to 10 feet, though it has been seen as long as 20 feet; it is found in the seas of the East Indies, especially in the Malayan archipelago, never on land, rarely if ever in fresh water, but generally in troops in shallows of the sea where the depth is not more than 3 fathoms.

Its food consists of fuci and algæ, and it browses on the marine vegetation as a cow does on land. It yields little or no oil, but is hunted by the Malays for its flesh, which resembles young beef, is tender and palatable, and is considered a royal dish. It is generally speared, and at night, especially during the northern monsoon, at the mouths of rivers, when the sea is calm. The affection of the mother for her young is very remarkable. There are doubtless several species in the Indian seas, as it is hardly probable that only one species would be found from the Philippine islands to the coast of New Holland; in the Red sea is a species called *H. tabernacularum* by Rüppell, from his belief that the Hebrews covered with its skin their tabernacle and sacred ark; this is generally considered a mere variety. In the article MANATEE will be given reasons for considering the herbivorous cetaceans as belonging rather to the pachyderms than to cetaceans, the manati coming nearer to the former, and the dugong probably nearer to the latter. (See also DINOTHERIUM.) An allied fossil genus, *halitherium* (Kaup), is found in the tertiary calcareous deposits of Europe.

DUGUAY-TROUIN, RENÉ, a French admiral, born in St. Malo, June 10, 1673, died in Paris, Sept. 27, 1736. He was at first intended for the church, but his family yielded to his inclinations, and allowed him to follow the sea as his profession. He distinguished himself as commander of a privateer in the war against England and Holland, and attracted the attention of Louis XIV., who presented him with a sword, and afterward, in 1697, admitted him to the royal navy, giving him the command of a vessel. He continued his career, and, in the letters of nobility granted him for his conduct in the Spanish war, it was stated that he had captured more than 300 merchant ships and 20 ships of war. The exploit, however, which won him the most renown, was the capture of Rio Janeiro in 1711, which brought an immense sum of money to the French government.

DUGUET, JACQUES JOSEPH, a French theologian, born at Montbrison, Dec. 9, 1649, died in Paris, Oct. 25, 1733. He officiated for many years as professor of divinity at the *oratoire*. His zeal for the cause of the Port Royalists, although tempered by moderation, which formed one of the chief traits of his character, involved him in the religious controversies of his times. His writings, which comprise nearly 20 works chiefly on theological and ethical subjects, are, without being very vigorous, conceived in the gentle and Christian tone which distinguished him in his life.

DU HALDE, JEAN BAPTISTE, a French geographer, born in Paris, Feb. 1, 1674, died Aug. 18, 1743. In 1708 he became a member of the society of Jesus, and was afterward appointed to the task of editing the letters of missionaries sent out by that society to various parts of the world, and especially to China. The result of these labors is the well-known *Lettres édifiantes et curieuses écrites des missions étrangères*, edited by Du Halde from the 9th to the 26th volume inclusive; and his *Description géographique, historique, chronologique, politique, et physique de l'empire de la Chine et de la Tartarie Chinoise* (4 vols. fol., Paris, 1735); two works of considerable interest and importance, and which contributed not a little to advance the science of geography. An English translation of the latter appeared in London in 1736 (4 vols. 8vo.), in 1742 (2 vols. fol.), and again in 1744 (4 vols. 8vo.). The *Lettres édifiantes et curieuses* have not been translated into English, but a selection from the earlier volumes appeared in London in 1743, in 2 vols. 8vo., under the title of "Jesuits' Letters."

DUHAMEL DU MONCEAU, HENRI LOUIS, a French botanist and writer on agriculture, born in Paris in 1700, died there, Aug. 23, 1782. He was educated at the college of Harcourt, where he first displayed a taste for the natural sciences. Having been appointed naval inspector, he directed his attention to the culture and preservation of wood suitable for nautical purposes, whence he was led to investigate the properties of the different species of plants and trees adapted to the climate of France, of which he drew up a catalogue arranged in the alphabetical order of their Latin generic names. His most important works are: *De la physique des arbres* (2 vols. 4to., Paris, 1758); *Des semis et plantations des arbres et de la culture* (4to., 1760); *Éléments de l'agriculture* (2 vols. 12mo., 1762).

DUIDA, a lofty mountain near the southern extremity of Venezuela. On the S. and W. it presents a perpendicular front, bare and stony to the summit. The other sides are less steep, and covered with magnificent forests. The summit, 8,500 feet above the sea, has never been reached by man. At the beginning and end of the rainy season small shifting flames are seen to play about the highest peaks, and have sometimes induced the supposition that the mountain is a volcano. At its foot is the solitary mission of Esmeraldo.

DUILIUS, CAIUS NEPOS, consul of Rome, 260 B. C., noted for his naval victory over the Carthaginians, the first success ever obtained by the Romans on the sea. The battle was fought off Mylæ in Sicily, and the triumph of Duilius is attributed to his invention of grappling irons, by means of which he attached his ships firmly to those of the enemy, and enabled his men to fight hand to hand. On his return to Rome he was honored with a magnificent triumph, and a column was raised to commemorate the event.

DUISBURG, a Prussian town, capital of a circle of the same name, in the province of the Rhine, 18 m. W. N. W. from Düsseldorf, at the confluence of the Agger with the Ruhr, on the railway from Cologne to Minden; pop. of the circle, 110,000; of the town, 12,000. It is surrounded by dilapidated walls, has a library, a botanic garden, and important manufactories of woollen and cotton, velvet, leather, tobacco, and porcelain. It has also in its vicinity extensive sugar refineries and iron forges.

DUJARDIN, Félix, a French naturalist, born in Tours, April 5, 1801. The son of a watchmaker, he was obliged to learn with little assistance the sciences which he has since been employed in teaching. From 1827 to 1834 he delivered public lectures in Tours upon geometry and chemistry as applied to the arts. During the same period he published several geological works, in one of which he first made known the curious fact that Artesian wells bring to the surface seeds and remains of insects, which have been taken from long distances and transported through subterranean passages. In 1833 and 1834 he published descriptions of the flora of the region of the Loire, and of the geology and fossils of Touraine. He then devoted himself to zoological researches, and published observations upon the *rhizopodæ*, for which he proposed a new classification. In 1839 he added extended annotations to the 3d volume of De Lamarck's "History of Invertebrate Animals," and among his later publications have been his researches upon the brain of insects, and upon the instinct of bees.

DUJARDIN, Karel, a Dutch painter, born in Amsterdam in 1640, died in Venice, Nov. 20, 1678. He was the best pupil of Berghem; studied in Italy, where his pictures were very popular; went to Lyons, got into debt, and married his landlady, whom he soon deserted, and returned to Amsterdam. He again went to Italy to escape from his wife. On his death, the Venetian senate paid him unusual honors. In spite of his dissipation he left a great number of paintings, principally of pastoral scenes and animals. His pictures are now scarce and dear.

DUKE (Lat. *dux;* Byz. Gr. δουκας, a leader), a title belonging originally to the commanders of armies. In the later periods of the Roman empire it designated the military governor of a district, and until the time of Theodosius the rank of dukes was esteemed inferior to that of counts. Subsequently their dignity greatly increased, several provinces often became subject to a single duke, and the title was not disdained by conquerors such as Alaric and Attila. The northern barbarians who invaded the vast territories of declining Rome adopted, if they had not before borrowed, the titles of duke and count; but among these martial tribes, the dukes, as military chieftains, acquired a decided preëminence over the counts, who both in the Byzantine and western empires had been employed chiefly in civil offices. Under the successors of Charlemagne, the governors of provinces generally assumed the title of duke, and achieved an almost absolute independence. The kings of France, however, succeeded in reuniting to the crown the dukedoms which had been severed from it; and the ducal sovereignty being extinguished, the name has remained in France only as a title of dignity hereditary in certain families. Prior to the revolution dukes were created by letters patent of the king, and were of 3 kinds, of which those designated as dukes and peers held the first rank, and had a seat in parliament, and certain honors and prerogatives at court. The dignity of the second class or hereditary dukes was transmissible to their male children, but that of the dukes by brevet ceased with themselves. The ducal and all other titles of nobility, abolished at the commencement of the revolution, were established again in 1806. The rank of duke in the royal family of France was superior to that of prince, inferior sometimes to that of count, and always to that of dauphin. In other great families also the title was higher than that of prince. In Germany, where the idea of sovereignty is inseparable from the ducal dignity, this title comes immediately after that of royalty. Under the emperor Henry IV. dukes began to usurp those sovereign rights which they have since exercised, and 6 dukedoms were then established. Several of the primitive dukes have exchanged their title for that of grand duke. The princes of the house of Austria bear the title of archduke. In England, it was not till the reign of Edward III. in the 14th century that dukedoms were established giving their proprietors the first rank in the British peerage, a rank which has since belonged to the title. The first person created an English duke was Edward the Black Prince, who was made duke of Cornwall in 1337, and that title is still borne by the prince of Wales. The duke of Norfolk, whose title is the most ancient of all those now in existence, except the above, is descended from Margaret, the daughter of a younger son of Edward I., who was created duchess of Norfolk in 1358. The dignity became extinct in the reign of Elizabeth, in 1572, but was revived in 1623 in the person of Ludovic Stuart, created duke of Richmond. Since the accession of George II. the title has been frugally bestowed. From that period to 1766 no person, except of the royal family, was raised to a dukedom, but in the latter year the representative of the ancient house of Percy was made duke of Northumberland; 47 years later the duke of Wellington received this title from the king, as the highest honor which could be rendered for his great services. There are now in the English peerage 21 dukes exclusive of those of the royal family. Ireland has but one duke, the duke of Leinster; of the 7 Scottish dukes, 2 are also English dukes. The title of duke, or properly prince, was originally borne by the czars of Russia, and that of grand duke or grand prince still distinguishes the princes of that house. The kings of Poland were grand dukes or grand princes of Lithuania, and the kings of Prussia were the dukes of Silesia. Italy has several sovereign dukes, as the grand duke of Tuscany, and the dukes of Modena and Parma. The title exists also in the papal states, the kingdom of Naples, the Netherlands, and in Portugal and Spain. In some of the countries of Europe it retains the attributes of sovereign power which it received in the middle ages; in others, as in England, it continues to designate the highest rank of nobility; in others, as

in France, it is but a tradition of an ancient political order.

DUKES, a co. of Mass., consisting of a number of islands in the Atlantic ocean, with an aggregate area of 118 sq. m.; pop. in 1855, 4,401. Martha's Vineyard, the largest of these islands, lies about 5 m. S. of Barnstable co., from which it is separated by Vineyard sound. A great part of the surface is occupied by forests, but there are large cultivated tracts yielding good crops of potatoes, hay, and grain. In 1855 the productions were 16,023 bushels of Indian corn, 11,586 of potatoes, 3,024 of oats, 1,810 tons of hay, and 28,382 lbs. of butter. In 1858 the county contained 12 churches and 1 newspaper office. It was organized in 1695. Capital, Edgartown.

DULAURE, Jacques Antoine, a French author and statesman, born in Clermont-Ferrand in 1755, died in Paris, Aug. 9, 1835. He studied architecture and engineering, but the work on which he was employed in the latter capacity being suspended in consequence of the war with England in behalf of American independence, he turned his attention to literature, and on the breaking out of the revolution joined the republican party. In 1792 he was elected member of the convention, in which he voted for the execution of the king, but afterward became connected with the Girondists. Compelled to fly from France during the reign of terror, he supported himself in Switzerland by his labor as an engraver. He afterward returned, and was elected to the council of 500, but retired from public life after the revolution of the 18th Brumaire, 1799. As a historian he has not the reputation of impartiality.

DULCE, Gulf of (sometimes called lake of Isabal), a large body of fresh water, extending into the state of Guatemala from the bay of Amatique, 30 m. long by about 12 broad. It seems to be a widening out, over a considerable valley, of the waters of the Rio Polochic. Between the gulf and the sea is a small lake, 15 m. long by 3 broad, called La Golfete. The waters from both reach the ocean through a narrow and picturesque stream or strait, called La Angostura or Rio Dulce. This is shut in by a rampart of rock, rising perpendicularly to a height of from 300 to 400 feet above the water. This river has a bar at its mouth, with but 6 feet of water, which deprives the gulf of most of the advantages that would otherwise attach to it, as the most convenient avenue for the commerce of Guatemala. Notwithstanding this deficiency, a considerable part of the trade of the state is carried on through the little, unhealthy town of Isabal, situated on the gulf, by means of vessels sailing from Balize. The trade of Isabal amounts to about $800,000 annually.

DULCIMER, an ancient musical instrument, resembling, if not identical with, the psaltery or *nebel* of the Jews. The modern dulcimer consists of a small box, in shape a triangle or a trapezium, containing a number of wire strings stretched over a bridge at each end, and which are set in vibration by little iron rods or wooden sticks in the hands of the performer. It is now principally used by street musicians.

DULONG, Pierre Louis, a French natural philosopher, born in Rouen, Feb. 12, 1785, died in Paris, July 19, 1838. At the age of 16 he was received into the polytechnic school, on his departure from which he studied medicine, which he practised for some time, and then devoted himself, at the suggestion of Berthollet, to physical science. After numerous analyses and researches upon chlorine and ammonia, he was led in 1812 to the discovery of the chloride of nitrogen. He was twice injured by the explosions of this new compound, and lost an eye and finger. In 1816 he discovered hypo-phosphorous acid, and introduced into the nomenclature the prefix *hypo*, to denote a less degree of oxidation. In 1820 he labored with Berzelius in the laboratory of Berthollet, and began to investigate the origin of animal heat. In opposition to Lavoisier and Laplace, who thought that animal heat was produced by the transformation of oxygen into carbonic acid, he found that in the carnivora the heat due to this cause was not more than ⅓ of the whole, and was even a smaller proportion in the herbivora, thus proving that the body must have another source of calefaction. In 1825 he was associated with Prony, Arago, Ampère, and Girard, as a commission to provide precautions against the explosion of steam boilers; and for 4 years he labored almost alone with Arago in determining the elastic force of steam at different temperatures. Dulong was a member of the academy of sciences, in which in 1832 he succeeded Cuvier as perpetual secretary for the department of physical sciences. His numerous works treat particularly of the gases, and of the nature and laws of heat.

DULWICH, a village of England, in Surrey, 5 m. S. of London; pop. in 1851, 1,904. It is chiefly remarkable for its college, founded and endowed in 1619, by Edward Alleyn, a distinguished actor. The college originally consisted of a master, warden, 4 fellows, 6 poor brethren, 6 poor sisters, 12 scholars, and 30 out members. Its income from endowment in 1626 was £800, but through the rise in the value of the estates for building sites, this gradually increased to £12,000 or £14,000, all paid to the master and trustees. By act of parliament, passed Aug. 28, 1857, a thorough reform was effected. The old officers were superseded, and a board of 19 unpaid members created to conduct the government of the college from Dec. 31, 1857. This board is in part elected by the parishes for whose benefit the institution was founded, and in part appointed by the court of chancery. One fourth of the revenue is applied to the support of aged men and women, not to exceed at first 24 in number. The educational department, consists of an upper and a lower school, to the former of which all boys between the ages of 8 and 15 are admitted on payment of a fee varying from £6 to £8, whose parents or next friends reside

in any of the parishes to which the benefits of the establishment are limited, while boys from other parishes may be received with a fee of from £8 to £10. To the lower school all boys from the parishes already alluded to are admissible as day scholars on payment of 5*s.* a quarter each when under 14, and 10*s.* a quarter each if over 14. No boy can remain in the upper school after attaining the age of 18, nor in the lower school after 16. The number of foundation scholars is not to exceed 24, and all boys, whether of the upper or lower school, may become annual candidates for this privilege, which entitles its possessors to be clothed, supported, and educated at the expense of the institution. There is a valuable picture gallery, chiefly of Italian and Flemish paintings, attached to the college.

DUMANOIR, Philippe François Pinel, a French vaudevilliste, born in Guadeloupe, July 25, 1808. He received his education in Paris, and his first play, produced at the *Variétés* theatre, *La semaine des amours*, was received with favor. His most popular pieces are *Don César de Bazan* and *Les premières armes de Richelieu*. D'Ennery was his collaborator in the former, and Bayard in the latter. From 1838 to 1841 he was manager of the *Variétés*. His *École des agneaux* obtained for him a gold medal from the minister of state in 1855.

DUMAS, Alexandre Davy (De la Pailleterie), a French general, born in Jérémie, Hayti, March 25, 1762, died in Villers-Cotterets, France, Feb. 26, 1806. He was the son of a wealthy planter, the marquis de la Pailleterie, by an African negro girl, was sent to France to be educated, and at the age of 14 enlisted, under his mother's name of Dumas, as a private in a cavalry regiment. He made himself known by his vivacious temper, handsome figure, and prodigious strength, being able, it is said, to strangle a horse between his knees; but this did not much improve his condition, as at the end of 16 years he was merely a non-commissioned officer. But while serving under Dumouriez, he performed several daring acts which pointed him out for promotion. He rapidly passed through every rank until, in Sept. 1793, he was appointed general of division. In 1796 and 1797 he served in Italy under Bonaparte, and was especially employed in the Tyrol, where, at the battle of Brixen, he alone defended a bridge against the enemy, giving the French time to come to the rescue, in consequence of which Bonaparte presented him to the directory as "the Horatius Cocles of the Tyrol." He served with no less distinction in Egypt; but upon some disagreement with Berthier, he departed for France. The ship on board of which he had embarked being obliged to put into Taranto, he was arrested by the Neapolitan government and detained for 2 years. After his release the first consul declined to give him an appointment on account of his republican opinions. He retired to the small town where he had married, and there after 3 years' sufferings died of consumption, in a state bordering on destitution.—Alexandre Davy, a French dramatist and novelist, son of the preceding, born in Villers-Cotterets, July 24, 1803. After his father's death, he was left to the care of his mother, who left him entirely to his own guidance; she sent him indeed to school, but the boy was very irregular in his attendance, learned very little French and less Latin, but became a good horseman, billiard player, fencer, and shot. At the age of 15 he was placed as copying clerk with a notary; at 18 he began to write for the stage, though none of the plays produced at this period were accepted; and at 20 the pressure of family difficulties sent him to Paris, where he applied to his father's friends to obtain employment for him. After several disappointments he was befriended by Gen. Foy, who procured for him a small office in the household of Louis Philippe, then duke of Orleans. His salary of 1,200 francs a year was a fortune to the young man; he summoned his mother to Paris; but his active mind already aimed at higher pursuits. He devoted his leisure hours to completing his imperfect education, wrote some light poems, and as early as 1825 produced at the *Ambigu* a play called *La chasse et l'amour*, the composition of which he shared with MM. Rousseau and De Leuven. His first pieces were mostly vaudevilles, brought out anonymously; tragedy also engaged his attention for a while, but he soon abandoned it. His genius was awakened by the performances of an English company, which in 1827 presented some of Shakespeare's plays in Paris; in common with several of his contemporaries, he felt that the French stage needed reform, and he resolved to be one of the apostles of the new dramatic creed. He brought out in 1828 a historical play, *Henri III. et sa cour*, constructed with utter disregard of the ordinary rules. It created a lively sensation, and though vigorously assailed by the critics was enthusiastically applauded by the public; the young author realized from it no less than 30,000 francs in a few months. *Christine*, or *Stockholm, Fontainebleau, et Rome*, another historical drama in verse, was also well received; and new pieces from his fertile pen appeared in rapid succession, which, while eliciting severe criticism, drew crowded houses. *Antony* was received with signal favor in 1831; if not the best, it is the most characteristic production of its author. *Richard d'Arlington* and *Térésa* came next. *Le mari de la veuve* appeared in April, 1832; and the *Tour de Nesle*, first represented in the following month, had the unparalleled run of over 200 successive nights; the germ of this piece had been furnished by Frédéric Gaillardet, but its details, historical character, powerful interest, and irresistible pathos belonged to Dumas. *Angèle* came out in 1833, *Catherine Howard* in 1834, and *Kean* in 1836; the latter was written expressly for Frédéric Lemaitre. *Don Juan de Maraña*, a fantastic drama, followed; then a Roman tragedy, *Caligula*, the prologue of which is in itself a poem; and finally *Mlle. de*

Belle-Isle, which is in some respects perhaps the best of his dramatic productions. Dumas was now unquestionably the first among the French dramatists. He had meanwhile entered the field as a novelist, beginning with *Isabelle de Bavière*, a romantic picture of France in the 15th century. His intention was to give, under the title of *Chroniques de France*, a series of novels, in which he intended, somewhat in imitation of Walter Scott, to treat the most interesting incidents of French history; and this project he has pursued with some perseverance. These, and his *Impressions de voyage*, narrating his travels through Switzerland and Italy, were eagerly read, and the public found that the stirring dramatist was a still more enticing story-teller. *Les trois mousquetaires* and *Le comte de Monte Christo*, both of which appeared in 1844, even excelled his theatrical works, and gave a new character to his reputation. The success of these and similar books was only equalled by the wonderful rapidity with which they were produced. Such was the confidence of Dumas in the fertility of his imagination, that in 1846 he made a contract to furnish 2 newspapers with an amount of manuscript equal to 60 volumes a year; and this exclusive of his plays and other occasional productions. Such abnormal fecundity raised the question whether he was really the author of the books bearing his name. A lawsuit in which he was involved in 1847 with the directors of the *Presse* and *Constitutionnel* brought to light the fact that he had engaged to furnish those journals with more volumes than a rapid writer could even copy; but though it is certain that he makes liberal use of the talents of assistants, he claims sufficient share in the plan and execution of every work to make it truly his own. A judicial decision finally supported this claim. He is remarkable for indefatigable industry and singular facility of composition, his daily work averaging 32 pages of an ordinary French octavo volume. Among his novels we may mention *Les mémoires d'un médecin*, or rather *Joseph Balsamo*, *Le collier de la reine*, *Ange Pitou*, and *La comtesse de Charny*, a sort of romantic review of the latter part of the 18th century. Novel writing has not withdrawn Dumas from the drama; beside adapting for the stage some of his most successful romances, he has occasionally written original pieces, such as *Un mariage sous Louis XV.*, *Les demoiselles de St. Cyr*, *Le comte Hermann*, *La jeunesse de Louis XIV.*, *La conscience*. He has found time also to publish historical books: *Louis XIV. et son siècle*, *Le drame de 93*, *Le régent et Louis XV.*, *Florence et les Médicis*. In 1852 he began the publication of his *Mémoires*, a curious autobiography, which also presents interesting sketches of literary life during the restoration; and though in itself a monument of egotism, it is full of such unfeigned admiration for his eminent contemporaries, such candor, generosity, and genuine humor, that no impartial reader can help sympathizing with its author. In March, 1856, it had extended to 27 volumes. Though a republican in politics, Dumas was on terms of friendship with the royal family of Orleans, used his influence to elicit from them acts of benevolence, not unprofitable to their popularity, and when they were exiled from France, he was bold enough to praise the young princes in several public meetings. He now tried to acquire political importance through the publication of a daily newspaper, *La Liberté*, and afterward a monthly review, *Le Mois;* but failing in this attempt, he published for 2 or 3 years the brilliant *Mousquetaire*, which he revived in 1857 under the title of *Monte Christo*, and in which he continues to publish his romances, translations, *Mémoires*, &c. Previous to 1848 his pen procured him an income of nearly 60,000f. a year, and he had undertaken, near St. Germain, the building of a small but fantastic and costly country seat, which became celebrated under the name of *château de Monte Christo*. The revolution cutting short his means, the chateau, upon which he had already expended 450,000f., was offered at auction in 1854, and sold for less than a tenth of its original cost. Dumas was married in 1842 to Mlle. Ida Ferrier, an actress of the Porte St. Martin. In 1853 he went for a time to Belgium; in 1858 he travelled in Russia, the Caucasus, Greece, and Turkey, and returned to Paris in the spring of 1859. Among his works published in 1858 are *Le capitaine Richard* (3 vols. 8vo.), *L'Horoscope* (3 vols.), *Les louves de Machecoul* (10 vols.), and *L'honneur est satisfait*, a prose comedy in one act, played at the *théâtre du Gymnase;* and a sketch of his recent travels, *De Paris à Astrakan*, appeared in 1859. Notwithstanding his bold plagiarisms, and the faults incident to his writing so much and so fast, his books enjoy a popularity, even in other languages, such as few others can boast, and it is probable that literary labor never before brought a man so large a fortune. In skilfulness of arrangement, vivacity and sustained interest of narrative, and inventive faculty, no living French author rivals him; but most of his writings pander to a morbid love of the extravagant, eccentric, melodramatic, and frivolous, and tend rather to amuse and dazzle the fancy than to produce any abiding influence upon the mind of the reader. Dumas, though the son of a white woman, presents all the characteristics of the mulatto, except color, even more strongly than his father. The English translations of his principal novels have attained an immense circulation in the United States. The most popular are the "Count of Monte Christo," the "Three Guardsmen," "Twenty Years After," the "Vicomte de Bragelone," "Margaret of Anjou," and the "Memoirs of a Physician" and its continuations.—Alexandre, a French novelist and dramatist, son of the preceding, born in Paris, July 28, 1824. At 16 he published a volume of light poems under the title of *Péchés de jeunesse*, which have been forgotten and forgiven; then he took to novel writing, and produced *Quatre femmes et un perroquet*, *Le roman d'une femme*,

Le docteur servant, *Quatre hommes forts*, *La vie à vingt ans*, which presented indications of neither extraordinary talent nor originality. But suddenly in 1851 he published the *Dame aux camélias*, which showed him under a new aspect, and made a prodigious sensation. This was nothing else than the history, slightly amended and embellished, of a woman of the town, Marie Duplessis, with whom he had been on intimate terms, and who had lately died of consumption; but it was narrated with such simplicity and pathos that it had, as the French say, a "success of tears." Two other novels, *Diane de Lys* and *La dame aux perles*, having however followed without attracting particular attention, he tried his hand at the stage. An unparalleled popularity attached to the *Dame aux camélias* under its new garb; it drew crowded and enthusiastic houses at Paris and all over France, was translated, performed, and admired everywhere, and was set to music by Verdi in his *Traviata*. In the United States several versions, "Vice and Virtue," "Camille," "The Fate of a Coquette," were presented at once on the stage. *Diane de Lys* underwent the same process of transformation, but not with the same success; and then, instead of continuing this adaptation of novels to the stage, Dumas wrote original pieces. *Le demi-monde*, performed in 1855, gave new evidence of acuteness of observation, dramatic power, and cutting wit. The same merits are perceptible in *Le fils naturel* and *La question d'argent*, which appeared in 1856 and 1857, the former a mere drama of the imagination, the latter a satire on the worship of money. Dumas *fils*, as he is generally called, presents a striking contrast to his father; instead of imprudently lavishing his wit and money, he uses both with a sparing hand.

DUMAS, Jean Baptiste, a French chemist and politician, born in Alais in July, 1800. Under the patronage of De Candolle, at Geneva, he early acquired considerable proficiency as a botanist and a chemist. In 1821 he repaired to Paris, married there the daughter of Alexandre Brongniart, and henceforth gave his undivided attention to chemistry. He was a professor in the polytechnic school, in the faculty of science, and in the school of medicine, a member of the academy of science and that of medicine, and president of the society for the encouragement of national industry; he was frequently consulted by the government of Louis Philippe, and presented several reports on important questions. After the revolution of 1848 he was elected to the legislative assembly, and was called by President Bonaparte, Oct. 31, 1849, to the ministry of agriculture and commerce, which he held until Jan. 9, 1851. After the *coup d'état* of Dec. 2, 1851, he was appointed a senator and vice-president of the municipal commission of Paris. His scientific memoirs, and his *Traité de chimie appliquée aux arts* (8 vols. 8vo.), including his organic chemistry, are highly valued.

DUMAS, Matthieu, count, a French soldier and historian, born in Montpellier, Nov. 23, 1753, died in Paris, Oct. 16, 1837. In 1780 he sailed from Brest as aide-de-camp to Rochambeau, the commander of the French troops sent to assist the Americans in their struggle for independence, and participated in nearly all the subsequent important actions of the war, including the victory of Yorktown. On the conclusion of peace in 1783, he visited Hayti; then returning to Europe, he was for two years employed in the exploration of the sea-coasts and islands of Turkey. At the beginning of the revolution he sided with Lafayette and the constitutional party; when Louis XVI. was arrested at Varennes he commanded the troops who accompanied him to Paris. As a member of the legislative assembly, he evinced wisdom, firmness of opinion, and considerable oratorical power. During the reign of terror he was arraigned and sentenced to death, but succeeded in escaping to Switzerland. After the 9th Thermidor he returned to France, and was afterward elected to the council of 500. Being proscribed as a monarchist on the 18th Fructidor, he fled to Germany, where he commenced writing his annals of military events. Returning to his country under the consulate, he was intrusted with several important missions. In 1806 he followed Joseph Bonaparte to Naples, was appointed by him minister of war, and organized the Neapolitan army. On the removal of Joseph to Spain he reëntered the French army, and actively participated in the campaigns of 1808 in Spain and 1809 in Germany. He was superintendent of the administrative service of the Russian expedition in 1812, escaped the dangers of the disastrous retreat, was made prisoner in Germany in 1813, was liberated on the peace of 1814, and served the Bourbons during the first restoration. On the return of Napoleon from Elba he refused at first to join him; but yielding to the entreaties of Joseph Bonaparte, he consented to superintend the organization of the national guards of the empire. For this he was placed on the retired list when Louis XVIII. resumed the crown. He now completed his *Précis des événements militaires*, an excellent work, giving a copious and lucid account of military operations from 1798 to 1807 (19 vols., Paris, 1816–'26). The almost total loss of his sight disabled him from continuing his work, but did not prevent him from translating a portion of Napier's "History of the Peninsular War," as a sort of supplement to it. He was elected to the chamber of deputies in 1828, actively participated in all the parliamentary proceedings, evinced decision and energy during the revolution of 1830, and was instrumental in the elevation of Louis Philippe to the throne. Beside the works above mentioned, he left some interesting personal memoirs, since published by his son under the title of *Souvenirs*.

DUMBARTONSHIRE, an E. co. of Scotland, anciently called Lennox, consisting of 2 detached portions, the larger lying between Lochs Lomond and Long and the frith of Clyde, the smaller

between the counties of Lanark and Stirling; area, 297 sq. m.; pop. in 1851, 45,103. The surface is mostly mountainous, and the soil, except in the lowlands, is poor. The best land, however, is highly cultivated, producing potatoes, grain, beans, and turnips. Large tracts are devoted to pasturage, and there are several nurseries for raising timber. The principal minerals are coal, iron, limestone, and freestone.—DUMBARTON, or DUNBARTON, on the Leven, commanded by an ancient fortress, a stronghold for at least 1,000 years, and one of the 4 stipulated to be kept in repair by the articles of the union between England and Scotland, is the capital; pop. in 1851, 4,590.

DUMDUM, a town and military station in the district of the Twenty-four Purgannahs, presidency of Bengal, British India, 10 m. S. E. of Barrackpoor and 8 m. N. E. of Calcutta. It was formerly the head-quarters of the Bengal artillery, and the seat of a training school for young officers and recruits from England. It contains handsome establishments for the officers, a large church, a free school, a depot of musketry, and an excellent cannon foundery containing a boring room in which 12 guns can be bored at once, and said to be better arranged than that at Woolwich. Though not actually the scene of revolt in 1857, Dumdum was one of the first places at which the sepoys exhibited symptoms of dissatisfaction. About the end of Jan. 1857, it became known that the native soldiers connected with the musketry school of practice here objected to the new cartridges furnished them for use with the Enfield rifle, on the ground that they were greased with cow's and hog's fat, to touch which with the lips would be sacrilege for a Hindoo and pollution for a Mohammedan. The objectionable missiles were at once withdrawn and the troops were appeased, but the grievance was taken up at other stations and became one of the causes or pretexts of the sepoy mutiny.

DUMÉRIL, ANDRÉ MARIE CONSTANT, a French physician and naturalist, born in Amiens, Jan. 1, 1774. From 1801 to 1818 he was professor of anatomy and of physiology of the medical faculty of Paris. In 1825, on the death of Lacépède, whose adjunct professor he had been for 22 years, he assumed his functions as the professor of herpetology and ichthyology at the museum of natural history. During a period of 4 years he also lectured on natural history in the *école centrale* of the Pantheon in the place of Cuvier. His works on natural history and analytical zoology are distinguished both for accuracy of details and for philosophical treatment. In his most celebrated production, *L'erpétologie générale* (Paris, 1834–'54, 9 vols. with illustrations), which contains the first attempt at a systematic description of all known reptiles, he had Bibron as collaborator. One of his best essays on the classification of fishes appeared in 1855 at Paris.

DUMFRIESSHIRE, a frontier co. of Scotland, on the Solway frith; area, 1,129 sq. m.; pop. in 1851, 78,123. A large portion of its surface is mountainous, especially in the N. and N. E. parts, where there are summits over 3,000 feet above the sea. There are many lochs, the principal of which are Castle loch of Lochmaben, and Loch Skene, 1,300 feet above the level of the sea, whose waters in making their way to the valley below form the beautiful cascade called the Gray Mare's Tail. Three rivers, the Nith, the Annan, and the Esk, give their names to the 3 popular divisions of the county, Nithsdale, Annandale, and Eskdale, and beside these there are a few smaller streams. Limestone is found in considerable quantities, and there are also mines of coal and lead, and some manufactures; but agriculture, and especially the rearing of cattle, sheep, and pigs, are the principal occupations of the inhabitants. The county was included by the Romans in the province of *Valentia*.—DUMFRIES, the capital of the county, is situated on the Nith, 9 m. from its mouth. It has a large trade in cattle and pork, and manufactures of hats, stockings, clogs, and common shoes. It was here that Bruce in 1306 assembled the Scottish nobles to deliberate on his project of gaining the throne of Scotland; here, in the chapel of the gray friars' convent, John Comyn was killed by Bruce, Feb. 10 of that year; and here was the residence of the poet Burns during the last years of his life.

DUMMER, JEREMIAH, an American scholar, born in Boston about 1680, died in Plastow, England, May 19, 1739. He was graduated at Harvard college in 1699, where he was noted for the vigor and brilliancy of his genius. With the purpose of preparing for the clerical profession, he went abroad, and studied in the university of Utrecht. On his return to America he abandoned his chosen vocation, and soon after went to England, where, as agent of Massachusetts, he rendered important services to his countrymen. He was an admirer of Lord Bolingbroke, in whose daring and reckless genius he found much that was congenial to his own character, and in intimacy with whom he adopted something of his moral and religious license. He published theological and philosophical disquisitions in Latin while at Utrecht, and his defence of the New England charters, written in England, is admirable both in style and matter. The traditions and records concerning Mr. Dummer alike testify to his remarkable powers, and his easy command of them in speaking, writing, and in intercourse with men.

DUMMODAH, or DAMMOODAH, a river of Bengal, rising in the British district of Ramgurh, flowing S. E., and then S., and joining the Hoogly on its right bank, after a course of 350 m. Its valley is to be traversed by a railway from Calcutta, and is known to abound in coal and iron.

DUMONT, PIERRE ÉTIENNE LOUIS, a Swiss scholar, the editor in French of the writings of Jeremy Bentham, born in Geneva, July 18, 1759, died in Milan, Sept. 29, 1829. His father, who had experienced great reverses of fortune, left

him in early infancy an orphan along with 3 sisters, to the care of a mother who had no resources but her talent and virtues. He was destined for the pulpit, and was ordained a minister of the Protestant church of Geneva in 1781. He distinguished himself as a preacher, at the same time taking a warm interest on the liberal side in the political controversies of his native city. In consequence of the triumph of the aristocratic faction in the spring of 1782, by means of the armed mediation of France, Savoy, and the aristocratic Swiss cantons, he went in 1783 into a sort of voluntary exile, betaking himself to St Petersburg, where his father had formerly been court jeweller. He was appointed pastor of the French Reformed church in that city; his mother followed him thither, and his sisters were honorably married there. Here also his eloquence attracted much attention; but, after a residence of 18 months, he was induced in 1784 to go to London to act in the capacity of reader to Col. Barré, who had become blind, and needed a companion. Barré was an intimate friend of Lord Shelburne, created marquis of Lansdowne, into whose family Dumont soon passed to assist in the education of the 2d son of the marquis. Here he became acquainted with Romilly and with Bentham, with the writings and ideas of the latter of whom he was so much impressed as to conceive the scheme of bringing them out in a French version. In 1788 he took a journey to Paris in company with Romilly, and through him was introduced to Mirabeau, who had made Romilly's acquaintance during a visit to London in 1784. At the request of the Genevan exiles in London, Dumont in 1789 made a second journey to Paris in company with M. Duroverai, ex-attorney of the republic of Geneva. Their object was to attain through the return of Necker to office, and the events then passing in France, support for the revolution already commenced at Geneva, and an unrestricted restoration of Genevese liberty, by cancelling a treaty between France and Switzerland, which prevented Geneva from enacting new laws without the consent of the parties to that treaty. His acquaintance with Mirabeau was renewed, and he as well as Duroverai immediately entered into very close relations with that remarkable person, assisting him in the preparation of his speeches, writing for him his published letters addressed to his constituents, advising with him as to his course, and becoming joint editor with him of a journal called the *Courrier de Provence*. The pecuniary ill success of this publication, the abatement of Dumont's sanguine hopes of political regeneration, the character of Mirabeau himself, and the attacks levelled at Duroverai and Dumont in journals and pamphlets, as being his tools, determined Dumont to leave Paris. His friends in London strongly urged his return on the ground of the antipathy then springing up in England against the French revolutionary party —a consideration of the more importance to Dumont, since he held by the appointment of Barré a sinecure under-clerkship worth about £400 a year. He quitted Paris in March, 1791, shortly before Mirabeau's death, for Geneva, but returned again in May, proceeding afterward to London in company with Thomas Paine, whom he had met in Paris, but whose acquaintance he did not keep up. In March, 1792, he again returned to Paris in company with Duroverai and Talleyrand, the latter of whom had lately visited England. Talleyrand wished to use the influence of Duroverai and Dumont in softening the feelings of the Girondists toward England, and induced them to return with him to Paris. When Talleyrand was soon after appointed one of a formal embassy to England, Dumont went with him. The embassy was very coolly received, and Talleyrand returned soon after to Paris. Dumont refused to accompany him; but in November of the same year, the French government having then passed into the hands of the Girondists, he visited Paris, on behalf and at the request of the magistrates of Geneva, that city being threatened with an attack from the French. Having completed this business, Dumont paid a short visit to Geneva, and thence returned to London. His "Recollections of Mirabeau," written some 10 years after, but which only appeared as a posthumous work, contains a very interesting account of his observations and experiences in Paris. Still enjoying, after his return to England, the hospitalities of Bowood, the seat of the Lansdowne family, and of Holland house, he now devoted himself to the labor of drawing from the manuscripts and printed works of Bentham a lucid and popular view of that philosopher's system of jurisprudence; a work, however, in which Bentham, then much engrossed with his panopticon project, declined to take any part. In 1802, during the peace of Amiens, Dumont visited Paris, and published there the first instalment of his labors, *Traités de législation civile et pénale* (3 vols. 8vo.). This work attracted great attention throughout Europe; and in 1806, while Lord Henry Petty, Dumont's former pupil, was chancellor of the exchequer, his sinecure clerkship was superseded by a pension of £500, one ground of which was the service he had rendered by this publication. In 1811 he published at London another instalment of his labors in 2 vols., *Théorie des peines et des récompenses*, of which 2 editions subsequently appeared at Paris. In 1816 he published at Geneva *Tactique des assemblées législatives;* in 1823 at Paris, in 2 vols., *Preuves judiciales;* and in 1828, *Organisation judiciale, et codification.* All these treatises reappeared in a single collection edited by Dumont, and published at Brussels in 1828, shortly before his death. However small Dumont's share in the substance of these works, they owed almost entirely to the dress in which he clothed them the attention which they attracted, and the impression which they made; and it was to his labors that Bentham was indebted for his wide-spread reputation in Europe, into the principal languages of

which, including the Russian, the *Traités de législation* were translated. When Geneva recovered her liberties in 1814, Dumont hastened to return thither. He carried with him a small fortune, married, and spent there most of the remainder of his life. Upon his first arrival he drew down upon himself a bitter storm by some criticisms which he made upon the form of government adopted by the republic, and which seemed to him too aristocratically narrow. He was chosen, however, a member of the sovereign representative council, and did what he could to liberalize and improve the institutions of his native city. Being placed on a committee to prepare rules of proceeding, he drew up a set based on Bentham's legislative tactics, the adoption of which was agreed to. In 1817 he laid before the magistrates a draft of a penal code, borrowed principally from Bentham's manuscripts, and accompanied according to Bentham's system with a running commentary of reasons. This plan was referred to a commission, of which Dumont was a member, before whom, and a sub-committee of the same, it underwent during 4 years innumerable discussions. Dumont then published it as originally offered. The lawyers made a violent opposition to it. The commentary of reasons proved a great stumbling block. It was again referred to new committees, before which it was still lingering at the time of Dumont's death. He was more successful in obtaining the establishment of a penitentiary on Bentham's panopticon plan. In his latter years he occasionally visited England, whence he still continued to draw his pension, and where he had many friends. Bentham, for some reason which does not appear, perhaps from the mere caprice of old age, finally became estranged from him, spoke of him with some asperity, and the last time he called at Queen's square place, refused to see him. This coolness much affected Dumont, who retained his reverence for Bentham to the last.

DUMONT D'URVILLE, Jules Sébastien César, a French admiral and navigator, born in Condé-sur-Noireau, May 23, 1790, died May 8, 1842. In 1816 he visited the Grecian archipelago and the shores of the Black sea, collected a number of new plants, of which he afterward published descriptions, and investigated the ruins of several ancient cities. It is said to have been at his suggestion that the French ambassador at Constantinople purchased the statue of Venus of Milo, which a peasant had lately found in his field. In 1822 he accompanied Duperrey in his voyage round the world, and returned in 1825, bringing a rich collection of insects, and a herbarium containing 3,000 specimens, about 400 of which were new. Soon after, being appointed to the command of a frigate, he was sent upon a new expedition to explore the Australian archipelago and the islands of New Zealand and New Guinea. He discovered several islands which Cook had not perceived, established the locality of the Loyalty isles, and brought home over 4,000 sketches of scenery and natural history, 10,000 specimens of various kinds of animals, and more than 6,000 species of plants. He was living in retirement, engaged in writing the account of his voyages, when the revolution of July broke out, and he was chosen to conduct the unfortunate Charles X. to England. In 1837 he undertook, with the sloops of war Astrolabe and Zélée, his third and last voyage, with the design of exploring the antarctic regions, and before his return circumnavigated the globe through the southern seas. He brought back vast collections illustrative of botany, zoology, and mineralogy. He landed at Toulon after an absence of 38 months, was raised to the dignity of rear admiral, and went to Paris to superintend the publication of the account of this voyage at the expense of the government. Only the 2d volume was published, when the author was killed, with his wife and son, in the great railway disaster on the line of Paris and Versailles. The whole work was completed under the supervision of M. Vincendon-Dumoulin, in 24 vols. 8vo., with 6 folio vols. of illustrations (Paris, 1841–'54). The departments of zoology, botany, anthropology, geology, &c., were treated by special writers attached to the expedition.

DUMOURIEZ, Charles François, a French general, born in Cambray, Jan. 25, 1739, died in Buckinghamshire, England, March 14, 1823. He served with great distinction and was frequently wounded during the 7 years' war, but his only reward was a pension of 600 livres a year and the cross of St. Louis. Impatient of an inactive life, he engaged in the war and intrigues which brought on the annexation of Corsica to France, and would possibly have prevented the partition of Poland, if his protector Choiseul had not been dismissed from power. On the accession of Louis XVI. he was put in command at Cherbourg, where important improvements were accomplished under his direction. In 1788 he was appointed brigadier-general. During the first years of the revolution, he managed to maintain friendly intercourse with the court while gaining popularity with the revolutionists. A member of the club of Jacobins, and on very good terms with the Girondists, he assumed in March, 1792, the ministry of foreign affairs in the cabinet formed by the latter. His counsels displeased the king; he also disagreed with his colleagues, who were dismissed, and he himself resigned. Assuming, Aug. 20, 1792, command of the French army on the N. E. frontier, then invaded by the Prussians under the duke of Brunswick, he succeeded by a series of brilliant operations in stopping the advance of the enemy, who were defeated, Sept. 21, at Valmy, and forced to retreat. He now crossed the frontier, routed the Austrians at Jemmapes, Nov. 6, took possession of Brussels, and within one month completed the conquest of Belgium. In the beginning of Jan. 1793, he repaired to Paris, entered into secret negotiations for the rescue of the king, which soon transpired, and he was denounced but not deprived of his commission. He now planned the conquest of Holland; but having been defeated

at Neuwinden, March 18, 1793, by the duke of Coburg, he plotted, in concert with the enemy, the overthrow of the republic. The convention then summoned him to appear at their bar, and on his refusal the minister of war, Beurnouville, and 4 commissaries were sent to arrest him in the midst of his own army. Dumouriez had them seized by some of his hussars and delivered to the Austrians; but he had mistaken the sentiments of his own troops, and no alternative was left him but to desert his army and country. This he did in company with the young duke of Chartres, the future king Louis Philippe, the indignant soldiers firing at them while they escaped. He was coldly received by the Austrians, who looked for a powerful army and not a lonely fugitive. After wandering through Belgium, Switzerland, Germany, Denmark, and Russia, he finally repaired to England, where, in consideration of some secret services, he received a pension of £1,200. He then published his *Mémoires* and a series of pamphlets on the affairs of France. He is reported to have had a large share in devising the plans of military operations against the French armies; and Wellington studied with advantage his annotations to the translation of Hagner's "Campaigns of Schomberg in Portugal," in which he pointed out the best means of opposing the French in the peninsula. He is positively charged by Montgaillard with having in 1814 given directions to the allied armies for the invasion of France. However this may be, he did not succeed in conciliating the favor of the Bourbons, and vainly solicited from Louis XVIII. a marshal's baton. He never returned to France.—See *La vie et les mémoires du général Dumouriez*, by himself (3 vols. 8vo., Hamburg, 1795).

DÜNA, or Southern Dwina, an important river of Russia. It rises near the source of the Volga in the government of Tver, flows about 500 m. with a very circuitous course, but with a general W. direction, separating the governments of Vitebsk and Livonia on the right from Wilna and Courland on the left, and discharges into the gulf of Riga near the town of the same name. Its waters abound in fish, and the river is deep enough to be navigable for the greater part of its length, but is obstructed by rocks and shoals. It is connected by canals with the Volga, the Beresina, the Niemen, and Lake Ilmen.

DUNBAR, a small seaport town in the eastern part of Scotland, in the county of Haddington, at the mouth of the firth of Forth, 28 m. E. from Edinburgh; pop. in 1851, 3,038. It has manufactories of soap, iron, steam engines, sail cloth, and cordage, and some trade. Vessels of 300 tons can enter the harbor, but the navigation is somewhat dangerous. Dunbar is a place of great antiquity, and its castle, now in ruins, was formerly a famous stronghold. It has been the scene of many interesting events in history. In 1296 the Scots were defeated here with great slaughter by the English army of Edward I. In 1337, Black Agnes, countess of Dunbar, defended the castle for nearly 5 months against the earl of Salisbury. Another important battle was fought near this town in 1650 between Cromwell with 11,000 men and Gen. Lesley at the head of a Scottish army twice as large, in which the latter was decisively defeated.

DUNBAR, William, an early Scotch poet, pronounced by Sir Walter Scott "unrivalled by any that Scotland has ever produced," born in Salton about 1460, died about 1520. He received the degree of master of arts from the university of St. Andrew's in 1479, and then becoming a friar of the Franciscan order he travelled over England and France, occasionally preaching and receiving alms, and deriving a precarious sustenance, as he himself admitted, by deceit and flattery. Weary of this errant life, he returned to Scotland, was received at the court of James IV., and delighted his royal master with his poetical compositions, and probably also with the charms of his conversation, in which he revealed both his native wit and his knowledge of mankind. His poems show a mastery of almost every kind of verse. Some of them were printed in 1508; many remained for 2 centuries in manuscript, but their fame has steadily increased since their publication at Edinburgh and Perth in 1770 and 1778. The "Thistle and Rose" was a nuptial song to celebrate the marriage of King James IV. with the princess Margaret of England. The "Dance" is a strangely imaginative poem, in which Mahoun (a name of Satan, derived from Mohammed) asks his principal ministers to entertain him with a mummery, or sort of ballet spectacle; whereupon the 7 deadly sins present themselves and deliver verses, some of which are hardly surpassed in strength and sublimity, and which are severe criticisms upon the vices of the time. The short poem of the "Merle and Nightingale" is a striking picture of the contest between earthly and spiritual affections, the merle recommending a lusty life in love's service, and the nightingale declaring that all love is lost but upon God alone. All the poems of Dunbar abound in allegory. A complete edition of them was published in Edinburgh in 1824 by Mr. David Laing, with an excellent life of the poet.

DUNCAN, Adam, lord viscount of Camperdown, an English admiral, born in Dundee, July 1, 1731, died near Edinburgh, Aug. 4, 1804. He entered the British naval service at an early age, and was promoted to a post-captaincy in 1761. He distinguished himself under Keppel in the successful attack upon Havana, and after the war with France recommenced he was in 1780 placed in command of a ship under Rodney, whose orders were to force a passage to Gibraltar through whatever impediments and relieve that fortress, then attacked by the Spaniards both by land and sea. Off Cape St. Vincent Rodney met a Spanish squadron under command of Langara, which had been sent to intercept him, and in the engagement which ensued Duncan signalized his valor by being the first to bring his ship into action, and the flag of one of the heaviest of the enemy's ships was struck to

him. In 1787 he obtained the rank of rear admiral, and in 1795 became admiral of the blue, and was appointed to the command of the British forces in the North sea. The service which his position required of him was to guard the coast of Holland and capture any merchant vessels which might venture to sea, and in this employment within 2 years he had annihilated the Dutch, or, as it was then termed, the Batavian commerce. In 1797 he succeeded in blockading a large fleet under Vice-Admiral De Winter in the Texel, when a serious mutiny broke out in his own squadron. Insubordination had become general throughout the British navy, and the ships which abandoned the fleet of Duncan joined at the Nore other mutinous ships from Plymouth and Sheerness. The English government trembled for its navy; the rebels refused all terms of accommodation, and Duncan had but 2 ships faithful to him. Yet when he advanced against the mutineers with even this force, the dissensions which had taken place among them caused several of their ships to drop the red flag and return to their duty, and the sedition was quickly ended. Duncan then resumed the blockade of the Texel, but was at length obliged to put into Yarmouth roads for repairs and provisions. There intelligence was brought to him that De Winter, the Batavian commander, had availed himself of his absence to put to sea. The English admiral immediately weighed anchor and set sail, and with a favorable wind and by a masterly manœuvre succeeded in placing himself between the Dutch and their place of retreat in the Texel, and thus in forcing them to an engagement. The two fleets met between Camperdown and Egmont, within 5 m. of the coast. De Winter was drawing fast toward the land, with the design, if attacked, to bring both fleets ashore, and thus to make it a victory to himself, it being upon his own coast. Duncan, however, began the action precipitately, without waiting to form a line, and the purpose of the Batavian vice-admiral was frustrated. De Winter maintained the contest for some time with his own flag ship after the rest of his fleet had either been captured or had quitted the action, and struck his colors only when his ship was entirely dismasted, riddled, and disabled. The loss of the English in this hard-fought battle was 1,030 killed and wounded, while that of the Dutch was considerably greater. The English took 9 sail of the line and 2 frigates. The victory created the utmost enthusiasm in England, where it was hailed as a presage of the downfall of the maritime power of Holland, long the most formidable rival of England on the seas. Duncan was created lord viscount of Camperdown, with a pension of £2,000; parliament addressed to him its thanks, and London voted him a sword of honor. He remained in active service against the Batavian republic till 1800, after which time he retired to Scotland.

DUNCAN, Joseph, an American general and politician, born in Kentucky about 1790, died in Jacksonville, Ill., Jan. 15, 1844. In the war of 1812 he took part in the brilliant defence of Fort Stephenson, under Col. Croghan, and after the close of the war he removed to Illinois. In 1824 he was elected to the senate of that state, after which he was successively representative in congress and governor of Illinois. While in the state legislature he originated the law establishing common schools.

DUNCAN, Thomas, a Scottish artist, born in Perthshire, May 24, 1807, died in Edinburgh, May 25, 1845. His paintings gained for him the appointment of professor of coloring and drawing in the academy of Edinburgh, and an election as associate of the royal academy. His picture of Charles Edward asleep after the battle of Culloden, protected by Flora Macdonald, has been frequently engraved. Among the finest of his other pieces are "Charles Edward and the Highlanders entering Edinburgh, after the Battle of Prestonpans," and the "Martyrdom of John Brown of Priesthill."

DUNDALK, a seaport town of Ireland, in the co. of Louth, near the mouth of the Castletown river, 45 m. N. of Dublin; pop. in 1851, 9,995. It has a good harbor on Dundalk bay, contains a number of schools and literary and benevolent institutions, and communicates by railway with Drogheda and Dublin. The manufactures comprise flax spinning, machinery, and agricultural implements, ropes, soap, leather, pins, and starch; and there are also flour mills, breweries, and distilleries. Its trade is important and increasing, especially in agricultural products, which are largely exported.

DUNDAS, an E. co. of Canada West, bordering on the St. Lawrence; area, 377 sq. m.; pop. in 1852, 13,811. Capital, Cornwall.

DUNDAS, Henry, Viscount Melville, a British statesman, born in Edinburgh in 1741, died there, May 27, 1811. He was of the ancient and distinguished family of the Dundases of Arniston, received his education at the high school and university of Edinburgh, was admitted a member of the faculty of advocates in 1763, displayed at once a love of gayety and dissipation and a persevering application to professional duties, and especially availed himself of every opportunity for cultivating his oratorical powers, speaking frequently as a lay member in the annual sittings of the kirk of Scotland, where he first gave signs of that manly eloquence and address which afterward made him the able coadjutor of Pitt in managing the house of commons. His celebrity as an advocate gained him the appointment of solicitor-general in 1773; he was returned to the house of commons for the county of Edinburgh in 1774, and was made lord advocate of Scotland in 1775. He was subsequently chosen member of parliament for the city of Edinburgh, which he continued to represent till his advancement to the peerage. The unpopularity and disasters of the American war, and the invectives of an opposition probably the most talented ever encountered by a British ministry, soon made the fall of Lord North's administration

certain; and though Dundas had been a supporter of that nobleman, his familiarity with affairs made him a valuable accession to the administrations of Rockingham and Shelburne, which quickly succeeded, in the 2d of which he held the office of treasurer of the navy. This ministry was obliged to give way before the combined opposition of Fox and Lord North, who, after having for 7 years mutually ridiculed and denounced each other as republican and absolutist, came together in 1783 to form the celebrated coalition ministry, the opposition to which was headed by Pitt and Dundas. The latter had been appointed chairman of a secret committee of the house of commons to inquire into the condition of British India and the causes of the war in the Carnatic, and he now made an elaborate report, extending to several folio volumes, in which he exhibited a complete mastery of the subject, and which he followed up by a bill for the better regulation of Indian affairs. The ministry, however, promising to bring in a bill upon the same subject, Dundas did not press his own proposals, and soon the ministerial pledge was redeemed by the introduction of Mr. Fox's famous East India bill. In spite of the uncompromising opposition of Pitt and Dundas, the passage of this bill was prevented only by the firmness of the king, which necessitated the resignation of the ministry. Pitt was now called to the helm of affairs with a majority in parliament against him. He was powerfully aided by Dundas, who again held the office of treasurer of the navy, and in Pitt's absence led the ministerial party in the house of commons, and whose dexterity as a debater and minute acquaintance with Indian matters were of especial value in carrying Pitt's India bill successfully through parliament against a very serious opposition. Dundas became president of the board of control under this bill, and in 1791 entered the cabinet as secretary of state for the home department. He exchanged this post for that of secretary of war in 1794, when he introduced a bill for restoring the estates in Scotland forfeited on account of the rebellion of 1745; and though the assigned reason for this measure was the valor of the Scotch in the recent wars, it was also most expedient as a means of reconciling the population beyond the Tweed to the reigning family. The investigations of Dundas into eastern affairs originated those discussions which terminated in the impeachment of Warren Hastings; but though his information on the subject was perhaps unsurpassed by that of any of his contemporaries, he neither favored the accusers nor vigorously attempted to vindicate Mr. Hastings from their invectives. He was the principal supporter of Pitt during the wars with France which followed the revolution, until he resigned his offices upon the retirement of that statesman in 1801, and on that occasion he laid before parliament a favorable statement of the condition of the East India company's affairs. In 1802 he was raised to the peerage by the titles of Viscount Melville and Baron Dunsira, and on Mr. Pitt's return to power in 1804, became first lord of the admiralty. He quickly retired from this office, having incurred a charge of violating while treasurer of the navy one of the statutes which he himself had proposed, by which the treasurer was forbidden, contrary to previous custom, to receive any perquisites or make any private or individual use of the public money. The articles of impeachment were prepared by the most celebrated leaders of the opposition, and the trial, opened in the house of lords, April 29, 1806, was conducted with imposing pomp. It resulted in the acquittal of Lord Melville by triumphant majorities, yet not, however, until after the death of Pitt. From this time Lord Melville took part only occasionally in the debates of the house of lords, and spent the most of his time in Scotland. As a statesman he was distinguished for his great capacity for business and his mastery of the subjects on which he spoke. Though his manner was ungraceful and his accent betrayed his northern birth, yet his clear and forcible statements always commanded the attention of the house. He loved society and convivial entertainments, and remembered no party distinctions on festive occasions. The city of Edinburgh contains 2 public monuments to his memory, a fine marble statue by Chantrey, in the parliament house, and a monument surmounted by a statue in St. Andrew's square.—Robert Saunders, Viscount Melville, a British statesman, only son of the preceding, born March 14, 1771, died June 10, 1851. Having previously held several high offices, he was in 1812 appointed first lord of the admiralty, which station he filled until 1827. It was during his administration that the arctic voyages were undertaken, and the navigators bestowed his name upon some of their discoveries. He was afterward again in the ministry from 1828 to 1830, when, his party having been driven from power, he retired from political life. Beside his other honors, he was lord privy seal for Scotland from 1811, and chancellor of the university of St. Andrew's from 1814, until his death.

DUNDAS, Sir James Whitley Deans, vice-admiral in the British navy, born Dec. 4, 1785. He is the son of Dr. James Deans of Calcutta, and assumed the names of Whitley and Dundas in 1808. He entered the navy in 1799, and participated with considerable activity in the naval operations of the next few years, receiving his captain's commission in 1807. He has been a member of parliament and a lord of the admiralty. At the commencement of the war with Russia he was in command of the British fleet in the Black sea, and coöperated with the land forces in the first operations against Sebastopol. His neglect to bombard the city of Odessa, and in general the slowness and cautiousness of his movements, were the subject of severe criticism in the English journals; and upon the expiration of his term of service, in Dec. 1854, he was succeeded in command of the fleet by Rear-admiral Lyons.

DUNDAS, Richard Saunders, rear admiral in the British navy, born April 11, 1802. He is the 2d son of Henry Dundas, 3d viscount Melville; entered the naval service in 1817 as a midshipman, and in 7 years obtained his commission as post-captain. He took part in the expedition against China in 1840, and in command of the Melville, 72, rendered important services at Boca Tigris and other places. From 1852 to 1855 he was a lord of the admiralty, and upon the return of Sir Charles Napier from the Baltic during the war with Russia, was appointed, in Feb. 1855, to succeed him in the command of the British fleet stationed there. In conjunction with Admiral Perraud of the French blockading fleet he bombarded Sweaborg, Aug. 9, 1855. He was again made a lord of the admiralty on the accession of Lord Derby's government in Feb. 1858.

DUNDEE, a royal and parliamentary borough and seaport town of Forfarshire, Scotland, on the left bank of the estuary of the Tay, 42 m. N. N. E. of Edinburgh; pop. in 1851, 78,931; in 1855, estimated at 90,000. It occupies the declivity of a hill, whose summit is 500 feet above the level of the sea, and is rather irregularly built. The modern streets are spacious and handsome. The principal public edifices are the churches, which are very numerous, the old Gothic tower, 156 feet high, the town hall, custom house, exchange, infirmary, lunatic asylum, industrial school, orphan institution, academy, and savings bank. In the centre of the town is a large square called the market place, from which the principal streets diverge. A triumphal arch in the Norman style of architecture has been erected to commemorate Queen Victoria's landing here in Sept. 1844. Some of the docks are very large and magnificent. King William's dock has an area of 6¼ acres, Earl Grey's of 5¼ acres, and the Victoria dock of 14⅓ acres. There are also several fine quays, capable of accommodating 70 vessels with ample berthage, and a crane near the Grey dock which can raise a weight of 30 tons. The chief manufactures are linen, which gives employment to over 20,000 hands, carpets, gloves, and leather. Ship-building, as well of iron as of wood, is also extensively carried on. The commerce of Dundee is very considerable. In 1856 there entered its port 2,323 vessels of 247,725 tons burden, and cleared thence 895 vessels of 124,701 tons burden. The registered shipping of the port was 291 vessels of 54,705 tons. It is governed by a provost, 4 baillies, and 16 councillors, and returns one member to parliament. During the reign of the Scottish kings Dundee was one of their places of residence. At the period of the reformation it was called "the second Geneva" for its zeal in behalf of Protestantism. In 1645 it was besieged, taken, and plundered by Montrose. In 1651 it was stormed by Gen. Monk, and a 6th part of its inhabitants massacred.

DUNDONALD, Thomas Cochrane, earl of, more commonly known as Lord Cochrane, an English rear admiral born Dec. 14, 1775. He is the eldest son of Archibald, 9th earl of Dundonald, who died July 1, 1831, and who was distinguished as a chemist. At 17 years of age he entered the naval service, and during the war with France signalized himself in many actions. Some of his exploits in capturing vessels against great odds are among the most brilliant achievements in the history of the British navy. In 1801 he was made a post-captain, for the capture of a Spanish frigate of far superior force to his own. In 1809 he successfully led a fleet of fire ships among the French fleet at anchor in the Basque roads, for which he was made a knight of the bath. In 1807 he was returned to parliament by the electors of Westminster, and soon incurred the animosity of the government by his radical opinions on questions of reform. In Feb. 1814, a rumor prevailed that Napoleon had abdicated, and Lord Cochrane took advantage of the rise in the funds which ensued to sell out. He was charged with originating a false rumor, and upon trial was convicted of fraud and sentenced to pay a fine of £1,000, to stand in the pillory, and be imprisoned for a year. The pillory punishment was subsequently remitted. He was at the same time expelled from parliament, and degraded from the order of the bath. His constituents, believing in his innocence, which has since been fully established, immediately returned him to parliament again, and his fine was paid by public subscription. Finding it impossible to obtain employment at home, he attached himself successively to the Chilian and Brazilian navies and to the Greeks, in each of which services he earned fresh laurels. In 1830, on the accession of William IV. and a whig government, he returned to England, and was reinstated in all his former honors. In 1851 he became admiral of the white, and in 1854 rear admiral of the United Kingdom. Lord Dundonald is a man of considerable scientific attainments, and the author of "Observations on Rural Affairs" (1847), and of "Notes on the Condition of the British West India Islands" (1851). His "Narrative of Services in the Liberation of Chili, Peru, and Brazil" appeared in London (2 vols., 1858).

DUNDRUM BAY, a bay of the Irish sea, on the coast of the co. of Down. Its entrance, which lies between St. John's point on the N. E. and the Mourne mountains on the S. W., is about 10 m. wide. The whole bay is subject to heavy swells during S. and S. E. winds. Near its N. side are 2 rocks called the Cow and Calf, connected with the mainland by a reef. The steamer Great Britain was run ashore here in 1846.

DUNES, an ancient Saxon word, still used in England to designate hills of sand along the coast which are blown together by the winds. Such accumulations are met with upon the sandy portions of the coast of the United States, and also in the interior along the shores of the great lakes. The fine sand thrown up by the waves is blown when dry by the wind into the interior, covering the surface so as to prevent all vegetation. In the department of

Landes in France, the fresh quantity of sand thus raised every year and drifted inland is estimated to cover an area of 3,000,000 square feet, encroaching a distance of 72 feet each year. At this rate, in 1500 years it would reach Bordeaux. Whole villages have already been buried in this way. Of one in Brittany only a part of a church steeple is to be seen above the sand. The prevalence of strong easterly winds may produce similar effects upon the American coast; indeed, precautions are already taken at Provincetown on Cape Cod to arrest the progress of the sands from the eastward, which threaten to fill the harbor and cover the town. The most efficient method of doing this is by planting beach grass (*arundo arenaria*, Linn.), which thrives in the sand, and binds it together by its roots, while at the same time it presents a barrier to that swept along by the wind. The height of the dunes on the eastern shore of Lake Michigan is much greater than of those upon the coast. At Provincetown they hardly exceed 60 or 70 feet in height, while the former are often several hundred feet high. Successful attempts to check the moving of the sands have been made on the coast of Gascony by sowing in the finest and most shifting of them the seeds of the broom (*genista scoparia*) mixed with those of the sea pine (*pinus maritima*). The spaces sown are covered with branches of trees until the broom takes root. This first springs up, and the young pines flourish under its shelter. The pines after some years are made profitable by their yield of tar, beside forming a barrier against the further encroachment of the sands.

DUNFERMLINE, a market town of Fifeshire, Scotland, 16 m. N. W. from Edinburgh, connected by railway with the latter city, with Glasgow, and the other large towns of Scotland; pop. in 1851, 8,577. The houses on its principal streets are generally well built, many of them having fine gardens attached to them; and as seen from a distance, the irregular outline of the town, its numerous steeples and prominent buildings, and its elevated site, give to it a striking appearance. The first factory was established in Dunfermline in 1718, and it has since become one of the most flourishing of the northern manufacturing towns. The value of its annual manufactures of table linen and cotton goods is estimated at £374,000. It has nearly 4,000 looms in constant operation. Its finest modern edifice is the abbey church, so called because it is built upon the site of the ancient church of the abbey, long the place of sepulture of the Scottish kings, and which was destroyed at the reformation. It contains beneath its pulpit the remains of Robert Bruce, which were discovered encased in lead in digging for its foundation. Charles I. of England was born there.

DUNGLISON, Robley, LL.D., an American physician and medical writer, professor of the institutes of medicine and medical jurisprudence in Jefferson medical college, Philadelphia, born in Keswick, Cumberland, England, in 1798. He commenced the practice of medicine in London, but a few years later he came to the United States, and in 1824 was elected professor of medicine in the university of Virginia, which position he held until 1833. During his residence at the university he enjoyed the friendship of President Madison, to whom he dedicated his "Human Physiology," "in testimony of unfeigned respect for his talents and philanthropy, and of gratitude for numerous evidences of friendship." For 3 years he filled the chair of materia medica and therapeutics in the university of Maryland, when he was in 1836 elected to the professorship in the Jefferson medical college which he has ever since filled. Dr. Dunglison is the author of nearly 20 volumes, generally treating of subjects connected with medical science, nearly all of which have been well received by the profession, and some of which have met with a very extended sale. Among these last may be mentioned his "Principles of Human Physiology" (2 vols. 8vo., Philadelphia, 1832); "New Dictionary of Medical Science and Literature" (2 vols. 8vo., Boston, 1833); "General Therapeutics and Materia Medica" (8vo., Philadelphia, 1836); "New Remedies" (8vo., 1839); and "Human Health" (new edition, 8vo., 1844); the sale of which has been large almost beyond precedent for works of this class. They have been introduced as text books in various colleges.

DUNKERS, or Tunkers, a religious denomination founded in 1708, in Schwartzenau, Germany, by Alexander Mack and 7 others, who, without having any knowledge of the existence of other Baptists, were led by reading the Bible to the rejection of pædobaptism. The name Dunker or Tunker (from the German *tunken*, to dip) was originally given them as a nickname to distinguish them from the Mennonites. They are also called Tumblers from their mode of baptism, which is by putting the person while kneeling head first under water, so that the motion resembles the act of tumbling. They are also called German Baptists, while they themselves take the name of Brethren, in accordance with Matt. xxiii. 8: "All ye are brethren." In Germany they established two societies in addition to the original congregation, but these societies were soon driven by persecution to Crefeld and Holland, while the congregation removed voluntarily to Friesland. Between 1719 and 1729 they all emigrated to America, to which the denomination has since been confined. They have dispersed themselves through almost every state of the Union, and are most numerous in Pennsylvania, Maryland, Virginia, Ohio, and Indiana. They now (1859) have 52 churches, and their number is estimated at about 8,000. Their church government is nearly the same as that of other Baptists, except that every brother is allowed to stand up in the congregation and exhort. When by this means they find a man apt to teach, they choose him to be their minister, and ordain him by the laying on of hands, attended with fasting and prayer and giving the

right hand of fellowship. They also have deacons, and aged women for deaconesses. From among the teachers who have been tried, they choose bishops. An elder among them is, in general, the first or oldest chosen teacher in a congregation which has no bishop. Their annual meeting, which is held about Whitsuntide, is attended by the bishops, teachers, and other representatives chosen by the congregations. The important cases brought before these meetings are, in general, decided by a committee of 5 of the oldest bishops. They use great plainness of dress and language, like the society of Friends; and, like them, they neither take oaths nor fight. They will not go to law, and until lately the taking of interest on money was not allowed among them. They celebrate the Lord's supper, with its accompanying usages of love feasts, the washing of feet, the kiss of charity, and the right hand of fellowship. They anoint the sick with oil for recovery, and use trine immersion, with laying on of hands and prayer, even while the person baptized is in the water. They believe in general redemption, though it is with them not an article of faith; but they deny that they are Universalists.—From the Dunkers, as a sect, must be distinguished the Seventh Day Dunkers, also called the German Seventh Day Baptists. They were established by Conrad Beissel, a native of Germany, who had been educated for the ministry at Halle. When a member of the Dunker society at Mühlbach (Mill Creek), in Lancaster co., Pa., he published (1725) a tract, to prove that the seventh day, and not the first day, was established by Jehovah for ever as the sabbath. This created some disturbance in the society at Mill Creek, upon which he retired from the settlement and went secretly to a hermitage on the banks of the Cocalico. Having been discovered, and joined by many of the society at Mill Creek, who settled around him in isolated cottages, the first community of Seventh Day Dunkers was established in 1728. In 1733 a monastic society was established, constituting, with the buildings subsequently erected by the community, the irregular enclosed village of Ephrata. The habit of the capuchins or white friars was adopted by both the brethren and sisters. Monastic names were given to all who entered the cloister. In 1740 there were 36 single brethren in the cloister and 35 sisters, and at one time the society, including the members living in the neighborhood, numbered nearly 300. The property which belonged to the society by donation, and the labor of the single brethren and sisters, were common stock; but none were obliged to throw in their own property or give up any of their possessions. They considered celibacy a virtue, but never required it, nor did they take any vows in reference to it. When two wished to be joined in wedlock, they were aided by the society. In the earlier days the idea of a universal restoration existed among them; but it has never been taught as an article of faith, and is always approached with great caution. They attracted the attention of the Penn family, one of whom had a tract of 5,000 acres of land near Ephrata conveyed to them, which they however refused to accept. About 1740, some 40 years before the present general system of Sunday school instruction was introduced by Robert Raikes, Ludwig Hœcker (Brother Obed) established a Sunday school which was maintained for upward of 30 years. After 1777 the society at Ephrata began to decline, and of the peculiar features of the early Seventh Day Dunkers few traces are now to be found there. A branch of the society was established in 1758 at the Bermudian creek, in York co., Penn., of which likewise but little is left. Another branch, established in 1763 at Bedford, still flourishes. Their principal settlement is now at Snowhill, on the Antietam creek, in Franklin co., Penn.

DUNKIRK (Fr. *Dunkerque*), the most northern town of France, in the department of Nord, on the strait of Dover, connected by railway with Paris and Brussels; lat. 51° 2′ N., long. 2° 22′ E.; pop. in 1856, 26,531. It is a flourishing place, with an active commerce and manufactories of soap, beet root sugar, leather, and starch, beside iron works and yards for shipbuilding. Its fisheries are also important, especially those of cod and herring, and the town contains many public buildings, including the town hall built in 1642, the church of St. Eloi, a high bell tower, hospitals, prisons, &c. The port is shallow, but the roadstead is good, and the progress of the commerce of the town since it was made a free port in 1826 has been rapid. Its origin is stated to have been a chapel founded by St. Eloi in the 7th century, around which a number of fishing huts were erected, which gradually grew into a town of some importance. Charles V. defended it with a castle, which has since been demolished. It was afterward taken by the English, who lost it again in 1558; and in 1559 it was acquired from the French by the Spaniards, whom the duke of Enghien (afterward the renowned Condé) drove out in 1646. It passed again into the hands of Spain soon afterward, and was once more taken by the French in 1658, who gave it up to Cromwell in accordance with a previous treaty. Charles II. sold it to France in 1662; Louis XIV. strengthened its defences; the English made an ineffectual attempt to bombard it in 1695; after the peace of Utrecht its fortifications were dismantled and its port was filled up, and these having been restored were again demolished at the peace of Aix la Chapelle, and again repaired in 1783. Ten years later it withstood a siege by the duke of York. Entrances in 1855, 1,239 vessels, tonnage 124,815; clearances, 1,320 vessels, tonnage 117,998.

DUNKIRK, a post village of Pomfret township, Chautauque co., N. Y.; pop. in 1855, 4,754. It is a place of considerable importance, remarkable for its beautiful situation, its commercial advantages, and its rapid growth. It stands on rising ground on the shore of Lake Erie, and has an excellent harbor, protected by a break-

water. It is a port of refuge for the lake vessels during bad weather, and possesses the advantage of being free from ice earlier in the spring than Buffalo. At the western extremity of the bay of Dunkirk is a lighthouse, and at the main channel a beacon light has been placed. Dunkirk has easy communication with both east and west, and its central position makes it a depot for the trade of a great extent of country. Hence, though incorporated only in 1837, it is already a flourishing commercial town, with every prospect of becoming in the course of a few years one of the principal ports on Lake Erie. Dunkirk is the W. terminus of one division of the New York and Erie railroad, and communicates with Cleveland, Toledo, Chicago, &c., by the Lake Shore and Michigan southern railroad lines.

DUNKLIN, a S. E. co. of Mo., bordering on Ark., bounded W. by the St. Francis river, intersected by Castor river, and having Lake Pemiscot on its E. border; area, about 700 sq. m.; pop. in 1856, 2,616, of whom 56 were slaves. The surface is occupied in great part by prairies and extensive swamps, but the soil is generally fertile where not overflowed. Efforts have been made to reclaim the sunken lands, and in 1850 an appropriation for that purpose was made by the state legislature. In 1811 and 1812 this and the surrounding counties suffered severely from earthquakes. Grain and live stock are the principal articles of export, and the productions in 1850 amounted to 77,360 bushels of Indian corn, and 2,776 of oats. There was 1 church, 1 newspaper office, and 80 pupils attending public schools. The county was named in honor of Daniel Dunklin, former governor of Missouri. Capital, Kennet.

DUNLAP, William, an American painter and author, born in Perth Amboy, N. J., Feb. 19, 1766, died Sept. 28, 1839. In his 17th year he began to paint portraits, and in the summer of 1783 executed one of Washington. The next spring he went to London, and for several years was a pupil of Benjamin West. On his return to America he attempted to paint portraits, but with such indifferent success that after 2 years he embarked in business with his father in New York. In 1805 he rented the New York theatre, and in a short time became bankrupt. Thenceforth his life was alternately devoted to painting, to literary enterprises, to the career of a theatrical manager, and to other miscellaneous pursuits. At the age of 51 only, after repeated failures, he became permanently a painter, though, in spite of considerable merit, he was never very successful pecuniarily. He executed a series of pictures on subjects previously selected by West and somewhat after his style, which were exhibited in various parts of the United States. He was also one of the founders of the New York academy of design. His "History of the American Theatre," published in 1832, and "Arts of Design in the United States," are standard works of much interest. He is the author of a number of plays, of a biography of Charles Brockden Brown, and of a "History of the New Netherlands" (2 vols. 8vo., 1840).

DUNMOW BACON. At Dunmow, in Essex, England, any married couple who for a year and a day have neither quarrelled nor offended each other in any way, nor repented in thought either sleeping or waking of their marriage, "but continued true and just in desire as when they joined hands in the holy quire," may by appearing and taking oath to the same have delivered to them as of right, according to ancient custom, a gammon of bacon. The claimants for the bacon take a metrical oath and receive a metrical charge kneeling in the church yard upon 2 hard-pointed stones, after which they are received in a chair upon men's shoulders, and carried round the site of the priory, and from the church to the house, with drums, minstrels, and various music, and the gammon of bacon borne upon a high pole before them, attended by the steward, gentlemen, and officers of the manor carrying wands, and by a jury of bachelors and maidens, being 6 of each sex, walking two and two, and by a great multitude of other people. In 1751 the bacon was claimed for the 6th time only since the origin of the custom in the 12th century, and the ceremony on this occasion was the subject of a drawing by David Ogborne. After an interval of over 100 years the custom was revived in 1855 through the instrumentality of the novelist Harrison Ainsworth, two couples receiving the bacon, in the presence of about 7,000 people. The ceremony took place again in 1857, and in 1859 three couples appeared to claim this reward of virtue. The Dunmow flitch is referred to in Langlande's "Vision of Piers Ploughman," and Chaucer's "Wife of Bath's Prologue."

DUNNING, John, Lord Ashburton, an English lawyer, born in Ashburton, Devonshire, Oct. 18, 1731, died in Exmouth, Aug. 18, 1783. His father was an attorney at Ashburton, and he entered his father's office as a clerk when only about 13 years old. At the age of 19 he went to London, where he studied law for some years, and was admitted to the bar in 1756. For a long time after this young Dunning obtained but very little practice; but, having been employed in 1762 to draw up the defence of the English merchants against the Dutch East India company, he gained much reputation, which was soon afterward increased by the able manner in which he conducted the case of Wilkes, and he ultimately became one of the most eminent lawyers of his time. In 1768 he was elected to parliament, where he sat in the house of commons until he was raised to the peerage shortly before his death. In 1770 he resigned his office of solicitor-general in consequence of the retirement of his patron, Lord Shelburne. He was a strong opponent of the administration during most of the American war; but his reputation as a politician is tarnished by his course in accepting a pension of £4,000 a year after he was raised to the peerage, although he had pre-

viously objected to the needless and burdensome amount of the pension list. In person he had many disadvantages, being short and thick-set, with a turned-up nose and sallow face. He had also a hectic cough, which often interrupted his speech, and his action and bearing were unprepossessing and awkward. Yet in spite of these defects, his eloquence, lively, fresh, and impetuous, carried all before it. He received many honors during his life, was chosen recorder of Bristol in 1766, solicitor-general in the following year, and chancellor of the duchy of Lancaster in 1782.

DUNNOTTAR, a parish in the co. of Kincardine, on the shore of the North sea, Scotland, noted for its castle, now half in ruins, which stands on the summit of a perpendicular cliff, projecting into the sea. Sir William Wallace captured it in 1296, at which period it was regarded as one of the strongest places in the kingdom; and in view of its capability of sustaining a protracted siege, the privy council selected it during the wars of the commonwealth as the depository of the regalia of Scotland. It was defended long and faithfully, after every other fortress in Britain had passed into the hands of the protector, but was finally forced to surrender. The Scottish crown, however, had meanwhile been privately conveyed away and concealed in the church of Kineff. In 1685 Dunnottar castle became the prison of many of the Covenanters. After the rebellion of 1715 it was dismantled.

DUNOIS, Jean, comte de, a French soldier, born about 1402, died Nov. 24, 1468. The natural son of Louis, duke of Orleans, the brother of Charles VI., he early gained warlike distinction under the appellation of the bastard of Orleans. In 1427, in conjunction with the celebrated Lahire, he raised the siege of Montargis, then beset by the English. In 1429 he threw himself into Orleans, which was hard pressed by a powerful army under the earl of Salisbury; by his energy and daring he upheld the spirit of the troops and citizens until they were relieved by Joan of Arc. Dunois then became a faithful follower of the heroine, sharing in all her exploits, and particularly in her victory at Patay, where the English were signally routed. The death of Joan seems to have inspired him with a still more fervent desire of serving his country against the invaders. In 1432 he recovered the city of Chartres by a bold and well devised stratagem; and in 1436 he was one of the generals who marched into Paris, to help the citizens in driving out the English. Several measures adopted by the government of Charles VII. being obnoxious to the nobles, Dunois in 1440 took part in the rebellion headed by the dauphin, and known as *La Praguerie;* but he soon became reconciled with the king, and in 1449, when the war was resumed in earnest against the English, he received the title of lieutenant-general of the king, and was placed in command of the principal force destined for the invasion of Normandy. In less than one year, chiefly by his activity, skill, and prudence, all the cities, towns, and fortresses of Normandy were recovered. In 1451 he led his victorious army into Guienne, stormed the town of Blaye on the Gironde, and within 3 months completed the conquest of that province, Bordeaux included, which for 300 years had been in the hands of the English kings. Nothing was now left them on the continent except the city of Calais and its vicinity. As a reward for his services, Dunois was appointed grand chamberlain to the king. After the accession of Louis XI., he was deprived of some of his offices, and joined in 1464 the rebellious league of the great lords, which assumed the name of "league of the public weal," and on the conclusion of the peace at Conflans, received his former offices and dignities, and various other honors.

DUNS SCOTUS, John, a scholastic theologian of the 13th century, born probably in Dunse, Berwickshire, Scotland, in 1274, died in Cologne in 1308. He was graduated at Oxford, entered the order of St. Francis, and taught theology and philosophy first at Oxford, where the number of those who attended his discourses is said to have reached 30,000, and then, his fame having spread all over Europe, at Paris. The acumen and subtlety of his reasoning obtained for him the cognomen of *doctor subtilis*. The controversies between Duns and the celebrated Thomas Aquinas upon the relation of human perception to real objects, and upon various religious doctrines, were continued for a long time by their respective disciples, who were called Scotists and Thomists. Translated into modern language, the reasoning of Duns goes to show that the knowledge derived from human conceptions and experience is real and trustworthy, inasmuch as the fundamental ideas upon which human knowledge rests are identical with the absolute substance (*universale*) of existing objects. Reality is the limitation of the absolute substance by individuation, or, in the quaint terminology of Duns, the *hæcceitas*, which might be rendered as the this-and-that-ity. Every existing being consists of substance and privation or limitation, while God is the unlimited absolute substance. The possibilities of limitations or individuations of substance are infinite, and hence follows the existence of accidental chances or occurrences; that is, the free will of individual man and his corresponding responsibility to God. The supernatural knowledge which cannot be derived from real experience is afforded by the Bible, but it is the province of philosophy to show the conformity of the teachings of the Bible with those of reason. The works of Duns were published complete in 12 vols. folio (Lyons, 1639), by Wadding.

DUNSTAN, Saint, abbot of Glastonbury, born near Glastonbury, Somersetshire, England, in 925, died May 19, 988. Under the patronage of his uncle, the archbishop of Canterbury, he passed some years at the court of Athelstan, but the jealousy of courtiers robbed him of the king's favor; he retired to Winchester, and yielding to his uncle's request devoted himself

to a monastic life. He built a cell against the walls of Glastonbury church, and there passed his time in prayer, fasting, and manual labor, transcribing manuscripts, painting, and fashioning utensils of metal for the use of the altar. In 942 Dunstan became abbot of the then ruined monastery of Glastonbury, and received from King Edmund authority to restore it at the royal charge. The reverence in which the people held him was shared by the monarch, and in the succeeding reign of Edred his power became almost absolute in the national councils. He improved his influence to restore the strictness of ecclesiastical discipline, brought the Benedictines into England, but on the death of Edred and the accession of Edwy was banished from the kingdom. His share in the story of Edwy and Elgiva has brought him into odium with all believers in that much discussed romance, the facts of which are yet unsettled. Edgar recalled the exiled abbot, doubled his honors, made him bishop of the united sees of Worcester and London, and in 959 advanced him to the primacy as archbishop of Canterbury. The prelate ruled both the monarch and the kingdom. He meted out justice with a stern hand, built up the power of the church, placed Benedictines in the livings of the disorderly secular clergy, and forced the king to do a 7 years' penance for a sin of licentiousness. On Edgar's death his influence raised Edward to the throne, to the exclusion of a younger son, Ethelred; but on the accession of the latter in 978 his power was broken, his threats were no longer regarded, and full of mortification he retired to Canterbury, and there died. He was a man of great talents, energy, and strength of purpose, and devoted all his powers to the advancement of the papal supremacy. Of the writings attributed to him, only the "Concord of Monastic Rules" is known to be authentic.

DUNSTER, Henry, the first president of Harvard college, inaugurated as such, Aug. 27, 1640, died Feb. 27, 1659. He was president until 1654, when, having become a supporter of the principles of the modern Baptists, he was persuaded to resign his office. He was respected as a modest and pious man, and esteemed an excellent oriental scholar.

DUNTON, John, an English bookseller and author, born in Graffham, Huntingdonshire, May 4, 1659, died in 1733. His father, who was a clergyman, designed him for the church, but the boy's tastes not fitting him for that profession, he was apprenticed to a bookseller in London. He was afterward engaged in business for himself, came to New England in March, 1686, with a cargo of books, where he remained about 8 months, and after his return embarked again in business, with little success. With some assistance he conducted a weekly publication called the "Athenian Mercury," resolving all the most nice and curious questions proposed by the inquiring, of which 20 volumes appeared. A selection was made from this in 4 volumes, called the "Athenian Oracle." He wrote voluminously on religion, ethics, and politics, filling his works with information which is no less entertaining for being subservient to the author's vanity. He gives us, in his "Life and Errors of John Dunton" (London, 1705 and 1818), the "lives and characters of more than 1,000 contemporary divines and other persons of literary eminence," and relates many curious facts in relation to the bookselling business, describing the ministers, booksellers, and other citizens of Boston and Salem.

DUODECIMAL, proceeding by twelves, a term properly applied to an arithmetical scale using 11 digits and a cipher, such as has been zealously advocated in our own day as an improvement upon ordinary decimal arithmetic. Thus if we use ɛ for ten, and ɡ for eleven, the number 275 may be written 1ɛɡ. But the term duodecimal is also given to the system of compound numbers, sometimes used by artificers in calculating surfaces and solidities from measures taken in feet and inches. Duodecimals in the second sense are considered by most mathematicians as worthless, and in the first sense as not having sufficient superiority over decimals to counterbalance the immense inconvenience of making a change.

DU PAGE, a N. E. co. of Ill., drained by the E. and W. branches of Du Page river; area, 340 sq. m.; pop. in 1855, 12,807. It has a level surface, occupied in great part by prairies. The soil is exceedingly fertile, and produces Indian corn, wheat, oats, and pasturage. In 1850 it yielded 259,283 bushels of wheat, 198,363 of Indian corn, 230,450 of oats, and 23,617 tons of hay. The county contained 17 churches and 2 newspaper offices, and there were 850 pupils attending public schools. The Illinois and Michigan canal, which passes along the S. E. border, and the Chicago and Galena and one or two shorter railroads, are its chief internal improvements. Capital, Napierville.

DUPATY, Charles Marguerite Jean Baptiste Mercier, a French jurist, born in La Rochelle, May 9, 1746, died in Paris, Sept. 17, 1788. He advocated the privilege of the French parliament against the encroachments of the crown, and was imprisoned in consequence. He produced a work on criminal law reform, *Réflexions historiques sur le droit criminel*, followed by *Lettres sur la procédure criminelle de France*, and kindred publications, containing views subsequently embodied in the *Code Napoléon*.

DUPERREY, Louis Isidore, a French naval officer, born in Paris, Oct. 22, 1786. He entered the navy in 1802, and served actively during the wars of that period. His first important scientific labor was in 1811, when he made a hydrographic survey of the coast of Tuscany. In 1817 he embarked in Freycinetz's voyage of discovery, and to him were due the hydrographic operations and charts of that expedition. In 1822 he was placed in command of a new expedition for scientific observation in Oceanica and along the shores of South America. But his most

important researches have been concerning terrestrial magnetism. He determined upon charts the place of the magnetic poles, and fixed the southern magnetic pole at the point where the observations made on the last expedition of Dumont d'Urville had demonstrated it to be.

DU PETIT-THOUARS, Abel Aubert, a French vice-admiral, born Aug. 3, 1793. He entered the navy at an early age, and the ability which he displayed on various occasions led to his rapid promotion. From 1837 to 1839 he was engaged in circumnavigating the globe. The description which he gave of Tahiti on his return to France called attention to that island, and eventually led to the protectorate of France over it. The English missionary Pritchard, in order to prevent the ascendency of France, instigated the natives to attack Du Petit-Thouars. Pritchard was finally driven from the island, which led the English government to insist upon the recall of the French admiral. Guizot not only yielded to this demand, but caused the chambers to vote an indemnity to Pritchard. Much public sympathy was expressed toward Du Petit-Thouars, who declined the ovations intended for him. In 1846 he became vice-admiral, and in 1849 member of the board of admiralty. In the latter year he was elected to the legislative assembly by the department of Maine-et-Loire. His principal work is his *Voyage autour du monde*, in 10 vols., with 180 illustrations (Paris, 1840.)

DUPIN, André Marie Jean Jacques, a French lawyer and politician, born in Varzy, department of the Nièvre, Feb. 1, 1783. He was early distinguished as a learned lawyer and an able speaker. A member of the chamber of deputies in 1815, he opposed in secret session the motion to proclaim the son of Napoleon I. emperor after his father's second abdication. The same year, in conjunction with Berryer, he was appointed counsel for Marshal Ney, and gaining great popularity by his defence of his illustrious client, was chosen to defend many political offenders. His pleadings were extensively reported in the opposition papers, and eagerly sought for by the public. Among the most famous were his speeches in behalf of Béranger the poet, in 1821, and of the *Journal des débats* newspaper, on the eve of the revolution of 1830. After that event it was in great part through Dupin's exertions in the chamber of deputies that the duke of Orleans, whose legal adviser he had been since 1817, secured the crown. The office of attorney-general in the court of cassation was his reward, and he became a member of Louis Philippe's first cabinet. In 1832 he was elected to the presidency of the chamber of deputies, which office he held for 8 years. On the revolution of 1848 he made at first some effort in behalf of the Orleans family; but perceiving the turn events were taking, he desisted, and as a proof of his devotion to the new system, he moved the court of cassation to declare that henceforth justice would be administered in the name of the people. In the constituent assembly he was a member of the committee on the constitution, but left the framing of that instrument to Cormenin and Marrast. The legislative assembly elected him president. He made some show of opposition to the government of Louis Napoleon, but was taken unawares by the *coup d'état* of Dec. 2. He declined all participation or responsibility in the parliamentary resistance, and retained his office of attorney-general. This, however, he resigned on the publication of the imperial decrees of 1852, confiscating the Orleans property; in 1857 he was reinstated. The eldest of 3 brothers, he is generally known as Dupin the elder. His writings on legal subjects are very numerous.—Charles, brother of the preceding, a French geometer and statistician, born in Varzy, Oct. 6, 1784. He entered the navy as an engineer, and was actively employed in France and the Ionian islands. In 1812 a series of scientific papers attracted the attention of the academy of sciences. During 1814 and 1815 he evinced liberal opinions, but finally adhered to the Bourbons. In 1816 he visited Great Britain, to examine the financial, commercial, industrial, naval, and military resources of the United Kingdom. The results of his travels, which he continued for more than 4 years, appeared in his *Voyages dans la Grande Bretagne* (Paris, 1820–'24), and in his *Force commerciale de la Grande Bretagne* (1826). He caused gratuitous lectures on the application of science to industry, for the benefit of workmen and artisans, to be established in the *conservatoire des arts et métiers* at Paris, and received the appointment of professor of geometry in that institution. His services were rewarded with a barony. In 1825 and 1826 he instituted a private inquiry into the intellectual and productive resources of France, the results of which he embodied in his *Situation progressive de la France depuis* 1814. In 1828 he was elected to the chamber of deputies. He adhered to the government of Louis Philippe, and was promoted to a peerage in 1838; but he nevertheless continued his regular course of public lectures. After the revolution of Feb. 1848, he was elected to the constituent and legislative assemblies, voted and acted with the majority, and on the overthrow of the republic became a supporter of the present imperial government, under which he is a senator.

DUPLEIX, Joseph, a French soldier and statesman, born about 1700, died in 1763. At the age of 20 he was sent as an agent to Pondicherry, and in 1730 was appointed to direct the declining settlement of Chandernagore. Within 10 years he had acquired an immense fortune, and had changed the insignificant town, which Chandernagore had become before his arrival, into one of the finest and most flourishing cities of India. In 1742 he was made governor-general, and being thus placed at the head of French affairs in India he gave scope to his ambition, established commercial relations with every district of Hindostan, with the Red sea, the Persian gulf, and even with

Thibet, and received Indian princes or their ambassadors with splendid pomp. He had already begun to disturb the English East India company when war broke out between England and France. At the commencement of hostilities Labourdonnaie, governor of the Isle of France, appeared in the Indian seas at the head of a squadron armed at his own expense and took possession of Madras. His instructions, however, forbade him to keep any conquest, and he therefore accepted a capitulation which secured the payment to him of a heavy ransom. But Dupleix, to whom Madras would be of immense value, determined to possess himself of it at whatever cost, and therefore broke the terms of the capitulation, seized the town, imprisoned Labourdonnaie, and sent him to France under accusation of treason. The English, alarmed at the energy and unscrupulousness of the French governor, attacked Pondicherry by land and sea. The energy of Dupleix increased with every difficulty, and, serving at once as captain and engineer, he forced the English commander Boscawen to raise the siege 40 days after he had opened the trenches. The fame of this victory spread through all India, and gave the native princes a high idea of the valor of the French. The war was soon terminated by the treaty of Aix la Chapelle, and India being then almost in a state of anarchy, Dupleix sought to make territorial acquisitions by interfering in the politics of other states. Upon the death of the Nizam-ul-mulk, who had made himself independent in the Deccan, Dupleix resolved to put upon the vacant throne Mirzapha Jung, who was willing to receive the crown from the hands of the renowned defender of Pondicherry, and to grant in return large territorial and pecuniary possessions. At the same time and with the same motive he supported Chunda Sahib as nabob of the Carnatic. He was successful in both schemes, defeating all opposition, and gained a triumph as yet unprecedented in India. The English now set up a rival candidate for the throne of the Deccan, and increased their forces under Lawrence and Clive. Dupleix, who was extending his views even to Delhi, imparted to the court of Versailles a plan of operations which was to open the way to this capital of the Mogul empire. But the French company, though delighted with his former exploits, were alarmed at his new projects, and the reënforcements of men and vessels which he asked were refused; at the same time an order was given him not to push further his acquisition of territory. Thus unsupported, the English and native forces gathered about him, yet he maintained the war at his own expense and that of his friends. He was still formidable to his enemies, though he had suffered severe disasters, when the French government, urged by English influence, and mistaking its own interests in India and the genius of Dupleix, recalled him from his command. He arrived in France in 1755, and after having so long exercised the authority and lived with the splendor of an eastern sovereign, died of chagrin at having solicited in vain the payment of the debts due him from the company which he had loaded with riches.

DUPLIN, a S. E. co. of North Carolina, watered by the north branch of Cape Fear river; area, 670 sq. m.; pop. in 1850, 13,514, of whom 6,007 were slaves. It has a level surface, with several forests of pitch pine. The general character of the soil is sandy, but there are fertile tracts in the valleys of the streams. The staple productions are cotton, grain, potatoes, lumber, tar, and turpentine. Sweet potatoes are more extensively cultivated here than in any other part of the state. In 1850 the county yielded 461 bales of cotton, 372,530 bushels of Indian corn, and 253,097 of sweet potatoes. It contained 12 saw mills, 40 tar and turpentine manufactories, and 19 churches. The Wilmington and Weldon railroad intersects it. Formed in 1749. Capital, Kenansville.

DUPONCEAU, Peter Stephen, an American lawyer and scholar, born in St. Martin, Isle of Ré, France, June 3, 1760, died in Philadelphia, April 1, 1844. His father, who held a military position, had early determined that he should follow the same profession; but owing to an imperfection in his sight it was found necessary to abandon these plans, and his mother was then anxious that he should be educated for the priesthood. To this his father would not consent; and on its being decided that he should receive a collegiate education before his profession was definitely settled upon, he was in the autumn of 1773 sent to a college of Benedictine monks at St. Jean d'Angély. In this institution he continued for 18 months, when returning home he found that his father had just died. His mother and other members of his family now prevailed upon him to study for the church. Through the offices of the bishop of Rochelle, who was a friend of his father's family, he was sent to the college of Bressuire in Poitou; but the treatment he received there induced him to sever his connection with the college, and on Christmas day, 1775, he set off for Paris, where he designed to rely upon his own exertions for a livelihood. Here he arrived early in January, to use his own words, "at the age of 15, with a light heart and a still lighter purse," but "full of hope." He was kindly received by many of the former friends of his father, and he continued to enlarge his circle of acquaintance, among whom were the baron de Montmorency, the count de Genlis, and M. Beaumarchais. He principally engaged in the translation of English books for republication, being a good English scholar, and enthusiastically fond of the language and its literature, which latter he esteemed much above the French. For a time he was secretary to Court de Gébelin, and afterward to Baron Steuben, with whom he came to the United States. They reached Portsmouth, N. H., Dec. 1, 1777. So well did Duponceau speak the language, that hardly had he arrived in the

country, as he himself has informed us, "when he felt at home;" and letters are still preserved written by him at this time, which show a remarkable fluency and command of English. In Jan. 1778, Steuben, having previously communicated by letter with Gen. Washington, set off with his secretary for York, Penn., where congress was then in session. To this body he offered his services, and asked commissions for Duponceau and Depontière, a Frenchman of his suite, and on Feb. 18, 1778, the former became captain by brevet in the American service. On the following day Steuben, accompanied by his suite, set out for the camp at Valley Forge, where they were received with great cordiality by the commander-in-chief. On May 5 following Steuben was appointed inspector-general of the army, with the rank of major-general; and in all his movements he was accompanied by Capt. Duponceau, up to the close of the campaign of 1779, when the army went into winter quarters in Philadelphia. Here Duponceau was threatened with a pulmonary disease, which for some time prevented him from performing active duty. Toward the close of 1780 he accompanied Steuben to the south, but renewed ill health forced him to return to Philadelphia early the next summer, taking with him a letter from the baron to the president of congress, recommending him in the highest terms. On July 25, 1781, he took the proper oaths and became a citizen of Pennsylvania. Robert R. Livingston, who had recently been appointed secretary of foreign affairs by congress, gave him a place in his office in Oct. 1781, which he held until June 4, 1783. The war having closed, he now commenced the study of the law, and was admitted to the bar in Philadelphia in 1785. In 1788 he was married. At an early day he acquired an extensive practice as well in the courts of Pennsylvania as in those of the United States, including the supreme court, where he was engaged in many important suits. His professional life was a successful one, and as the pecuniary result of his labors he left a handsome fortune at his death. So high an opinion did President Jefferson entertain of his legal abilities that he tendered to him the office of chief justice of Louisiana, which, however, he declined. In addition to the absorbing duties of his profession, he devoted throughout his life no inconsiderable attention to philology. As chairman of the committee of history, moral science, and general literature of the American philosophical society, in 1819 he made a report to that institution on the "Structure of the Indian Languages," which was printed, and at once gave him a high position in this department of knowledge. In May, 1835, he received from the French institute, for a "Memoir on the Indian Languages of North America," the linguistic prize, founded by the count de Volney. In 1838 he published "A Dissertation on the Nature and Character of the Chinese System of Writing," in which, in opposition to generally advanced opinions, he held that the written language was lexigraphic, representing sounds and not ideas. For several years he was much interested in an effort to introduce into the United States the production and manufacture of silk. He published several essays, letters, and reviews on the subject, expended several thousand dollars as well as much valuable time in the cause, but without success. His other writings are of a miscellaneous character, comprising an extensive range of subjects; among which may be mentioned original treatises on points of law; translations from the Latin, German, and French on similar subjects; various treatises on philology; numerous contributions to American history, including a translation of "A Description of New Sweden," by Thomas Campanius Holm. He was a member of more than 40 literary and scientific institutions of Europe and America, including the American philosophical society, the historical society of Pennsylvania, and the Philadelphia Athenæum, of which 3 institutions he was the presiding officer at the time of his death.

DUPONT, A. Pierre, a French song writer, born in Lyons, April 23, 1821. His father was a mechanic, who apprenticed him to a silk weaver, but he soon left weaving and obtained a clerkship in a banking house. His first book, *Les deux anges*, interested in his behalf M. Pierre Lebrun, a member of the French academy, who in 1841 saved him from the conscription by opening a subscription which enabled him to procure a substitute. *Les deux anges* afterward won a prize at the academy, but it was scarcely noticed, and the young poet was still unknown when he published a collection of rural poems entitled *Les paysans*, mostly songs, the music of which he also composed. Among these, *Les bœufs* attained an immense popularity, and Pierre Dupont was proclaimed the true successor of Béranger. On the revolution of 1848 the poet leaned to the new socialist doctrines, and wrote several songs which were somewhat imbued with them. His poems have been collected and published under the titles of *Cahier de chansons*, *La muse populaire*, and *Chants et chansons, poésie et musique* (Paris, 1850–'54).

DUPONT DE L'ÉTANG, Pierre, count, a French general, born in Chabannais, department of Charente, July 14, 1765, died Feb. 16, 1838. Appointed brigadier-general in 1793 and general of division in 1797, he joined Bonaparte on the 18th Brumaire, contributed to the victory of Marengo, and subsequently at the head of 14,000 troops, defeated 43,000 Austrians on the banks of the Mincio. He won new laurels in 1805 and 1806 during the campaigns in Austria and Prussia. With but 5 battalions he routed 22,000 of the enemy at the bridge of Halle, and afterward by a bold movement against the Russian imperial guard decided the victory of Friedland. Sent to Spain in command of the army which was to conquer Andalusia, he was successful at first, but permitted himself to be surrounded in the Sierra Morena by a Spanish army, and consented to sur-

render with his whole force—an event known as the capitulation of Baylen, and stigmatized as shameful by Napoleon. He was arrested on his return to France, and by an imperial decree of 1812 was degraded from his rank, sentenced to imprisonment, and sent to the fort of Joux in the Jura. The fall of the empire restored him to liberty, and his supposed hatred of the emperor led to his appointment as minister of war, and the cancelling of all the proceedings against him; but he was soon dismissed from that office. After the 2d restoration he was appointed member of the privy council. His native department elected him several times to the chamber of deputies. A man of literary taste, he wrote several poems and a translation in verse of the odes of Horace; he also published pamphlets on the recruiting system and the campaign of Austria, and critical observations upon Montgaillard's *Histoire de France*.

DUPONT (DE L'EURE), Jacques Charles, a French politician, born in Neubourg, department of Eure, Feb. 27, 1767, died in Paris, March 3, 1855. First an attorney at the parliament of Normandy, he became a magistrate, and was finally promoted in 1811 to the presidency of the high court at Rouen, which post he held until 1818. He commenced his political career in 1798 in the council of 500, was a member of the legislative corps in 1813, and deputy to the chamber in 1814. His motions and speeches during this period pointed him out as an unflinching adherent of liberal institutions. He was constantly reëlected by his department from 1817 to 1848, and during this long political career won the esteem of both friends and opponents. On the revolution of 1830, he was prevailed upon by Lafitte to take the ministry of justice; but his independence and rigidness of principle could hardly please Louis Philippe, and he left the office at the end of 4 months to resume his seat among the opposition in the chamber of deputies. In Feb. 1848, he was unanimously elected president of the provisional government, but old age interfered with his activity. He was elected, however, to the constituent assembly, and in 1849 retired to private life.

DUPONT DE NEMOURS, Pierre Samuel, a French economist, born in Paris, Dec. 14, 1739, died in Delaware, Aug. 6, 1817. An adherent of Quesnay, he became the expounder of his doctrine. He was the assistant of Turgot during his short tenure of the ministry of finance, 1774–'6. Under the ministry of Vergennes he was employed in framing the treaty of 1783, in which the independence of the United States was formally recognized by England. In the constituent assembly in 1789 he advocated liberal principles, but opposed the harsh measures of the revolutionists; after the fall of the Girondists he was imprisoned, but was saved by the revolution of the 9th Thermidor. In the council of 500 he was suspected of favoring the royalists. In 1795 he repaired to the United States, and returning to France in 1802, became a contributor to several periodicals, and published pamphlets, among which was an essay *Sur l'éducation nationale dans les États Unis d'Amérique* (Paris, 1812). On the first overthrow of the empire he was appointed secretary to the provisional government. On the return of Napoleon he left France in disgust, repaired to the state of Delaware, where his sons had established a manufactory of gunpowder, and passed his latter years there.

DUPPA, Brian, an English bishop, born in Lewisham, Kent, in 1588, died in Richmond in 1662. He was educated at Westminster school, and at Christchurch, Oxford, and after taking orders travelled in France and Spain. He was successively dean of Christchurch, chancellor of the diocese of Salisbury, chaplain of King Charles I., tutor to Charles, prince of Wales, and his brother James, duke of York, bishop of Chichester, and in 1641 bishop of Salisbury. He accompanied Charles I. during the conflicts of the civil war, and was highly esteemed by that monarch. He lived in retirement during the protectorate, but was promoted by Charles II. to the bishopric of Winchester, and made lord high almoner. A short time before his death he received a visit from Charles II., and gave his blessing to that king with great solemnity. He published several works of practical piety, of which the "Soul's Soliloquies," a sermon preached before Charles I., is the most important.

DUPRAT, Pascal, a French publicist, born in 1812, was professor of history at Algiers from 1839 to 1844, and wrote an *Essai historique sur les races anciennes et modernes de l'Afrique septentrionale* (Paris, 1845). Coöperating with Lamennais and other reformers, he was sent to the national assembly in 1848, and on June 24 he moved the resolution which conferred the executive power upon Gen. Cavaignac. After the *coup d'état* of Dec. 2, 1851, he was arrested, and banished from France in 1853. He has since resided in Brussels, and more recently in Lausanne.

DUPREZ, Gilbert Louis, a tenor singer, born in Paris, Dec. 6, 1806. He was educated at the *conservatoire*, and made his début at the Odeon in Dec. 1825. His success not fulfilling his expectations, he went to Italy in 1828, and for 9 years sang in the principal cities with constantly increasing reputation. In 1837 he was able to return to Paris and dictate his own terms to the director of the grand opera, where he made his first appearance as Arnold, in the opera of "William Tell," April 17. His predecessor, Nourrit, a celebrated tenor singer, was so affected by the applause which greeted this representation, that he eventually committed suicide. Thenceforth, until his retirement from the stage, Dec. 14, 1849, the career of Duprez was a series of triumphs. No tenor singer has ever been held in higher estimation by French audiences, among whom his manner of sounding the *Ut de poitrine* in "William Tell" produced an extraordinary effect. Duprez is an accomplished musician, and has published a work entitled the *Art du chant*. Several tenor *rôles* have been written for him. A new opera for which he fur-

nished the music and his brother Édouard the libretto was accepted by the manager of the Lyons opera in 1859.—His daughter CAROLINE (born in Florence in 1832, and married in 1856 to M. Van den Heuvel) made her début in 1850 in the *Sonnambula* at the Italian opera, and has held since 1852 a leading position at the *opéra comique* in Paris.

DUPUIS, CHARLES FRANÇOIS, a French scholar and philosopher, born at Trie-le-Château, Normandy, Oct. 16, 1742, died near Dijon, Sept. 29, 1809. The son of a country schoolmaster, he was first instructed in mathematics and land surveying; and afterward, through the protection of the duke de la Rochefoucauld, was enabled to complete a course of collegiate studies at Paris. He was made professor of rhetoric at the Lisieux college when only 22 years of age, and delivered in 1780, in the name of the university of Paris, a funeral oration in honor of the empress Maria Theresa. In 1787 he was promoted to the chair of Latin eloquence in the college of France. Meanwhile he attended the scientific lectures of the great astronomer Lalande, with whom he became intimately acquainted; and these studies, combined with his thorough knowledge of ancient mythology, led him to undertake to trace the origin of all religions to astronomy. Ancient divinities, he asserted, were but constellations; the names of mythological gods were those of the stars; and the strange adventures ascribed to the former merely an allegorical account of the various motions of the latter, and their relations to each other. The theory was first presented by him in several papers which appeared in the *Journal des savants;* was more fully expounded in a 4to. volume printed in 1781, under the title of *Mémoire sur l'origine des constellations et sur l'explication de la fable par l'astronomie;* and then, after 14 years of unremitting labor, was unfolded in all its mysteries and particulars in the bulky work, *L'origine de tous les cultes, ou la religion universelle* (3 vols. 4to., Paris, 1795). This performance did not command the popularity which its author had anticipated; he therefore, in 1796, published an abridgment, which was more acceptable, and has been frequently reprinted. Amid his literary pursuits, Dupuis had been somewhat unwillingly drawn into politics. A deputy to the convention, he acted with the moderate party; he was a member of the council of 500, and a candidate for the directorship. On the establishment of the empire he returned to private life, and in 1806 published his *Dissertation sur le zodiaque de Tentyra ou Denderah*, which forms the complement of his great work.

DUPUYTREN, GUILLAUME, a French surgeon, born at Pierre-Buffière, Oct. 6, 1777, died in Paris, Feb. 8, 1835. He attracted attention in his boyhood by his beauty, intelligence, and haughty character, and at the age of 12 was placed by a military officer, who was fascinated by his peculiarities, in the college of La Marche at Paris. He there engaged in literary studies, but was rebellious to discipline, abandoned Latin for the sciences, and became enthusiastic only after undertaking the study of medicine. Repeating the words of Cæsar, that it is better to be first in a village than second at Rome, he resolved to be unsurpassed in the art of surgery. At the age of 18 he was appointed assistant dissector in the *école de santé;* and in 1801, after a brilliant examination, he became chief of the faculty of medicine. The indisputable superiority of Bichat at this time was a spur to his ambition, and he displayed an unprecedented skill and activity in dissections. He became successively surgeon of the second class in the Hôtel Dieu; inspector-general of the university; professor of medical practice; and in 1815 surgeon-in-chief of the Hôtel Dieu. Having now absolute power in the oldest and wealthiest hospital of France, he regularly passed 5 hours in the morning in performing operations in the presence of over 400 students. With a severe exterior, and a grave and mysterious manner, he kept his audience in perfect stillness. With scalpel in hand and the patient before him, he delivered lectures which were unequalled in Paris for clearness of exposition, elegance of expression, or novelty of ideas. He was never gentle, and never smiled except when he sought to draw from a patient the symptoms of his malady; he seemed to possess only practised senses and a severe logic; and the masterly unconcern with which he framed his discourses in the midst of suffering and death, gained for him a peculiar reputation. Upon the assassination of the duke de Berry, in 1820, Dupuytren was called to the Tuileries for consultation, and 3 years later he was made first surgeon to the king. But though the transition from the Hôtel Dieu to the court increased his renown, yet his proud, silent, and capricious character became the object of innumerable epigrams and calumnies. His health failed in 1833, and he repaired to Italy, but could not be restrained from renewing his studies and observations in Rome. He died after much suffering, which excited rather his curiosity than complaints or disquietude, and left a part of his large fortune for the foundation of a chair of pathological anatomy in the faculty of medicine in Paris, and of a museum which now bears his name. His principal works have been collected in an edition entitled *Leçons orales.* He simplified many surgical operations, and made some valuable innovations in the art.

DUQUESNE, ABRAHAM, a French naval officer, born in Dieppe in 1610, died in 1688. He was the son of a seaman, was educated in his native town, early entered the naval service, and gained distinction in several encounters with the Spaniards, especially in 1637 off the Lerins isles, in 1641 off Tarragona, and in 1643 off Cape Gata. On the suspension of hostilities he offered his services to Sweden, then at war with Denmark, received the rank of vice-admiral, and completely defeated the Danish fleet under the command of King Christian IV. He then

fitted out a squadron at his own expense, with which he prevented the Spaniards from entering Bordeaux, then the stronghold of the rebellious princes. This act of patriotism and daring was rewarded by his promotion to the rank of commodore, while he received as an indemnity for his outlay the island and the chateau of Indret, near Nantes. He continued his successful operations against the Spaniards until the peace of 1659; then he served against the pirates on the coast of Africa. He was made a naval lieutenant-general in 1667, and in the war against Holland was twice engaged against De Ruyter in 1676 in the Mediterranean, first off Stromboli, and afterward in sight of Mt. Etna. In both engagements the Dutch were defeated, and in the latter they lost their commander. A few weeks later Duquesne destroyed the remains of their fleet, and thus for a while secured the supremacy of France upon the sea. Louis XIV. bestowed upon him the estate of Du Bouchet with the title of marquis. He was afterward ordered to clear the Mediterranean of the Barbary pirates; defeated the Tripolitans off the island of Scio in 1681; attempted in 1682 the bombardment of Algiers, which he was obliged to abandon on account of stormy weather; resumed it the next year, and forced the dey to sue for peace. The first condition imposed by Duquesne was the liberation of a considerable number of Christian slaves, and the last the sending of an embassy to Versailles to implore pardon from Louis XIV. In 1684 Duquesne led a successful expedition against Genoa, and soon after retired to his native city.

DURAM, or Durão, Jozé de Santa Rita, a Brazilian poet, born near Mariana in the province of Minas Geraes in 1737, died in Lisbon in 1783. He qualified himself for the service of the church by his studies at Rio Janeiro and at Coimbra in Portugal, was graduated doctor of divinity at the university of the latter city, and joined the religious order of St. Augustine. In the course of his travels in Spain and Italy he became acquainted with Alfieri and other eminent men of letters, and subsequently during his residence at Coimbra composed a poem founded upon the story of the Galician adventurer Diogo Alvarez Correa, surnamed Caramuru, the legendary hero of Bahia. This poem was published at Lisbon in 1781, under the title of *Caramuru, poema epico do descobrimento da Bahia*, and a French version appeared at Paris in 1829. On its first appearance the poem was not highly estimated, but since then it has risen to the rank of a national epic in Brazil.

DURAN, Agustin, a Spanish scholar, born in Madrid about 1793. He received a university education with a view of embracing the profession of the law, but a handsome fortune which fell to his lot permitted him to devote himself to letters. He paid much attention to the study of foreign, especially to French literature, and in 1828 published anonymously a pamphlet on the influence which modern criticism has exercised on the decline of the ancient Spanish drama. He has edited a very important collection of Moorish, miscellaneous, and historical ballads, and ballads of chivalry (Madrid, 1828–'32; republished in Paris in 1838, and in Barcelona in 1840; a new edition, forming part of the extensive *Biblioteca de autores Españoles*, Madrid, 1849–'51). He has also written a history of the Spanish drama from its origin to the middle of the 18th century, which is not yet published.

DURAND, Asher Brown, an American painter and engraver, born in Jefferson, N. J., Aug. 21, 1796. His paternal ancestors were French Protestants, who emigrated to America after the revocation of the edict of Nantes. From early childhood he manifested a taste for drawing, and was fond of studying and copying trees, foliage, and other attractive objects of nature. His art education, however, properly commenced in the shop of his father, a skilful watchmaker, where he learned to cut ciphers on spoons and other household implements, and, chiefly by his own efforts, acquired some knowledge of the elementary processes of engraving. His first attempts at the production of prints were made with plates hammered out of copper coins, and with tools of his own construction, his models being the cards inserted in the cases of watches. A French gentleman, struck with the talent which some of these evinced, employed him to copy a portrait painted on the lid of a snuff box, and the success with which this commission was executed encouraged him to make engraving his profession. In 1812 he was apprenticed to Peter Maverick, one of the most prominent engravers of the time, with whom, after the expiration of his term in 1817, he entered into partnership. For a long time his employment consisted in copying prints from English books, and working on plates for bank notes. His engraving of Trumbull's "Declaration of Independence," the first work which he attempted on a large scale, and which cost him 3 years' labor, brought him into general notice, and thenceforth for many years his graver was in constant demand for portraits of various dimensions, and figure pieces. Of the former, the "National Portrait Gallery" affords the best example, while his "Musidora" and "Ariadne," the latter engraved from Vanderlyn's picture, are among the most creditable specimens of the art produced in this country. He had always, however, entertained the idea of ultimately becoming a painter, and in 1835, having for the previous 10 years been a regular contributor of portraits, small figure pieces, or landscapes in oil, to the exhibitions of the national academy of design, he finally abandoned engraving as a profession. For several years afterward he painted principally portraits and landscapes, and occasionally figure pieces, a class of subjects to which he would willingly have devoted himself had the opportunities for studying from life or from models been sufficiently abundant. As landscape painting, however, accorded with his early tastes, and was

not liable to this objection, he soon began to give his exclusive attention to it, and for many years has been an industrious contributor to this department of his art. From the outset he has been a close student of nature, giving great attention to the forms of trees, the different species of which he carefully distinguishes in his pictures, and elaborating the objects of a landscape with scrupulous exactness. His pictures, embracing some of the finest mountain and valley scenery in the country, are eminently pleasing and true in color and tone, and frequently have an idyllic beauty characteristic of the artist's turn of mind. Those representing woodland scenes are conceived with much poetic feeling, and present fine studies of trees and foliage. His collected works, many of which are of large dimensions, and some of which have been engraved, would convey an unusually correct idea of American scenery under many different aspects. Of his figure pieces, which are the rarest of his works, the principal are "Harvey Birch and Washington;" "An Old Man's Reminiscences;" "The Wrath of Peter Stuyvesant;" "God's Judgment on Gog;" "The Dance on the Battery;" "The Capture of Major André," &c. Among his earlier landscapes may be enumerated: "The Morning and Evening of Life," a pair; "Lake Scene—Sunset;" "The Rainbow;" "Wood Scene," &c. During the last few years he has produced "Primeval Forest" (1853); "In the Woods" (1854); "The Symbol," from Goldsmith's "Deserted Village" (1856); "Franconia Mountains" (1858); and "Reminiscences of Catskill Cloves" (1859). In 1854 he painted a portrait of William C. Bryant, the engraving from which, published in 1858, received its finishing touches from his hand. Mr. Durand is one of the few remaining original members of the national academy of design, and upon the resignation of Prof. Morse was chosen the president, a position which he still holds. He has resided in New York during the greater part of his life.—His son, John Durand, has for several years conducted the "Crayon," a monthly publication specially devoted to the interests of the fine arts.

DURANGO, an inland state or department of Mexico, 280 m. long from N. to S., and 150 m. broad; area, 48,489 sq. m.; pop. in 1851, 162,218. It was formerly sometimes called New Biscay. The surface is rocky and mountainous, being traversed by the Sierra Madre, which unites the plateau of Anahuac with the Rocky mountains. There are a few small streams, the principal of which is the Rio de las Nases, but no large rivers. In the valleys of these streams are some fertile and well cultivated tracts, producing good crops of rice, maize, and corn, but the general character of the soil is barren and incapable of much improvement. There are some pasture lands, however, and considerable numbers of cattle are reared. The mountains furnish gold, silver, and iron, which are extensively and profitably mined. This department is subject to frequent inroads of the Comanches and other Indian tribes, who overrun the country at certain seasons, pillage the settlements, drive off the cattle, and massacre all who come in their way.—Durango, or Victoria, the capital of the state, is situated on an elevated plain at the foot of the Sierra Madre, 7,295 feet above the level of the sea; pop. in 1853, about 8,000. It is the see of a bishop, contains several good buildings, and enjoys an extensive trade in cattle and leather. It is in the vicinity of iron mines, and has a mint. The general appearance of the town is picturesque, but it is excessively dirty, infested by scorpions, and has, of late years, rapidly declined in population. It was founded in 1551.

DURÁZZO (anc. *Epidamnus* or *Dyrrachium;* Turkish, *Dratch;* Alb. *Duraessi*), a maritime town of European Turkey, in the province of Albania, on the E. coast of the Adriatic, 50 m. S. W. of Scutari; pop. about 7,000. It is strongly fortified, has a safe and commodious harbor, and carries on a considerable trade in corn, tobacco, and British manufactured goods, which are imported from Trieste. It occupies the site of the ancient Epidamnus, which was founded by a colony of Corcyreans and Corinthians in the 7th century B. C. The feuds of its nobles and people were one of the immediate causes of the Peloponnesian war. In the Roman times it became one of the chief points of communication between Italy and the East. During the civil war of Pompey and Cæsar it was occupied by the former, who obtained in its vicinity a victory over the forces of his antagonist. In the 11th century it was captured by the Normans, and subsequently by the Venetians, from whom it was taken by the Turks about the end of the 15th century.

DURBIN, John Price, D.D., an American clergyman, born in Bourbon co., Ky., in 1800. After receiving the elements of education in a district school, he entered the ministry of the Methodist Episcopal church in 1819, was sent to Limestone circuit, Ky., and the next year was received into the Ohio conference and stationed on Greenville circuit, Ohio. He availed himself of every opportunity for study, and with his grammar and commentary, by the light of pine knots in the log cabins of the wilderness, he spent his evenings in mastering their contents. He was soon after stationed in Hamilton, O., 12 miles from Oxford, the seat of the Miami university. He entered this institution, pursuing his studies from Monday until Saturday, when he would attend to his duties as pastor, and then return to his studies in college. While stationed subsequently in Cincinnati he was admitted to the Cincinnati college, where he received the degree of A.B. in 1825, and subsequently that of A.M. Soon after this he was elected professor of languages in Augusta college, Ky. In 1829 he was nominated as chaplain to the senate of the United States, and only failed of election by the casting vote of Mr. Calhoun, which that distinguished statesman afterward regretted. His friends, without his

knowledge, again secured his nomination in 1831, and he was elected by a large majority. His sermon in the capitol on the centennial anniversary of Washington's birth was one of his most successful efforts. In 1832 he was elected professor of natural science in the Wesleyan university, and in 1833 was appointed by the general conference editor of the "Christian Advocate and Journal," New York. The following year he was elected president of Dickinson college, Penn., where he continued until 1842. He then made a journey through portions of the old world, and returning the next year, published "Observations in Europe, principally in France and Great Britain" (2 vols. 12mo., New York, 1844), and "Observations in Egypt, Palestine, Syria, and Asia Minor" (2 vols. 12mo., New York, 1845), which had a large sale. He was a member of the general conference of 1844, and took an important part in the debate which resulted in the division of the Methodist Episcopal church. In 1845 he resigned the presidency of the college, and was stationed in Philadelphia as presiding elder. In 1850 he was elected corresponding secretary of the missionary society of the Methodist Episcopal church, which post he occupies at the present time.

DUREAU DE LA MALLE, Adolphe Jules César Auguste, a French author, born March 2, 1777, died May 18, 1857. Under the auspices of his father, Jean Baptiste Joseph René, the translator of Tacitus and Sallust (born 1742, died 1807), he received an excellent education. He first wrote poetry and afterward on archæology, geography, political economy, and climatology. His most important work, *Économie politique des Romains*, appeared at Paris in 1840.

DÜRER, Albrecht, a German painter and engraver, born in Nuremberg, May 20, 1471, died there, April 6, 1528. His father, a skilful goldsmith, wished him to follow the same profession; but yielding to his son's inclination to become an artist, he placed him, when 15 years of age, with Michael Wohlgemuth, the leading painter of Nuremberg. With him Albrecht remained 4 years, after which he travelled through Germany and the Low Countries, employing several years in the study not merely of his own art but of many of the most important collateral branches. In 1494 he established himself permanently in Nuremberg, and shortly after, at the solicitation of his father, married the daughter of Hans Fritz, an artisan of that place. The union was not a happy one, as the shrewish temper of his wife sorely taxed the equanimity of the painter, and it is even said shortened his life. During his apprenticeship to Wohlgemuth, and his absence from Nuremberg, he had painted and engraved on wood, although nothing is known with certainty of his youthful works. The earliest well authenticated picture by him bears the date of 1498, and is a portrait of himself. Another similar portrait, dated 1500, and now in the Pinakothek at Munich, gives a vivid impression of the artist. It represents a man in the prime of life, in whose noble features and earnest eye are seen the evidences of a reflective mind. He stands in a dignified attitude, and his hair falls in beautiful profusion over his shoulders. In his last portrait, a woodcut of the year 1527, the face is marked by lines of care, and the head is shorn of the flowing locks in which the artist was wont to take a complacent pride. In 1498 appeared his first great series of woodcuts, illustrating the Revelation of St. John; a work of singular power, in which the artist's imagination, however, is controlled by the fantastic element which then pervaded German art. Throughout the series the wonderful and monstrous meet in living bodily forms. In 1506, by the aid of his friend Wilibald Pirkheimer, Dürer made a journey to northern Italy, and remained a considerable time at Venice, Bologna, and other places, for the purpose of improving himself in his art; but so firmly was he grounded in his peculiar style, that the graceful productions of the Italian schools had no influence upon him. From the time of his return to Nuremberg, in 1507, ensued a period of singular artistic activity, and among the great works which he then produced may be enumerated the paintings of the "Martyrdom of the 10,000 Saints," at Vienna; the "Assumption of the Virgin," burned at Munich; the "Adoration of the Trinity," at Vienna; "Christ taken from the Cross," at Nuremberg; and the "Adoration of the Magi," at Florence; the woodcut series of the "Greater" and "Lesser Passion," the "Life of the Virgin," the "Triumphal Arch of the Emperor Maximilian," &c.; the copperplate engravings of "The Knight, Death, and the Devil," "Melancholy," "St. Jerome;" and portraits of his friends Pirkheimer, Melanchthon, and Erasmus. The print of "The Knight, Death, and the Devil" suggested to Fouqué his tale of "Sintram and his Companions." It is supposed by Bartsch and others that the woodcuts which pass under Dürer's name were cut by engravers from his drawings on the wood. His career was prosperous, and he enjoyed the friendship of many of the most learned men of the day, to whom his cultivation of letters no less than his artistic genius commended him. The people of Nuremberg delighted to honor their great painter, who was for many years one of the chief burghers of his native town. The emperors Maximilian I. and Charles V. successively appointed him court painter, and the chief cities of Germany were emulous for the possession of his works. In 1520 Dürer made a second journey to the Netherlands, and showed that he was not too old to labor, and be instructed in his art. Melanchthon tells us that Dürer confessed to him that his previous works fell short of his present conception of the beauty of nature, and that he regretted bitterly that he had painted so many pictures void of that simplicity which is the greatest charm of art. Under the influence of this visit his subsequent works exhibit a soberer feeling, and a refinement of that exuberant fancy in which he formerly delighted. In 1526 were produced his 2 pictures containing figures of the size of life of the apostles John and Peter, Mark

and Paul, which were among his last, as they are generally esteemed his grandest works, and which he presented to the council of his native city. Dürer had at this time embraced the doctrines of the reformation, and these paintings, the fruit of earnest reflection and of deep religious conviction, are supposed to have conveyed the artist's exhortation to his countrymen to stand firm in the new faith. In dignity and sublimity of composition, and in richness of color, they are masterpieces of art.—As an engraver and a painter Dürer was one of the most remarkable men of an age prolific of great artists. In grandeur of conception and invention he was in fact before the age. His rich and inexhaustible spirit grasped at many things. In painting, he raised German art to an excellence which passed away with him; he found engraving in its infancy, and carried it to a perfection never since surpassed; he cultivated architecture and sculpture, and as a theorist wrote valuable treatises on geometry and fortification, with a purity of style evincing a profound knowledge of the German language. He was the first German artist who taught the rules of perspective, and insisted on the study of anatomy. His works exhibit a deep sense of the sublime and solemn, as also of simple grace and tenderness, and a feeling for art such as could only have inspired a great master. Above all, his imagination seemed boundless. But the tendency to the fantastic, a striking attribute of old German art, obstructed the pure development of his power as an artist. This tendency, which has been ascribed to the peculiar physical aspects of northern nature, and of which we have illustrations in the wild legends and the grotesque ornamentation of the architecture of mediæval Germany, seems to have culminated in that age; and with his countrymen Dürer felt its influence, and reflected it in his works. Independence of thought in matters of religious belief necessarily suggested a greater freedom of imagination, and he rejected the classic ideal which Raphael and his contemporaries had so successfully realized, to wander in the realms of fancy. Hence his strange attitudes, his fanciful draperies, his over-elaborate costumes and accessories, and the Gothic element, so to speak, which seems to pervade all his works. His wonderful creations, nevertheless, surprised and delighted the Italians, and Vasari confesses that he would have been an extraordinary artist had he enjoyed an Italian instead of a German education. Raphael had the highest admiration of his genius, and sent him a drawing executed by his own hand. In so great estimation were his prints held, that the engraver Marc Antonio Raimondi was induced to execute at Venice a set of the "Passion" and the "Life of the Virgin," with facsimiles of Dürer's monogram attached, which were sold as originals. The artist was obliged to visit Venice to obtain redress. The memory of Dürer is held in great veneration by the people of Nuremberg, who preserve the house in which he lived with religious care. On the 300th anniversary of his birth the corner stone of a monument to his memory was laid in Nuremberg; and in May, 1840, the work was completed by the addition of a bronze statue of the artist by Rauch.

DURESS (law Lat. *durities*, Fr. *duresse*). Constraint, either by actual violence or the threat of some injury, is in law an excuse for many acts which would otherwise be criminal; so it is also a ground for avoiding conveyances, contracts, and other civil acts which have been compelled by such violence or threat. A distinction is however made as to the nature and extent of the duress, in the two classes of cases above referred to. When set up as an excuse for a criminal act, it is subject to several qualifications. 1. It cannot in general be admitted in justification of a capital offence, but only for lesser crimes, called misdemeanors. This limitation applies only when innocent parties are involved, for a man has the right to kill an assailant who puts him in peril of life or of grievous bodily injury. 2. The apprehension of danger must be such as might be reasonably entertained by a person of ordinary courage; *talis qui cadere possit in virum constantem, non timidum et meticulosum.* 3. The injury which is threatened must be such as to endanger loss of life or limb. Fear of assault and battery merely would not justify, according to the old cases, even a misdemeanor. 4. Command by a father or master is not a justification to a child or servant for the commission of a crime, yet the wife was by the common law held to be in the power of the husband so far that what was done by her in his presence was deemed to be done under duress, and was a justification even for capital offences, except treason and murder. This was upon the legal presumption that if the husband was present, the wife acted by his coercion; still greater would be her claim to exemption if actual coercion could be proved. There was, however, a singular inconsistency in not allowing the same excuse on the ground of coercion, actual or presumed, in respect to mere misdemeanors. It has been plausibly suggested that the reason of this anomaly was that the wife was not entitled to the benefit of clergy, while the husband was so entitled; and as he could therefore escape from punishment for certain offences, but the wife was subject to the penalty, the law humanely interposed and relieved her from all legal liability in cases where husband and wife were jointly chargeable, but in which a claim to benefit of clergy was allowed, and this privilege did not apply to misdemeanors, nor to murder or treason. 5. Duress of imprisonment, by which is meant illegal arrest or deprivation of liberty, is referred to in the English cases only as a ground of avoiding contracts; but upon the principle asserted by the common law that a man's liberty is as sacred as the security of life, any interference therewith, unless by process of law, should be held a justification for any degree of force necessary to resist an unlawful restraint of liberty; and by

analogy to other cases of duress, actual imprisonment, or menace of imprisonment, should also be an excuse to some extent, even if not a full justification, for offences which would be excused by fear of bodily injury. On the other hand, it may be said that wrongful imprisonment is not a permanent injury, like bodily mutilation, and can be compensated in damages. Resistance to an unlawful attempt to deprive a man of liberty would, however, it may be presumed, be justified, even to the extent of taking the life of the wrong doer, if that were necessary; but neither actual nor threatened imprisonment will justify the commission of a criminal offence affecting any other person.—Duress in relation to contracts or other civil acts, is not limited to bodily injury or loss of personal liberty, but may be founded upon apprehension of damage in respect to property. The apprehended injury must, however, be something extraordinary, and which does not admit of exact pecuniary indemnity; but great allowance will be made for the effect of any threatened loss in the disturbance of a man's judgment and self-possession, and probably in our courts a contract would be held void which had been procured by the menace of any considerable damage when made suddenly, and time not allowed for reflection. Bacon mentions the perturbation of mind as a reason why coercion, or what he calls necessity, "carrieth a privilege" as respects crime (Bacon's "Maxims," *regula* 5); and the reason ought to have equal force in avoidance of a contract. The rule as stated by Blackstone is much narrower, and excludes not only damage to property, but even personal injury, except what involves danger to life or limb. A fear of battery, therefore, or of having one's house burned, or goods taken away, he says, is no duress, because in these cases there can be pecuniary compensation. But he does not seem to have sufficiently observed the distinction between duress as an excuse for a criminal offence and duress as a ground of avoiding a contract. Bacon with more discrimination states the rule in the latter case that restraint of a man's person, or threat of a battery, or of burning his house, is a duress which will avoid a bond given under such restraint or menace. In the courts of the United States the rule has been extended to pecuniary loss affecting personal property. This at least has been decided in the states of South Carolina and New York. (See 1 Bray's Rep. 470; 2 id. 211; 5 Hill, N. Y., 154.)

DURFEE, Job, an American author and jurist, born in Tiverton, R. I., Sept. 20, 1790, died there, July 26, 1847. He was graduated at Brown university in 1813, afterward studied law, was elected to the state legislature in 1814, and in 1820 was chosen representative in congress, where he served during 2 terms. He was a member of the state legislature again in 1826, and in 1833 was appointed associate justice of the supreme court of Rhode Island. In 1835 he became chief justice, an office which he held until his death. In 1832 he published a poem in 9 cantos, entitled "Whatcheer," being an account of the departure of Roger Williams from Salem, his adventures in the wilderness, and the settlement of Rhode Island. He also wrote a philosophical treatise called "Panidea," to prove the pervading influence and presence of God throughout nature. His works were collected and published with a memoir by his son (8vo., Providence, 1849).

D'URFEY, Thomas, a humorous English poet, died at an advanced age, Feb. 26, 1723. He was of a French Protestant family which had fled from La Rochelle in 1628, when it was besieged by Louis XIII., and had settled in Exeter, where the poet was born. Abandoning the profession of law for the more congenial pursuits of literature, he wrote ballads, sonnets, irregular odes, and more than 30 pieces for the theatre. His dramatic pieces were very successful; but as they are written in the licentious style prevalent after the restoration, they are not now represented upon the stage. His works show the character of the author, who was sufficiently amusing to count among his patrons King Charles II., Queen Anne, and even the stern and sombre William III. Steele and Addison in the "Guardian" befriended him, and solicited the attendance of their readers to a play for his benefit. His best known work, beside his plays, was a collection of songs and ballads, partly by himself, entitled "Wit and Mirth, or Pills to purge Melancholy" (6 vols. 12mo., London, 1719–'20).

DURHAM, a maritime co. in the N. of England; area, 973 sq. m.; pop. in 1851, 390,997. The general aspect of the county is mountainous, particularly in the western part, where it is traversed by branches of that range of hills to which the name of the English Apennines has been applied. From these several ridges shoot off in different directions, and some of them, projecting as far as the sea, terminate in tall cliffs and headlands. Numerous rivers rising among the mountains in the west flow through the valleys and empty into the ocean. Among these are the Tyne, the Tees, and the Wear, all of which are navigable for a considerable part of their course, and have important towns and tolerable harbors at their mouths. The valley of the Tees, particularly near its estuary, has a great deal of rich alluvial soil, under careful cultivation, or devoted to pasturage. It is here that the Durham cattle, so famous for their many excellent qualities, are most extensively reared. The Teesdale sheep, noted for their unusual size and tender flesh, are scarcely less celebrated than the Durham cattle, and are more highly prized than any other English breed. In the bleak table-lands of the western part, where cultivation is not attempted, are found rich veins of lead, and east of this region occurs the most extensive coal field of Great Britain, known as the Newcastle coal region. In addition to these important productions, iron, firestone, and millstones are found in large quantities. Limestone, some of it of a peculiar excellence, underlies an exten-

sive portion of the county. The value of all these products is vastly increased by the facilities of transportation from the mining district to the seaboard. Beside the navigable rivers, there are many railways traversing the county and connecting the great coal region with the coast, with Scotland, and with some of the most important towns of England. The principal manufactures are iron work, pottery, glass, coal tar, salt, linen, and woollen. Durham is deficient in timber, and with the exception of the groves attached to country seats of the nobility, and some portions of the vale of Derwent, there is little woodland of any value. Durham, Chester, and Lancaster were formerly counties palatine, so called because the bishop of Durham, the earl of Chester, and the duke of Lancaster had royal rights in their respective territories as fully as the king in his palace. The jurisdiction of the bishop of Durham was transferred to the crown in the reign of William IV. The county consists politically of 2 divisions, each of which sends 2 members to the house of commons.—DURHAM (anc. *Dunelmia*, *Dunelmum*, *Dunholmum*, *Dunholme*), the capital of the county, is an ancient episcopal city and parliamentary borough, built on 7 small hills, and nearly encompassed by the river Wear, which is here crossed by several bridges; pop. in 1851, 13,188. Its external appearance is at once attractive and imposing. The river banks are skirted by plantations, hanging gardens, and beautiful public walks, beyond which the houses rise one above another, until they are crowned by the grand cathedral and an ancient Norman castle, which occupy the summit of a rocky eminence. The city consists of several divisions, of which the one situated between the cathedral and the river has many elegant residences. The old town, which lies N. of the castle, contains most of the shops, and a market place with a fountain. There are suburbs on each side of the river, some of which are occupied chiefly by the poorer classes. Among the public buildings and institutions are a town hall, built in the Tudor baronial style, a great number of schools, an infirmary, hospitals, reading rooms, libraries, assembly rooms, a theatre, 6 parish churches, various chapels, and a university. A college was founded here as early as 1290 by the prior and convent of Durham, which was afterward enlarged, and under Henry VIII. was transferred with all its endowments to the dean and chapter. Under Cromwell the funds were employed by a new corporation, but on the restoration they reverted to the former trustees. The present university owes its foundation mainly to Dr. Charles Thorp, archdeacon of Durham. It was opened to students in 1833, and incorporated in 1837. Bishop Hatfield's hall was instituted in 1846 for divinity students. The most interesting edifice in Durham is the cathedral, founded in 1093 by King Malcolm and Bishop Carilepho. Its length, including the western porch, is 507 feet, its greatest breadth 200 feet, and it has a central tower 214 feet high, beside 2 low towers, once surmounted by spires. The predominant style of architecture is the early Norman, but in the various additions made to the church from time to time, we have specimens of the different styles which had prevailed in England up to the close of the 14th century. The Galilee chapel at its W. end, built by Bishop Pudsey between 1153 and 1195, contains the remains of the venerable Bede; those of St. Cuthbert, the patron of the church, rest in the chapel of the nine altars. The old church of St. Nicholas was partly repaired and partly rebuilt in 1858, and is now considered one of the finest specimens of modern church architecture in the N. of England. There is a school house attached to it. Immediately opposite the cathedral stands the castle, founded by William the Conqueror for the twofold purpose of maintaining the royal authority in the adjoining districts and protecting the country from the inroads of the Scots. Many additions have been made to it, and it is doubtful whether any part of the original keep, except the foundation, now remains. For many years it was the residence of the bishop of the palatinate, but of late it has been given up to the uses of the university. The see of Durham was long the richest in England, and for the 3 years ending with 1831, the average annual net revenue of the bishop was £19,066; but in 1836 his income was fixed at £8,000, the surplus revenue being applied to the augmentation of the incomes of poorer bishops. Prior to the opening of the collieries, and the construction of the numerous railways which now intersect the county, Durham made little progress, but the activity awakened by these great works has given a powerful impetus to its trade and population. It has manufactories of carpeting and mustard. In the vicinity are Neville's Cross, erected by Lord Neville in commemoration of the defeat of David II. of Scotland, in 1346, and the site of an old Roman fortress, called the Maiden castle. The town sends 2 members to the house of commons.

DURHAM, JOHN GEORGE LAMBTON, earl of, an English statesman, born in Durham, April 12, 1792, died in the isle of Wight, July 28, 1840. He was educated at Eton, served a short time in a regiment of hussars, married at the age of 20, and had hardly attained his majority when he was returned to parliament for his native county. His first speech, delivered in 1814, was an unsuccessful appeal in behalf of the people of Norway struggling under Prince Christian of Denmark for their national independence, in opposition to the stipulations of the allies at Kiel. The next year he introduced a motion in behalf of Genoa, to which the reëstablishment of its ancient constitution had been promised by Lord Bentinck in the name of England, but which was by the stipulations of the congress of Vienna annexed to the kingdom of Sardinia. When the Castlereagh ministry in 1816 proposed to add more rigorous conditions to the alien act, he opposed the measure with great energy. During the chartist excitement of 1819, he vindicated the rights

of the people, not only in parliament, but in numerous public meetings. He was one of the defenders of Queen Caroline in 1821, and seconded Lord Tavistock's motion of censure on the ministry for their proceedings against her. The same year he promulgated a scheme of parliamentary reform, and though his bill was rejected by a manœuvre before discussion, yet 10 years later he saw his ideas revived in the celebrated reform act, in the passage of which he then assisted as a member of the cabinet. In 1826 the feebleness of his health obliged him to relax his labors, and he passed a year in Naples, and on his return to England was raised by Lord Goderich to the peerage, under the title of Baron Durham. Upon the formation of the ministry of his father-in-law, Lord Grey, in 1830, he was called into the cabinet as lord privy seal. This administration was formed upon the basis of making parliamentary reform a cabinet question, and the preparation of the plan of reform was intrusted to Lord Durham, Lord John Russell, Sir James Graham, and Lord Duncannon. To Lord Durham fell the task of defending the bill in the house of lords, a difficult labor, since he had to contend not only against the open opposition of the tories, but against the secret repugnance of many of his colleagues and political associates. His health suffered a heavy shock at this time by the death of his eldest son, and though he afterward spoke a few times upon the 2d and 3d bills, he retired from the administration in 1833, and was raised to an earldom. He was sent the same year upon a special mission to Russia; but he was unsuccessful in his main object, which was to induce the Russian government to mitigate its severity toward the Poles, who had lately made an unsuccessful attempt to recover their independence. Returning to England, his liberal views brought him into collision with the existing government. His separation from his former colleagues was clearly manifested in remarks which he made at a public dinner given to Lord Grey at Edinburgh, which caused him to be generally regarded as the leader of the movement party. The insurrection in Canada in 1837 and the following years opened a new field to his activity, and in 1838 he was sent thither as governor with extraordinary powers, the ministry hoping that his liberality of sentiment and large political experience would secure the confidence of the people. Yet his administration there was brief. Trying at once to conciliate and to punish, he gained only the ill will of the Canadians; and surpassing his powers by transporting the leaders of the rebellion for an indefinite time to Bermuda, a disapproval of his conduct was voted by parliament. Lord Durham complained that he was not vigorously supported by the ministry, resigned his office, and suddenly returned to England. He prepared an elaborate report on Canadian affairs, setting forth liberal principles of colonial government, and proposing the union of the two provinces, which has had much influence on British colonial administration. His policy and plans were adopted by his successor, and vindicated by himself in the house of lords. His political views giving him an almost solitary position, and being unable by reason of feeble health, under which he had long suffered, to sustain alone a struggle in parliament, he afterward took but little part in public affairs.

DÜRINGSFELD, Ida von, a German authoress, born in Lower Silesia, Nov. 12, 1815, married in 1845 Baron Reinsberg, visited Italy and Switzerland, and wrote interesting sketches of her travels (*Reiseskizzen*, vol. i., Switzerland, 1850; vol. ii., Italy, 1857; vol. iii., Carinthia, 1857; vols. iv. and v., Dalmatia, 1857), and a series of sketches of high life, or *Skizzen aus der vornehmen Welt* (6 vols., 1842–'45). The most recent of her numerous works are *Esther* (Breslau, 1851), and *Clotilde* (Berlin, 1855). She has also written poetry and songs, and translated Bohemian national songs into German (*Böhmische Rosen*, Breslau, 1851). Several of her original songs were set to music, and her *Lieder aus Toscana* appeared in Dresden in 1855.

DUROC, Gérard Christophe Michel, duke of Friuli, a French general, born in Pont-à-Mousson, near Nancy, Oct. 25, 1772, killed near Markersdorf, in the vicinity of Görlitz, Prussia, May 23, 1813. After having served in the first wars of the revolution as adjutant of Gen. L'Espinasse, he joined the army of Italy in 1796, became brigadier-general in 1797, took part in the Egyptian campaign, and after Napoleon's return to France and the 18th Brumaire, in which he was a chief actor, he was made lieutenant-general and governor of the Tuileries. Subsequently he was employed on diplomatic missions in Stockholm, Copenhagen, St. Petersburg, Berlin, and Dresden; took part in 1805 in the battle of Austerlitz as successor of Gen. Oudinot, who had been wounded; and accompanied Napoleon in his campaigns in 1806 and 1807. In 1809 he was with the emperor in Austria, and negotiated the truce of Znaym. In 1812 he was in the Russian campaign, always enthusiastically devoted to the cause of Napoleon, of whom he was a great favorite. After the battle of Bautzen, while escorting the emperor to an adjoining elevation for the purpose of inspecting the battle ground, he was killed by a cannon shot. The farm house in which he died the same evening was purchased by Napoleon, who caused a monument to be erected there to Duroc's memory. His remains were interred in 1845 in the church of the Invalides in Paris.

DÜRRENSTEIN, a town of Lower Austria, on the Danube, 41 m. W. by N. from Vienna, belonging to the princely house of Starhemberg; pop. 500. It is famous for its ruins of the old castle in which Richard Cœur de Lion, while returning from his crusade in Palestine in 1193, was kept a prisoner during 15 months by Duke Leopold of Austria. The castle is seen on a naked and lofty rock back of the village, on the border of the dark heights of the Wunderberg. Here on Nov. 11, 1805, the French un-

der Mortier defeated the Austrians and Russians under Kutusoff.

DÜSSELTHAL, formerly a convent of Trappists between Düsseldorf and Elberfeld; at present an educational institution, established in 1821 by a Prussian nobleman for the benefit of helpless children, and of converted Jews who wish to become mechanics or farmers.

DÜSSELDORF, a district of Rhenish Prussia, bounded N. and W. by Holland, and traversed by the Rhine; area, 2,096 sq. m.; pop. in 1855, 1,017,500. The 14 circles of the district include the circle of Düsseldorf (pop. in 1855, 85,560), and the most celebrated manufacturing towns of the country, as Elberfeld, Crefeld, Solingen, Lennep, &c. The industrial interests absorb the best energies of the inhabitants, and agricultural pursuits are comparatively neglected. On the left shore of the Rhine, however, the richness of the soil is great, and the trade in cereals and cattle is not inconsiderable, although a more steady attention to the resources of husbandry might enhance its importance. The district abounds in mineral wealth, especially in coal and iron.—DÜSSELDORF, the capital of the district and circle of the same name, is situated at the confluence of the Düssel with the Rhine, 22 m. by railway N. from Cologne; pop. in 1855, 45,000. As a great focus of railway and steamboat communication, a fair proportion of the transit trade of the Rhine is carried on by the merchants of Düsseldorf. The manufacturing interest is not as fully represented as in Elberfeld and other neighboring towns, but there are many carriage, tapestry, cotton, tobacco, and mustard manufactories, tanneries, and dyeing establishments. In 1288 Düsseldorf became a municipality. In modern times it has been successively under the dominion of Brandenburg and Neuburg, under French and Bavarian rule, and was for some time the capital of the duchy of Berg, until in 1815 it passed with the whole duchy under the sway of Prussia. It is divided into 4 sections, the Altstadt, the Karlstadt, the Friedrichsstadt, and the Neustadt. The last was laid out by Johann Wilhelm, the elector palatine, whose statue adorns the market square and the palace yard. The Karlstadt is the most modern part of the town, and derives its name from Karl Theodor, its founder, the same public-spirited prince who established in 1767 the academy of painting. The town possesses many delightful parks or gardens, and the *Hofgarten* is one of the finest in Prussia. New and beautiful streets have been laid out within the last 15 years in the southern and eastern portions of the town. The prominent public buildings are the governor's palace, the town hall, the cabinet of antiquities and that of scientific instruments, the tribunals, the observatory, which occupies the former collegiate buildings of the Jesuits, the St. Andreas church, which also belonged to the Jesuits in former times, and the church of St. Lambert. Both churches contain monuments of the ancient sovereign princes of Düsseldorf. There are numerous charitable and literary associations, a gymnasium, a primary school, a polytechnic institute, an academy of commerce, and a good theatre. The celebrated picture gallery, which was established here in 1690, and which contained superb specimens of the best Flemish and Dutch masters, was transferred to Munich in 1805. The collection of 14,000 original drawings and 24,000 engravings and casts, however, which formed part of the same gallery, still remains in Düsseldorf, and received in 1841 an addition of 300 water-color drawings after Italian masters. Art has flourished here more than in any other German town, especially since 1822, when Frederic William III. renovated the building of the academy, and when at the same time Cornelius, Schadow, and other artists of genius arose to give a powerful impulse to art generally, by laying the foundation of the Düsseldorf school of painters. The art union for Rhenish Prussia and Westphalia was founded here in 1828. The engravers' establishment of the royal academy of Schulgen-Bettendorf was removed from Bonn to Düsseldorf in 1837. Beside the academy of painting, there is a school for painters and one for architects. The average annual attendance of art students at the various institutions is about 400. There are 2 political and several literary and humorous papers and magazines published in Düsseldorf. Among the many eminent persons born in the town were Heine the poet, and Cornelius the painter.

DUTCH LANGUAGE AND LITERATURE. See NETHERLANDS.

DUTCHESS, a S. E. co. of N. Y., bounded W. by the Hudson river, and E. by Connecticut; area, 816 sq. m.; pop. in 1855, 60,635. The surface is uneven and in many parts hilly. Fishkill river and Wappinger's creek supply it with good water power, which is employed in a number of mills. Much of the soil is best adapted to grazing, but the cultivated portions are carefully improved and very fertile, yielding large crops of grain and potatoes. The productions in 1855 were 558,308 bushels of Indian corn, 626,347 of oats, 54,720 of wheat, 205,498 of potatoes, 83,878 tons of hay, and 1,681,595 lbs. of butter. There were 39 grist mills, 12 saw mills, 6 cotton and 6 woollen factories, 9 furnaces, 132 churches, 10 newspaper offices, and 206 school houses. Limestone, slate, marble, iron, and lead are the most important minerals. The county has great facilities for communication with New York, Albany, and other parts of the Union, by means of the Hudson river, navigable along its western border, and the Hudson river and Harlem railroads, which intersect it. Capital, Poughkeepsie.

DUTENS, JOSEPH MICHEL, a French political economist, born in Tours, Oct. 15, 1765, died Aug. 6, 1848. He was educated as a civil engineer, and in 1800 published a topographical description of the arrondissement of Louviers (Eure). He first became known as an economist by his *Analyse raisonnée des principes fondamentaux de l'économie politique* (8vo., Paris, 1804). In 1818, being appointed by the French government to examine the system of interior

navigation in England, he enlarged the object of his mission to a careful examination of all the great public works of that country, and published his learned researches during the next year. His most important work was published in 1835 with the title of *Philosophie de l'économie politique, ou nouvelle exposition des principes de cette science* (2 vols. 8vo.), which opened a lively discussion between him and the disciples of Adam Smith. He published another work in defence of his later principles of economy, in which, in accordance with the school of Quesnay and Turgot, he maintains that commercial and manufacturing industry does not give a net product, and that this advantage can be predicated only of agricultural labor.

DUTROCHET, René Joachim Henri, a French physiologist, born in Néon, Nov. 14, 1776, died Feb. 4, 1847. His family was rich and noble; but their property having been confiscated during the revolution, he studied medicine in Paris, and served in the army as physician in the Spanish campaigns of 1808 and 1809. He published researches upon the formation of the egg in birds and fowls, upon the gradual unfolding of the allantois in the incubated egg, upon the increase of the young as the albumen diminishes, upon the structure and growth of feathers, upon the envelopes of the fœtus of mammalia and of the human fœtus, and upon the growth of vegetables and insects. His most important works were collected in 1837 under the title of *Mémoires pour servir à l'histoire anatomique et physiologique des végétaux et des animaux;* and in 1842 he published *Recherches physiques sur la force épiploique.*

DUUMVIRS, among the ancient Romans, two officers appointed temporarily and for a particular purpose. They were therefore of various sorts, and were specially named from the nature of their functions. The *duumviri juri dicundo* were the highest magistrates of colonies and towns, where they had the rank of consuls at Rome. The *duumviri navales* had charge of the construction and equipping, and sometimes of the command of fleets. The *duumviri quinquennales* were the censors of municipal towns. The *duumviri sacrorum* had originally the charge of the Sibylline books. The *duumviri ludorum* in the Byzantine empire were functionaries elected to the burdensome office of exhibiting games at their own expense to the people for one year.

DUVAL, a N. E. co. of Fla., bordering on the Atlantic, and bounded by St. John's river on the E. and Nassau river on the N.; area, 430 sq. m.; pop. in 1850, 4,539, of whom 2,106 were slaves. The surface is generally level, and the soil adapted to sugar, cotton, Indian corn, and sweet potatoes. In 1850 it produced 391 hhds. of sugar, 216 bales of cotton, 51,788 bushels of Indian corn, and 27,674 of sweet potatoes. There were 5 saw mills in the county, 8 churches, and 64 pupils attending public schools. Capital, Jacksonville.

DUVAL, Valentin Jameray, a French scholar, born at Arthonnay, in Champagne, in 1695, died in Vienna, Sept. 13, 1775. After the death of his father, who was a poor peasant of the name of Jameray, young Valentin was charitably taken up by a priest, who stored his mind with piety and learning. Subsequently he was employed as cowherd by 4 ignorant hermits near Lunéville, but took every opportunity to increase his knowledge. He purchased books from the proceeds of the game which he found in the adjoining woods, and his library received an unexpected addition from a present of $30 given to him by an Englishman for having found and restored to him a golden seal which he had lost. He had accumulated about 200 books, when one of the hermits, exasperated at his neglecting the cows for his reading, threatened to burn his library. The young man, enraged, drove the hermit from his cell, barred the door, and would not capitulate until his employers agreed to allow him two hours a day for study; in consideration of which he bound himself to serve them 10 years longer, with no other wages than his board and clothing. One day while keeping his cows, and surrounded as usual with books and maps, he was found by Leopold of Lorraine, who placed him under the instruction of the Jesuits of Pont-à-Mousson. Here he made rapid progress, and Duke Leopold took him to Paris in 1718. Subsequently he appointed him librarian and professor of history at the noblemen's academy of Lunéville. Among his pupils was William Pitt, afterward earl of Chatham. The income he now received soon enabled him to build a homestead upon the spot of his early solitary haunts. When Lorraine was ceded to France he accompanied Duke Francis, in his old capacity of librarian, to Florence. Here he resided for nearly 10 years, until Francis became emperor of Germany, and called him to preside over the collection of coins and medals at Vienna; this post he held until his death. His complete works, chiefly on numismatics, were published in 1786, at St. Petersburg and Basel, by Koch.

DUVAUCEL, Alfred, a French naturalist, born in Paris in 1792, died in Madras, India, in Aug. 1824. He entered the military service at an early age, and gained some distinction at the siege of Antwerp in 1814. After the restoration of the Bourbons, under the influence of Cuvier, who had married his mother, he turned his attention to the study of natural history. In 1818 he was sent on a scientific expedition to India, where, with his colleague Diard, he formed at Chandernagore a museum of natural history. They prosecuted their researches for several years with success, and at different times sent to Paris 4 large collections of animals.

DUVERGIER DE HAURANNE, Jean, a French theologian, born in Bayonne in 1581, died Oct. 11, 1643. He was educated in theology at Louvain, where Jansenius was at the same time a student, and these two young ecclesiastics formed an intimate friendship. While Jansenius was working upon his *Augustinus*,

Duvergier was appointed to the abbey of St. Cyran. Preserving an ascetic exterior, a regular life, and an inflexible character, he introduced into his monastery the rules of St. Benedict in all their severity. His rigor and zeal becoming known, he was invited to Paris, where he made numerous disciples in all classes of society, and obtained great reputation and influence as the confessor of noble women who were inclined to the severity of asceticism. He refused several bishoprics. His Jansenist principles brought upon him the enmity of the Jesuits, and in 1638, complaints having been borne to Richelieu, he was by order of that minister imprisoned at Vincennes. He lived but a short time after his release upon the death of Richelieu. His most celebrated writings are those which he directed against the Jesuit Garasse. Pascal, Arnauld, and Nicole were his disciples.—Prosper, a French politician and author, born in Rouen, Aug. 3, 1798. In 1831 he was chosen to the chamber of deputies from Sancerre, and at first gave his support to the government of Louis Philippe. Subsequently, however, he became one of the prominent champions of reform. After the revolution of 1848 he represented the department of Cher in the constituent assembly, and in Nov. 1850, became a member of the legislative assembly. After the *coup d'état* of Dec. 2, 1851, he was imprisoned in the fortress of Vincennes, and afterward banished from the country until Aug. 1852, when he received permission to return. Many of his writings, which originally appeared in the *Revue des deux mondes*, have been published; and the 3d volume of his *Histoire du gouvernement parlementaire en France* appeared at Paris in 1859.

DUVERNOY, Georges Louis, a French naturalist, born in Montbéliard, Aug. 6, 1777, died in Paris, March 1, 1855. He pursued his studies at Stuttgart, Strasbourg, and Paris, and in 1802 was invited by Cuvier, to whom he was related, to assist in editing his treatise on comparative anatomy. With the aid of the notes and counsels of his master, he prepared the last 3 volumes of this work, embracing the organs of digestion, respiration, circulation, generation, and the secretions. He returned to Montbéliard, where for 20 years he practised medicine, publishing only a few writings on fossils. In 1827 he was elected professor of the faculty of sciences at Strasbourg, where, during 10 years, he published a variety of papers on anatomical subjects; and after the death of Cuvier he was engaged in arranging his papers for publication. In 1837 he was elected professor of natural history in the college of France. He has published numerous works, which have furnished important materials to anatomists and zoologists.

DUYCKINCK, Evert Augustus, an American author, a son of Evert Duyckinck, for many years a leading bookseller and publisher of New York, born in that city in 1816. He was graduated at Columbia College in 1835. In Dec. 1840, he commenced with Mr. Cornelius Mathews a monthly periodical entitled "Arcturus: a Magazine of Books and Opinion," which was continued until May, 1842. He was also a contributor to the early numbers of the "New York Review." In 1847 he commenced the "Literary World," a weekly critical journal; he withdrew from the editorship with the publication of the 12th number, but resumed the post on the appearance of the 88th, in connection with his brother George L. Duyckinck. The periodical remained under their joint management until its discontinuance at the close of the year 1853. In 1856 the two brothers completed the "Cyclopædia of American Literature" (2 large vols. 8vo.), a work of great research and value. In the same year Mr. Duyckinck published the "Wit and Wisdom of Sydney Smith," a selection from the works of that author, with an original memoir. He has also contributed largely to several periodicals.—George Long, brother of the preceding, born in New York in 1823, was graduated at the university of that city in 1843. In addition to his share in the "Literary World" and "Cyclopædia of American Literature," he is the author of "George Herbert of Bemerton," published in 1858, and a life of Bishop Thomas Ken (1859).

DWARACA, or Jigat, a town of Guzerat, Hindostan, at the western extremity of the peninsula of Cattywar. It is fabled to have been the residence of Krishna, and is the seat of a celebrated temple of that divinity, with a spire 140 feet in height, consisting of a series of pyramids. It is annually resorted to by 15,000 pilgrims. It contains about 2,500 houses, and has an important trade in chalk.

DWARF (Sax. *dwerg*, *dweorg*), an animal or a plant that does not attain the ordinary size of its species. A degree of dwarfishness may be the general result of natural causes, as of excessive cold, since both plants and animals diminish in stature toward the poles; or may be produced by artificial means, as lack of nourishment, compression, or mutilation. The growth of young animals may be arrested by exciting aliments and alcoholic drinks and lotions. Plants may be forced by heat to a precocious inflorescence and fructification, which prevents them from ever attaining their perfect stature. The Chinese have the art of dwarfing trees by diverting the growth from the foliage to the flowers and fruit. The ancients are said even to have produced artificial dwarfs of the human race, who were highly esteemed by the Roman matrons for servants. A race of dwarfs, perhaps the pigmies of the ancients, has been said to exist in the interior of Africa. (See Dokos.) Dwarfs are the exceptions and freaks of nature, and when symmetrical are rare and remarkable phenomena. One of the most noted of those whose history is certain was the Polish gentleman, Count Borowlaski or Boruslawski (1739–1837), whose reputation was European. At 1 year of age, he was 14 inches in height; at 6, 17 in.; at 10, 21 in.; at 15, 25 in.; at 20, 28 in.; at 25, 35 in., which was nearly his greatest height. He early displayed wit and

grace, and was taken into the family of the countess Humiecka, with whom he frequented the Prussian court. He excelled in dancing and in playing on the guitar, and so delighted the Parisian ladies during the year of his residence in that capital that he was once invited to an entertainment in his honor, at which the plate, knives, forks, and spoons were all of dimensions proportioned to his size. At the age of 40 he married, became a father, and, after giving concerts in the principal cities of Germany, visited England, where he was introduced to the royal family, and paid a visit to a giant 8 feet 4 inches high. In London he wrote his memoirs (8vo., 1788), the undertaking being patronized by the prince of Wales and many of the nobility, and he afterward lived in elegant retirement in Durham. He possessed superior intelligence, and was said to exhibit most painful emotions when he perceived himself regarded only as a puppet and a toy. In contrast with him was the favorite dwarf of the ex-king Stanislas of Poland, commonly called Bébé (1741–'64). He was a native of Lorraine, and at 5 years of age was 22 inches high; at 15, 29 inches; and at his death, 33 inches. His diminutive figure was well formed and justly proportioned, till after the age of puberty his spine curved, and he became decrepit. He was never either mentally or physically active. He was once visited by the count Borowlaski, and having noticed the superiority of the latter in manners and intelligence, watched for an opportunity and attempted to throw his visitor into the fire. There was a struggle between the rivals, which was terminated by the interference of the household. The Dutch dwarf, Wybrand Lolkes, born in 1730, possessed mechanical tastes and skill, had success as a watchmaker, and when 60 years of age was 27 inches high, and weighed 56 lbs. Mme. Teresia, called the Corsican fairy, from the place of her birth (1743), was remarkable for physical symmetry and beauty, and mental vivacity. She spoke several languages, was charming in conversation, and when exhibited in London in 1773 was 34 inches high, and weighed 26 lbs. Jeffery Hudson (1619–'82) was the favorite dwarf of Charles I. of England. He was a native of Oakham, and about the age of 7 years, when 18 inches high, was taken into the service of the duke of Buckingham. From the age of 7 to 30 he grew no taller, but afterward shot up to 3 feet 9 inches. He was served up in a pie at a royal entertainment, from which he suddenly sprang forth in full armor. Sir William Davenant wrote a poem called "Jeffreidos" on a battle between him and a turkey cock, when a woman rescued him from his furious antagonist. The courtiers teased him about the story till he challenged a young gentleman, Mr. Crofts, who had affronted him. That gentleman appeared at the rendezvous armed only with a squirt, which so enraged the dwarf that a real duel ensued. The weapons were pistols, and both parties were on horseback to put them more on a level. At the first fire Jeffery shot his antagonist dead. He was afterward taken prisoner by a Turkish rover, and was for a time a slave in Barbary. At the beginning of the civil war he was made captain in the royal army, but he closed his life in prison, into which he had been cast shortly before his death on suspicion of being privy to the popish plot. Charles I. of England honored with his presence the marriage of two dwarfs, Richard Gibson and Anne Shepherd, each of whom measured 3 feet 10 inches. Waller wrote a poem on the occasion, and Sir Peter Lely painted the couple at full length. Gibson rose to celebrity as a painter. In 1710 Peter, czar of Russia, celebrated a marriage of dwarfs with great parade. All the dwarf men and women within 200 miles were ordered to repair to the capital. He supplied carriages for them, and so managed that one horse should be seen galloping into the city with 12 or more of them. The whole company of dwarfs amounted to 70, and all the furniture and other preparations for them were on a miniature scale. Gen. Tom Thumb (Charles S. Stratton), the celebrated American dwarf, was born in Bridgeport, Conn., in 1837, and at the age of 5 years was not 2 feet in height and weighed less than 16 pounds; and he had grown but very little for 3 or 4 years. He had fine talents, and was remarkable for agility and symmetry, while his lively sense of the ludicrous gave him excellent success in performances suited to his character. In 1842 he was exhibited in New York by P. T. Barnum, his age being announced as 11 years. He visited England in 1844, was several times exhibited to the queen and court at Buckingham palace, gave levees, and was invited to parties of the nobility. In Paris he gained applause as an actor. He returned to the United States in 1847, and was publicly exhibited in the principal cities of the United States and in Havana. During the middle ages dwarfs shared with fools the favor of courts and of the nobility, and a salary for the king's dwarf was not abolished in France till the reign of Louis XIV. In character they have usually manifested the faults of spoiled children, being petulant, choleric, envious, jealous, and inconstant. It was asserted by Lavater that no person above or below the ordinary standard of mankind had ever attained eminence for extraordinary talent.—In Scandinavian mythology dwarfs (*Dvergar*) are inhabitants of the interior of the earth, and especially of large isolated rocks. They were imagined to be dark in aspect like the caverns in which they dwelt, and were often styled "dark elves." A dwarf was set by the gods at the corner of each of the 4 quarters of the earth to bear up the sky; and they were named East, West, North, and South. All the dwarfs were esteemed great artists in working metals, and weapons of marvellous properties were said to be produced from their subterranean workshops. Like the Jotuns, they could not endure the sunlight, and if its rays touched them they were turned into stone. If a man met a dwarf away from his rock, and

could throw steel between him and it, it was believed that thereby his habitation was closed up, and that any thing in his power could be extorted from him. In the old Norse, echo is called the "dwarf language," probably because it was thought to be produced by the dwarfs within mountains imitating the sounds which they heard without.

DWIGHT, Edmund, an American merchant, born in Springfield, Mass., Nov. 28, 1780, died in Boston, April 1, 1849. He was the 3d son of Jonathan Dwight (born in Halifax, N. S., June, 1743), who removed to Springfield in his early youth, and from humble beginnings became one of the most successful merchants in New England. He was graduated at Yale college in 1799, and entered the office of Fisher Ames at Dedham, as a student of law. After completing his studies, he made the tour of Europe, and returned to Massachusetts in 1804, and opened a law office in Boston. But in 1807 he accepted an offer from his elder brother, James Scutt Dwight, to become a partner in an extensive mercantile business in Springfield, and for many years he continued that connection. In April, 1809, he married a daughter of Samuel Eliot of Boston, and in 1815 removed with his family to that city, where he established the mercantile house of William H. and J. W. Dwight. Mr. William H. Dwight was lost by shipwreck on the coast of Ireland, in 1822, and when Mr. J. W. Dwight retired from business the house was continued until 1853, under the name of James K. Mills and co. It may be said that, with perhaps one or two exceptions, this house has laid the foundation of more successful manufacturing enterprises than any other in New England. In 1822 the manufacturing village of Chicopee Falls was commenced by it, and in the course of 7 years 4 large cotton mills were put in motion, beside manufactories of other fabrics. In 1831 measures were taken to develop the water power at Cabotville (since Chicopee), and in a few years 7 large cotton mills were erected and set in successful operation there, beside manufactories of machinery, tools, hardware, brass cannons, bells, &c. In 1847 measures were taken to form an immense water power on the Connecticut river in the northerly part of West Springfield, opposite South Hadley, and a village was laid out called Holyoke. Notwithstanding many discouraging circumstances, this has acquired a very respectable standing among the manufacturing towns in New England. Another enterprise of a more public character, in which Mr. Dwight took an early and active part, was the construction of the Western railroad from Worcester to Albany, of which he was a director for many years, and one year president. But the great feature of his life was his eminent services to the cause of popular education. Mr. Dwight was the first to propose the establishment of normal schools in Massachusetts, but the extent of his liberality in the contributions of pecuniary means for that object was not allowed to be publicly known until his decease. In 1838 he pledged $10,000 for the purpose of establishing a system of normal schools, provided the state would appropriate a like sum for the purpose. The proposition was promptly accepted by the legislature. It appeared after his death that Mr. Dwight had relieved several deserving young men who were struggling to meet the expenses of an education, without allowing the receivers of his bounty to know the hand that had helped them. During most of his business life he represented the towns in which he resided in the legislature. He was a member from Boston for several years.

DWIGHT, Theodore, an American author and journalist, born in Northampton, Mass., in 1765, died in New York, June 11, 1846. He was a brother of Timothy Dwight, and a grandson, on the mother's side, of Jonathan Edwards, and studied law with his uncle, Judge Pierpont Edwards, of Hartford, Conn. He became an eminent member of his profession, and a leading speaker and writer of the federal party. As a senator in the Connecticut legislature, and subsequently a representative in congress from that state in 1806–'7, he showed an aptitude for the discussion of public affairs which induced the prominent federalists of Connecticut to secure his services as editor of the "Hartford Mirror," the leading organ of the party in the state. During the session of the Hartford convention in 1814 he acted as its secretary, and in 1833 published a "History of the Hartford Convention," written from a strong federal point of view. Between 1815 and 1817 he edited the "Albany Daily Advertiser," and in the latter year removed to New York, where he established the "New York Daily Advertiser," of which he remained the editor until 1836, when he retired from professional life to reside in Hartford. Three years before his death he returned to New York. Mr. Dwight was the author of some occasional orations and of several educational works.

DWIGHT, Timothy, an American divine, president of Yale college, born in Northampton, Mass., May 14, 1752, died in New Haven, Conn., Jan. 11, 1817. From his earliest years, under the training of his mother, he gave indications of a thirst for knowledge, and great facility of learning. He is said to have been able at the age of 4 to read the Bible correctly and fluently. When 6 years old he was sent to the grammar school, and in 1765 he entered Yale college, where, for the first 2 years, he scarcely fulfilled the promise of his earlier days; but from that time to the end of his college course, he made rapid progress in his regular studies and in other branches, especially in poetry and music. He was graduated in 1769, and soon took charge of a grammar school in New Haven, where he remained for 2 years. In 1771 he was chosen tutor in Yale college, and continued in that office for 6 years. So intense and unintermitted were his studies at this time that his health was for a season seriously impaired, and his eyes so weakened that they never regained their strength. For a

time he seems to have contemplated the study of law, in which he afterward temporarily engaged, though his ultimate determination was for theology. When, on account of the revolutionary troubles, the students of the college were dispersed, in 1777, he went with his class to Wethersfield, where he remained till autumn, and in the mean time was licensed to preach by an association in Hampshire co., Mass. Soon after this he was appointed chaplain to a brigade of the division under Gen. Putnam, and joined the army at West Point, remaining with them over a year, and discharging the duties of his office with scrupulous fidelity. Not only did he labor for the spiritual interests of the soldiery, but, by delivering patriotic discourses and composing patriotic songs, gave new vigor to the spirit of liberty. By the death of his father in 1778 the support of his mother with her 12 children devolved on him, the oldest of her sons; and resigning his chaplaincy, he removed with his own family to Northampton. Here his labors for a series of years would seem almost incredible. He worked with his own hands upon the farm during the week, supplied some neighboring church on the Sabbath, established and sustained a school for both sexes, which acquired high celebrity, represented the town in county conventions, and for 2 years in the state legislature, and would have been chosen to the continental congress, but that he declined the intended honor, in order to devote himself to the work of the ministry. In 1783 he was ordained as pastor of the Congregational church in Greenfield, Conn.; but as his salary was entirely insufficient for his support, he established an academy, which soon became extensively known, and to which he devoted 6 hours of each day. In 1787 he received the degree of D.D. from the college of New Jersey, and in 1810 that of LL.D. from Harvard college. On the death of Dr. Stiles he was chosen his successor in the presidency of Yale college, was inaugurated to that office in Sept. 1795, and continued in it to the end of his life, not merely, however, discharging its appropriate duties, but connecting with it a vast amount of labor that belonged to other departments. He was, in reality, professor of belles-lettres, oratory, and theology, teaching a class preparing for the ministry, and preaching in the college chapel twice every Sunday; in the discharge of which latter duty he prepared and delivered his well-known "System of Theology," with which his reputation as a writer and preacher is chiefly identified. In 1816 his health began to give way under his labors, and though he attended to his classes and heard recitations almost to the last, he gradually declined till the hour of his death. Dr. Dwight was a man of commanding presence, of dignified but affable manners, of striking conversational powers, of superior intellectual faculties, untiring in his industry and research, of great system and wonderful memory; as a teacher, remarkable for his skill and success; as a writer always interesting and sensible; and as a preacher, sound, strong, impressive, and at times highly eloquent. So entirely were his mental resources under his command, that he often dictated to 2 or even 3 amanuenses at the same time, on as many distinct subjects; and so great was his influence over young men, and his success in training large numbers of them for eminence and usefulness, that a distinguished civilian has said of him: "I have often expressed the opinion, which length of time has continually strengthened, that no man except the 'father of his country' has conferred greater benefits on our nation than President Dwight." The literary labors of Dr. Dwight were very great, and his publications numerous, consisting of dissertations, poems, and occasional sermons, issued during his life, and since his death; his "Theology Explained and Defended," with a memoir (5 vols., 1818); "Travels in New England and New York" (4 vols., 1822); "Sermons on Miscellaneous Subjects" (2 vols., 1828).—Sereno Edwards, an American clergyman, son of the preceding, born in Greenfield, Conn., May 18, 1786, died in Philadelphia, Nov. 30, 1850. When between 9 and 10 years of age, he was removed to New Haven, his father having then become president of Yale college. Entering that institution in 1799, he was graduated in 1803; was tutor in Yale college from 1806 to 1810, during which time he studied law in New Haven, and was admitted to the bar in the latter year. In 1815, however, he experienced, as he believed, a radical change of character, and in October of the year following was licensed as a preacher of the gospel by the west association of New Haven co. Soon afterward he was chosen chaplain of the U. S. senate for the session of 1816–'17, and in September of the latter year was ordained pastor of the Park street church, Boston. Here he labored with great zeal and success for about 10 years, visiting Europe, in 1824–'25, to recruit his prostrated health; but not fully gaining this end, he resigned his charge in 1826. Returning to New Haven, he now occupied himself in writing the life and editing the works of the elder President Edwards, which were published in 1829. In 1828, in connection with his brother Henry, he commenced in New Haven a large school for boys, on the plan of the German gymnasiums, which was continued for 3 years. In March, 1833, he was chosen president of Hamilton college, N. Y., in September of the same year received the degree of D.D. from Yale college, and in Sept. 1835, on account of pecuniary and other discouragements, resigned his presidency. In 1838 he was occupied for some months in an agency for the Pennsylvania colonization society, and in the same year removed to New York, where he lived for the remainder of his days. Here a distressing malady, from which he had long suffered, gained complete mastery over him, disabling him for active service, and leading him to court retirement, so that little was known of him by the public, till, visiting Philadelphia in

1850, for medical aid, he was seized with the illness that terminated his life. He published at various times several sermons and addresses, the "Life of Brainerd" (1822), a volume on the "Atonement" (1826), the "Life of Edwards" (1830), and the "Hebrew Wife" (1836). A volume of his "Select Discourses" was published in 1851, together with an interesting memoir by his brother, the Rev. Dr. W. T. Dwight.

DWINA, or DVINA, NORTHERN, a river of Russia in Europe, formed in the government of Vologda by the junction of the Sookhona and Vitchegda, flows N. N. W. into the government of Archangel, where it receives several tributaries, and after a course of more than 400 miles falls through several mouths, forming a number of islands, into the White sea, about 40 miles below the city of Archangel. It is navigable for its whole length, and is the largest stream in northern Europe, traversing as it does a marshy country, and increased by numerous affluents. It forms a part of a system of canals completed in 1807, by which a water communication is established between the White, Baltic, Black, and Caspian seas. (For SOUTHERN DWINA, see DÜNA.)

DYAKS. See BORNEO.

DYCE, ALEXANDER, a Scottish author, born in Edinburgh, June 30, 1797. He completed his education at Exeter college, Oxford, subsequently took orders, and in 1827 settled in London, where he has since lived. He has edited, with notes and biographies, editions of the works of Peele, Greene, Webster, Middleton, Beaumont and Fletcher, Marlow, and Shirley. In 1856 he edited "Recollections of the Table Talk of Samuel Rogers;" and in 1858 he completed an edition of Shakespeare in 6 vols., the text of which has been highly commended. He has also contributed biographies for Pickering's "Aldine Poets." Among his miscellaneous publications are: "Select Translations from Quintus Smyrnæus;" editions of Collins's and Skelton's poems; "Specimens of British Poetesses;" Kemp's "Nine Days' Wonder," and some old plays. To Shakespearean literature he has contributed "Remarks on Collier's and Knight's Editions of Shakespeare," and "A few Notes on Shakespeare"—a review of the recent emendations proposed by Mr. Collier.—WILLIAM, a British artist, born in Scotland at the beginning of this century. He studied painting at the academy of Edinburgh, but attracted little notice until the production of his fresco studies in the exhibition at Westminster hall in 1844. The admirable manner in which these were executed procured him commissions to make designs for the new houses of parliament. His "Baptism of Ethelbert," on one of the mural compartments of the new house of lords, is regarded as one of his best works. He was made a royal academician in 1848. Among his pictures exhibited in London in 1851 was "Lear in the Storm," and in Paris in 1855, "Meeting of Jacob and Rachel," and "King Joash shooting the Arrow of Deliverance."

DYEING. Among the earliest records of the human race we find frequent intimations of an appreciation of the brilliant hues such as are displayed by nature in the plumage of birds, in flowers, crystals, and shells, and in the morning and evening sky; and the instinct implanted in man of imitating the works of his Creator is seen in the desire to appropriate these rich colors to the adornment of his own apparel. The gift of the coat of many colors was early regarded as the highest mark of affection. To the fine linen (which was probably the same as our cotton) were transferred the brilliant blue, scarlet, and purple hues extracted from vegetable or animal substances, the last named color reserved exclusively for the vestments of kings and high priests. The skins of the ram and the badger made use of for the tabernacle were dyed red, and in the time of Moses the art of coloring woollen purple was already known. The Tyrians early attained a high perfection in the art, and their king sent to Solomon a man skilful to work "in purple and blue, and in fine linen and in crimson." Along the coast of Phœnicia they found the two kinds of shellfish called by Pliny the *buccinum* and *purpura*, and from each animal they extracted a single drop of the precious juice which caused their name to be ever associated with the rich purple dye. In such estimation was this held in the time of the Roman emperors, that a pound weight of the cloth which had been twice dipped in it was sold, as Pliny states, for a sum worth about $150. But its use being restricted to the emperors, the art of preparing it was at last lost. It was revived in the 17th and 18th centuries in England and France, but better colors and cheaper processes were then in use. The discoverers and early conquerors of the countries of North and South America were astonished by the skill exhibited by the ancient Peruvians and Mexicans in the application of the numerous beautiful dyes they extracted from the woods of their forests. According to Pliny, the methods of dyeing black, blue, yellow, and green were brought into Greece on the return of the expedition of Alexander the Great from India, where it appears that the art of coloring cotton cloths with rich and permanent dyes had long been known and practised. The Venetians and Genoese in the height of their prosperity, in the time of the crusades, transferred the art to Italy; and Florence in the early part of the 14th century, it is said, contained not less than 200 dyeing establishments. The important dye stuff archil was discovered about the year 1300 by a merchant of Florence. In 1429 a work upon dyeing was published in Venice, of which subsequent editions were issued as late as the year 1548, containing full details of the processes employed. From this work it would appear that the use of indigo was unknown in Europe up to 1548, though in India it was probably an important article in dyeing at the remotest periods. It was afterward introduced from America together with cochineal,

logwood, annotto, quercitron, Brazil wood, &c. But its use in England and Saxony, as of logwood also, met with the most determined opposition. The cultivators of the woad then in use for dyeing blue caused decrees to be issued against indigo as a most dangerous product. By the German diet in 1577 it was declared to be "a pernicious, deceitful, eating, and corrosive dye;" and the name was given it of food for the devil. An act of parliament in the reign of Elizabeth forbade its use, and authorized the destruction of it and of logwood wherever found, and this continued in force for nearly a century. About the year 1630 it was discovered that the crimson color obtained from cochineal might be converted into a brilliant scarlet by the application of a salt of tin. The introduction of this metal as an occasional substitute for alum as a mordant is attributed to a dyer named Cornelius Drebbel. The use of pure mordants marks the great improvement of the art in modern times, as also the introduction of a great variety of new dyes obtained from mineral substances. The Flemings during the 17th century carried the skill to which they had attained in this art into Germany, France, and England. The French about the same time directed particular attention to it, and men of eminence in chemical science, as Du Fay, Hellot, Macquer, and Berthollet, were appointed by the government to investigate and perfect the processes. The method practised in the East of giving to cotton the beautiful and permanent Turkey red dye was made known in their publications, and the art was about the same time introduced into France by some Greek dyers. The business was afterward permanently established at Glasgow by a Frenchman named Papillon. The branch of dyeing called calico printing, by which different colors are produced on the same piece of cloth by dipping it into a dye of one color, was known at a very early period, and the process is lucidly described in a few words by Pliny, as it was practised in Egypt in the first century. (See Calico.)—The object to be attained by dyeing is the fixing of certain colors permanently and so as to present a uniform shade in the fibres of textile materials and other substances. The subjects operated upon are various in their characters, some being of animal origin, as silks and woollens, and others being composed of vegetable matters alone, as cottons, linens, &c. These two classes differ in the facility with which they imbibe the coloring matters, the animal tissue taking much more brilliant shades than the vegetable. The colors may be applied to each of these in the raw fibre, in the spun yarn, or in the woven fabric. Hence it is apparent that there must be much diversity in the processes. But when it is further considered that the coloring matters are themselves of the most diverse composition, drawn from the vegetable, animal, and mineral kingdoms, and that different substances are brought together to produce by their reactions effects dependent on the intricate changes which take place among the elements of organic bodies, the art is readily understood to be exceedingly complicated in its nature, and to some extent so empirical in its processes, that its exposition must involve a vast amount of details. In an article like the present only a general idea of the principles of the art and of the materials employed can be given.—The colors obtained from vegetable matters are most numerous; they are extracted generally by watery infusion, though some require for their solution ether, alcohol, or the fixed oils. The most common colors are yellow, brown, and red; the only blue vegetable dyes are litmus and indigo; nut galls, sumach, and the cashew nut afford a black dye; and by the mixing of these, or their treatment with other substances, numerous shades or even different colors are obtained. The animal kingdom affords the beautiful scarlet and crimson dyes, which are extracted from the bodies of the cochineal and kermes insects. Hoofs and horns and other refuse animal matters yield the cyanogen which enters into the composition of Prussian blue. From the mineral kingdom is derived a great variety of brilliant colors, produced from the salts of the different metals. The same metal in its various combinations gives many colors, as is seen in the crystals of its natural salts. Thus iron in the form of a sulphate furnishes the ancient nankeen or iron buff, as a nitrate it affords various shades of blue, and in other combinations it is made to yield a black, slate color, &c. The chrome and lead salts are particularly interesting for the variety and brilliancy of their colors. The former are remarkable for their permanency also, and the extent of their possible applications is by no means yet fully appreciated. The mordants also, which are used to prepare the fibre for the reception and fixing of the dye, come almost wholly from the mineral kingdom. They are soluble combinations of alumina, of protoxide of lead, of oxide of iron, or of oxide of tin or of copper, with some acid, commonly acetic acid. Materials to be dyed seldom have such an affinity for the coloring matters that they will receive these without previous preparation. Some few colors, however, which are technically called substantive, are applied directly to the stuffs, and become fixed without the intervention of any other matter. But mordants are commonly required. They have the property of fixing themselves to the fibre, and of uniting chemically with the dye afterward applied, thus binding them fast together. The name is given them from the old opinion that their action was mechanical, and that they bit into (Lat. *mordeo*) and opened the pores of the fibre for the reception of the coloring matters. Some of them serve, at the same time that they fix the color, to modify its shade, and give to it its highest tone. For these the name alterants has been proposed by Berthollet, to distinguish them from the simple mordants. Oxide of iron often has this effect of changing the ordinary colors of a dye. Thus a

decoction of madder applied to unmordanted cotton gives a fugitive and dirty red color. If the cotton be first passed through a weak solution of acetate of alumina, and then dried at a high temperature, afterward washed, next treated with a hot decoction of madder, and again washed, it will be found to have received a fine red, which is fixed, so as to resist the action of air, light, and water. But if, instead of alumina, oxide of iron is employed as the mordant, a purple color will be obtained. So in dyeing with cochineal, the aluminous mordant produces a crimson color; but if oxide of iron is used instead, the result is black. By mixing mordants different shades and colors are produced, and varying the strength of the solutions, and other similar expedients, afford opportunities for the exercise of much ingenuity in obtaining a variety of effects. A thorough familiarity with the chemical action of the salts employed upon each other is essential to skilfully conduct these complicated processes, and obtain most directly and with the greatest economy the effects desired. It is often the case that the color is produced in the cloth in the form of a precipitate by the interchange of the elements of 2 different chemical compounds taking place in the fibre of the stuff, on this being dipped first into the solution of one, and then into that of the other. The new color obtained by this chemical reaction is at the same time fixed in the fibre, as though one of the substances acted as a mordant; this may be the case when neither solution would afford any color whatever to the material to be dyed. Thus an aqueous solution of nitrate or acetate of lead or of bichromate of potash imparts no color to cloth; if applied to it, either may be washed out; but one being applied to the same stuff after it has received the other, an insoluble precipitate of chrome yellow (chromate of lead) is obtained, which attaches itself to the stuff as a fast dye. The oxygen of the air is also made to act upon colors subject to its influence, bringing them out as the material exposed to it is converted into an oxide. Solutions of salts which evolve oxygen are used to produce the same effect. Acids, too, are added to alkaline solutions to neutralize them and cause the dye they hold in solution to be liberated as they precipitate among the fibres of the cloth. In the process called mandarining an acid is made to act directly upon the fibre of the cloth, which in this case must be of animal substance, as silk or woollen. An orange dye is thus produced by the action of dilute nitric acid.—An interesting account is given by Tomlinson, in the "Useful Arts and Manufactures of Great Britain," of the operations conducted in one of the great English cotton dye houses, near Bolton. In an immense apartment, the basement story of a large cotton mill, is collected the great variety of apparatus employed: cisterns of stone for bleaching and washing; dash-wheels, &c., also for washing; "dye becks" and "soap becks," or vessels containing the dye-stuffs and the soap and water; mangles for rolling cloth, others with brushes for laying the fibre, squeezing rollers, and drying machines. Boilers are seen in operation heated by steam conveyed through them in pipes; water flows in every direction, the waste running out in streams of all colors, and the fresh conveyed about by numerous pipes. The water must be of the purest quality, uncontaminated by any foreign substances, whose presence would injuriously affect the delicate chemical processes. The dyestuffs are ground and mixed in another room, where they are also stored. The infusions are made in tubs or vats, some in cold water, and some by boiling. The dyestuffs are introduced in the form of a coarse powder, or they may be enclosed in bags through which the color is imparted to the liquid. The cotton cloth is first prepared by thorough cleansing in order to remove all extraneous matters that may be attached to the fibre; acid waters are sometimes used for this purpose, dissolving out the calcareous earth and oxide of iron which are frequently present. The mordant is then applied by soaking the cloth in solutions of alum, each pound of cotton requiring 4 oz. of alum; or if a black color is to be produced, the mordant is a preparation of nut galls boiled for 2 hours in water. The preparatory operations are expedited by passing the cloth in lengths of 100 yards or more over and under different rollers, one of which is set under the liquid in the vat. The fluid is thus kept uniformly mixed, and the cloth is equally saturated with it. As it comes out of the vat it is made to pass between 2 rollers, which press out the superfluous moisture, and it is then ready for another dipping. After the dyeing has been completed, the cloth must be submitted to the finishing processes. The loose portions of the coloring matters are removed by washing, and the colors are brightened and rendered more permanent by passing the cloth through solutions of cow dung in water, or of the artificial preparations of phosphates used as a substitute and called by this name, or a solution of bran is used to effect a similar purpose. These are processes adopted in calico printing particularly, as is that of fixing the colors by steaming the cloth. Chloride of lime in solution is also employed to remove the excess of coloring matters. By next passing the cloth through squeezing rollers the water is pressed out, and in the drying machine it is in a few minutes rendered nearly dry, the centrifugal force produced by the rapid revolution of a cylinder expelling the moisture, which escapes through apertures made for the purpose. The starching and subsequent drying by steam follow, and the cloth is ready for the final process of calendering.—In 1850 a patent was granted in England to Mr. Jean Adolphe Carton for improvements in dyeing, which consist in the preparation of 4 mordants to be used instead of the cream of tartar, and cream of tartar and alum, now commonly employed, whereby colors will be produced at a cheaper rate and of superior brilliancy and variety. The first mordant is prepared by

dissolving 18 parts by weight of common salt and 9 parts of tartaric acid in 67 parts of boiling water, and then adding 18 parts of the acetic acid of commerce. One pound of this mordant is equivalent for dyeing purposes to about one pound of cream of tartar, and it is used in the same manner. It is suitable for crimson and all reddish dyes. The second mordant is produced by triturating and mixing one part of alum with 2 parts of the residuum (sulphate of soda) of that mode of manufacturing nitric acid in which nitrate of soda is employed. Two and a quarter pounds of this mordant are equivalent to half that quantity of cream of tartar, and it is to be used in the same way. It is suitable for all olive and brown dyes. The 3d mordant is prepared by triturating and mixing together 5 parts of common salt and one part of the residuum of the manufacture of sulphuric acid where nitrate of potash is employed. This mordant is to be used in the same proportion to cream of tartar as the 2d, and it is applicable to black and dark colors only. The 4th mordant is formed by dissolving 6 parts of alumina, 3 parts of nitric acid, and 1 part of caustic ley of 24° Beaumé in 20 quarts of boiling water. It may be used in dyers' baths for green dyes of all shades and fancy dyes, in the proportion of one pint for every 20 lbs. weight of the fabrics to be dyed.—Many experiments in dyeing made by M. Kuhlmann were published in France at the beginning of 1859. This gentleman having remarked that when eggs were dyed some of them took colors better than others, and that this fixation of the color took place without any mordant, was led to suppose that, in these cases, the fixation was not due to the calcareous salt of which the egg shell is formed, but to the azotized coating upon its surface. This supposition was subsequently verified by experiment. As the coating of the egg shell is analogous to albumen, this latter substance, coagulated by heat, was tried separately in baths of Brazil wood, &c., and its absorbing power thus shown. M. Kuhlmann then tried the use of this substance for the purpose of increasing the absorbing power of different tissues, and obtained very favorable results with cotton, less distinct with silk, scarcely perceptible with wool; these trials were made with Brazil wood, madder, and Campeachy wood. After albumen he tried with the same success milk and caseum, which may be coagulated on the surface of the tissues by means of an acid. Milk especially, alone or in connection with mordants, gave the cotton very full colors. He experimented also upon gelatine coagulated by tannin, and obtained results, although feeble, without mordants. He also found that albumen may serve as a medium for precipitating upon stuffs metallic oxides, with which it forms insoluble compounds; in dyeing, stuffs impregnated with these compounds absorb colors with more ease than if they had been prepared with albumen, or with the same metallic salts alone. Analogous results were obtained with tannin-gelatine.

—See Bancroft's "Experimental Researches concerning the Philosophy of Permanent Colors" (1796). A very complete treatise upon dyeing is contained in the new work of "Chemistry applied to the Arts and Manufactures," by Dr. Muspratt. The principal French works on dyeing are: A. Vinçard, *L'art du teinturier* (1820); J. B. Vitalis, *Cours élémentaire de teinture* (1823); M. Chevreuil, *Cours de chimie appliquée à la teinture* (1831); Berthollet, *Les éléments de l'art de la teinture* (1840); and still more recently, *Manuel du teinturier*, by M. Verguiaud (in the handbooks on industry published by Rozet). Among the German works lately published on the subject are: Schrader, *Die Färberei im Kleinen* (2d edit. Leipsic, 1857); Leuchs, *Verbesserungen in der Farbenfabrikation* (Nuremberg, 1857); and Kurrer, *Das Neueste der Druck- und Färbekunst* (Berlin, 1858).

DYER, a W. co. of Tenn., separated from Mo. by the Mississippi river, and drained by Obion and Forked Deer rivers; area estimated at 400 sq. m.; pop. in 1850, 6,361, of whom 1,468 were slaves. The soil is rich, and the surface level and partly occupied by excellent timber tracts. Yellow poplar timber forms one of the principal articles of export. The other staples are Indian corn and tobacco. In 1850 the county produced 413,020 bushels of Indian corn, 22,832 of oats, 548,815 lbs. of tobacco, and 59,660 of butter. There were 12 churches and 700 pupils attending public schools. Capital, Dyersburg.

DYER, George, an English author, born in a suburb of London, March 15, 1755, died in London, March 2, 1841. He was educated at Christ's hospital, where he was an associate of Charles Lamb, and at Emmanuel college, Cambridge, where he received the degree of bachelor in 1778. He was successively a teacher, tutor, and Baptist minister, residing most of the time either at Cambridge or Oxford, till in 1792 he removed to London, where he was engaged as parliamentary reporter, teacher, and writer. In 1830 his eyesight failed, and he at length became totally blind. He was a poet and frequent contributor to reviews, but is better known as a scholar and antiquary. He was joint editor of Valpy's combination of the Delphin, Bipont, and Variorum editions of the Latin classics, in 141 volumes, for which he furnished all the original matter except the preface. He published a "History of the University and Colleges of Cambridge" (London, 1814), which is an excellent sketch rather than a complete history. He also published a volume of poems (1812), a life of the Rev. Robert Robinson, a work on the "Privileges of the University of Cambridge" (1824), and another entitled "Academic Unity" (1827). Talfourd refers to his "simplicity of nature, not only unspotted by the world, but almost abstracted from it," and speaks of him as "breathing out at the age of 85 the most blameless of lives, which began in a struggle to end in a learned dream."

DYER, John, an English poet, born at Aberglasney, Caermarthenshire, in 1700, died July 24, 1758. He was educated at Westminster,

and recalled to his native place to follow the profession of his father as solicitor. His taste, however, led him to poetry and the fine arts, and after a short study of painting he rambled over England as an itinerant artist. In 1727 he published his "Grongar Hill," which he had written during his excursions—a poem marked by warmth of sentiment and an elegant simplicity of description. He travelled in Italy to pursue his studies as a painter, but the best result of his observations was his poem entitled the "Ruins of Rome," which was published in 1740. On his return from Italy, having little prospect of success as an artist, he entered holy orders, and married a lady named Ensor, who, he says, was a descendant from Shakespeare. In 1758 appeared his longer poem of "The Fleece," in which he attempted to treat the subject of wool in a poetical manner, and which is at least one of the most successful of the many imitations of Virgil's "Georgics." All the poems of Dyer abound in happy and careful pictures of nature, and in appropriate and gentle moral sentiments. His eulogy is pronounced by Johnson when he says that he who has read "Grongar Hill" once will return to read it a second time.

DYER, Mary, a disciple of Anne Hutchinson, and a victim to the persecution which befell the Quakers in the early history of Massachusetts, was hanged on Boston common, June 1, 1660. The government of Massachusetts by a statute excluded Quakers from the bounds of that colony, and sentenced to death any one of that sect who should be guilty of a second visit to the peculiar land of the Puritans. The statute was little regarded, or rather was construed as an invitation instead of a menace, by the enthusiastic and devoted believers against whom it was directed. Mary Dyer had departed from their jurisdiction upon the enactment of the law, but soon after returned on purpose to offer up her life. She was arrested and sent to prison full of joy, wrote from the gaol a remonstrance in which she pronounced her persecutors disobedient and deceived, was reprieved after being led forth to execution and after the rope had been put around her neck, and was against her will conveyed out of the colony. She speedily returned, and suffered as a willing martyr.

DYMOND, Jonathan, an English writer on ethics, born in Exeter in 1796, died May 6, 1828. The son of a linen draper, and himself engaged in the business, he composed his books amid the pressure of other occupations and without the resources of a learned education. He wrote principally in the early hours of morning, and published in 1823 an "Inquiry into the Accordance of War with the Principles of Christianity," a work which attracted much attention. His fame chiefly rests on his "Essays on the Principles of Morality," which proves him to have possessed a discriminating mind, and simple and clear views of Christian ethics.

DYNAMICS (Gr. δυναμις, force), that department of mechanics which treats abstractly of bodies in motion, as distinguished from statics, which considers bodies at rest. (See Mechanics.)

DYNAMOMETER (Gr. δυναμις, force, and μετρον, a measure), an instrument originally designed to ascertain the strength of men and animals, of the limbs of the body, the fingers, &c. Its application was afterward extended to the determination of the power exerted by machines, or of any portions of them, and the instrument has hence come into use as a meter of the power of engines. The principle of the earlier contrivances was to weigh the force exerted by the amount of compression or of deflection produced upon an elliptical steel spring; this in the former case being drawn together by the application of the power and of the resistance at the two opposite ends, and in the latter separated by the force and resistance being applied upon the opposite sides of the spring, on the line of the minor axis of the ellipse; an index upon a graduated arc attached to the spring showed the amount of deflection. Another contrivance was a spiral spring enclosed in a tube, the force being exerted to draw this together, precisely the same thing as the ordinary spring balance. By such means the greatest power exerted by one impulse was indicated; but as in most instances the power is not constant for any determinate time, the index must fluctuate in such a manner that the mean effort it should represent cannot be ascertained. If known, its amount multiplied by the time of continuance of the operation would give as a result the value of the whole power exerted. Instruments have been devised by MM. Poncelet, Morin, and others, which should register upon papers, made to pass by a clock-work movement under the index, curved lines from which the whole power could be directly calculated from the areas enclosed—the ordinates of the curves representing the power exerted, and the abscissas the length of time, or in some instances of the space run over. The apparatus might be fixed to a carriage, the length of the index paper in this instance bearing a certain proportion to the length of the road gone over. A great number of different forms of this instrument have been devised by eminent engineers of France, England, and the United States. One by Watt, improved by Macknaught, gives the force exerted by the piston of a steam engine against a spiral spring, a style attached to the piston inscribing a line representing its position during the unrolling of the paper which moves at an even rate against it. The principle of this is the same as that of anemometers, which are dynamometers limited in their application to measuring the force of the wind. In the *Dictionnaire des arts et manufactures* the subject is fully treated in the article *Dynamomètre*, by M. Laboulaye. The descriptions of the various forms of the apparatus are made intelligible by many illustrations. In Appleton's "Dictionary of Mechanics," also, many forms of the apparatus are figured and described; and the following simple contrivance, applicable in some instances, is proposed. A cylinder of some material hea-

vier than water is suspended in this fluid by a rope passing over a pulley. As power is applied to this rope to draw the cylinder out of the water, the increasing weight of this, as more is raised into the air, will at last cause the resistance to equal the force applied, the cylinder being sufficiently large and long. By means of a scale properly arranged, the amount of the power applied may be accurately measured.

DYSART, or DESART, a parliamentary borough and seaport town of Scotland, in the county of Fife, 12 m. N. N. E. from Edinburgh, on the N. side of the firth of Forth; pop. in 1851, 8,739. The town is very old, and in former times was a place of much importance. Its trade was then considerable, but it now exports little beside coal, and has no manufactures of note except checks and ticks.

DYSENTERY, a disease characterized by frequent straining efforts at stool, attended by small and painful mucous and bloody discharges. Dysentery is more common in hot climates than in temperate ones; in summer and autumn than in winter and spring. It is subject to epidemic influences, being in some seasons frequent and fatal over an extensive region, and then almost disappearing for years. It is more common and severe in malarious districts. It sometimes breaks out and is excessively fatal in public institutions where the inmates have been subject to the combined influence of a vitiated atmosphere and an improper and innutritious diet; and under the influence of fatigue, exposure, and improper diet, it has often proved very destructive to armies. It is commonly attributed to the use of irritating and indigestible food, and to cold, particularly after the body has been debilitated by a prolonged exposure to heat. The milder cases of dysentery are attended by little or no fever; but when the disease is severe fever is always present, and may precede though it more commonly follows the local manifestations. There is often a good deal of pain and soreness in the lower part of the abdomen or extending along the track of the colon, frequent calls to stool, attended with painful and often violent straining; the stools consist chiefly of mucus more or less tinged with blood, and sometimes mixed with membranous shreds, or they may consist of blood almost pure, or they resemble the washings of flesh; their odor is not feculent, but faint and peculiar, and sometimes horribly fetid; occasionally the neck of the bladder sympathizes with the neighboring bowel, and there is difficulty in passing urine. While mild cases of dysentery are attended with no danger, when severe the disease is always serious and often fatal; or it may become chronic, and slowly waste the powers of the constitution. When death occurs, *post mortem* examination reveals the existence of extensive ulceration in the large intestines. The ulcers are often large, irregular in shape, laying bare the muscular and sometimes the peritoneal coat; between them the mucous membrane is thickened, often lined with false membrane, sometimes appearing as if struck with gangrene. When the pain and tenderness are very considerable, the treatment may be commenced by the application of leeches over the track of the inflamed bowel; if any constipation has previously existed, a dose of castor oil, to which a few drops of laudanum have been added, may be given; opiates and astringents may be afterward administered. From the fact that the rectum is the part of the intestinal canal most affected, opiates in the form of suppositories or enemata are found particularly useful. Calomel has been highly recommended in the treatment of the dysentery of tropical climates, but in temperate regions it is rarely necessary to resort to it. During the treatment the patient should be confined to his bed, and the diet should be of the mildest and most unirritating character. When dysentery passes into the chronic state, the tenesmus subsides, the stools become more copious and loose, and are found to contain pus; the complaint is apt to be tedious and intractable, and when recovery does take place the digestive organs remain for a long time feeble and irritable. A strictly regulated diet with the use of opium, combined with a small dose of sulphate of copper or nitrate of silver, are the means commonly had recourse to in its treatment.

DYSPEPSIA, INDIGESTION. Under this head are commonly grouped all those functional disorders of the stomach which are independent of organic disease, and are not symptomatic of disease of other parts of the economy. Its characteristic symptoms, as given by Cullen, "are want of appetite, nausea, vomiting, flatulence, eructations, and pain; more or fewer of these symptoms concurring, together sometimes with constipation." Many circumstances must concur to render digestion easy and perfect. The mind should be free from any harassing care or anxiety; otherwise not only the appetite is impaired, but the food which is taken is digested with difficulty. The food should be thoroughly masticated and insalivated to prepare it for the action of the gastric juice. Those who bolt their food half chewed, who have salivary fistula, or who waste their saliva by constant spitting, finally suffer from dyspepsia. The quantity of food taken must be suited to the wants of the system, and to the capabilities of the stomach. After recovery from wasting diseases, a larger quantity of food is required and will be digested than at ordinary times. It must be suited to the digestive capacity of the stomach; if the quantity be too large or the quality too rich, a sense of fulness and weight in the region of the stomach, nausea, heartburn, and eructation of acid and gaseous matters follow; with these symptoms the tongue becomes furred, there is some feverishness, and there is more or less headache; if vomiting occurs, and the *ejecta* contain bile, the sufferer in ordinary phrase is said to have had a bilious attack. The food must be taken at proper intervals, and these intervals are not always the same for all

persons; before a second meal is taken, the previous meal should be completely digested, and the stomach should have a period of repose. The food must not only be of a character which permits its easy digestion by the stomach and small intestines, but it must afford a residuum bulky and stimulating enough to maintain a regular action of the bowels. When constipation is induced by neglect, indolent habits, or too concentrated a diet, the stomach is apt to suffer, and dyspeptic symptoms follow. To all these causes of dyspepsia must be added the abuse of fermented and distilled liquors. When dyspepsia has been induced by any one of the above-mentioned causes, its cure is to be sought in the removal of the cause by which it was brought on; but this alone will often be found tedious or inefficient. In one class of cases a certain degree of inflammation of the gastric mucous membrane seems to be produced. The presence of food excites pain, which continues so long as the food remains in the stomach; carminatives or stimulants, so far from affording relief, aggravate the distress. In such cases the diet must be of the blandest and most unstimulating kind, and the amount of food rigidly limited. Restricting the patient to milk, diluted with an equal part of lime water, is sometimes attended by great benefit, and farinaceous articles are preferable to meat. In another and the larger class of cases, there is neither inflammation nor irritation present, but the powers of the stomach seem enfeebled; here stimulants relieve the distress, and cause at least a temporary improvement. In such cases a meat diet agrees better than an exclusively farinaceous one, and the patient is benefited by the use of the bitter tonics, colombo, gentian, quassia, &c. Certain remedies are adapted to the relief of particular symptoms; acidity is relieved by the use of alkalies and the alkaline earths; pain, by bismuth and hydrocyanic acid; flatulence, by carminatives; and constipation, when it cannot be obviated by diet and attention, may call forth the use of some of the purgative mineral waters, or of small doses of aloes in combination with nux vomica. It is in these cases that travel, combining as it does relaxation with mental excitement and exercise, is particularly serviceable.

E

E, the 5th letter and 2d vowel of the Latin alphabet, and of those derived from it. It is both short and long, and in the Greek alphabet has 2 corresponding forms, Εψιλον (slender E), the 5th letter, and Ητα (long E), the 7th letter (but counting 8 if the stigma be included). The short and long O, Ομικρον and Ωμεγα, are analogous to them. Simonides is said to have formed the H (ητα) by doubling the E (εψιλον), thus ΕΞ, the epsilon having before been both short and long. The H, however, was made by the Latins an aspirate, and was employed to represent the rough breathing, and the aspirate sound in Θ, Φ, and X, as *Homerus*, *Thales*, *Philon*, *Charon*. The prototypes of the aspirated Greek letters in question are the Phœnician and Hebrew *He* and *Chet*. Indicating the most fleeting sound of the human voice, a mere breathing in many cases, the letter E is the basis of the vowel system, and the most protean of all the vowels, as regards its shades of sound, its convertibility, the modes in which it is indicated in writing, and the uses that are made of it in various graphic systems. But few of its peculiarities can here be pointed out. In English it has 5 sounds, called long, short, open, obtuse, and obscure, respectively as in *mete*, *met*, *there*, *her*, and *brier*. The long English sound corresponds to the French and German I, while the French nasal E in *em* and *en* sounds like the English *a* in *swan;* and the sound of the French sharp E is represented in English by *a*, *ai*, *ay*, or *ey*, as in *made*, *maid*, *say*, and *they*. In Hebrew, it has 2 sounds; the open is noted by Tsere (break), or 2 horizontal dots under the consonant; the close by Segol (grape), or 3 dots, and 2 Sheva (emptiness), or 2 vertical dots, the one movable (half mute), the other quiescent (mute). The long E is written AI in Mœso-Gothic. In Greek the long and short E (ε and η) are both either open or close, but the latter is pronounced as I in Neo-Hellenic, Coptic, and Slavonic. In German it has 3 sounds, very short in *hatte*, *hoffen*, like the English short E in *Engel*, *rennen*, and like the English long A in *geben*, *predigen;* in Magyar 3, as in *emberiség*, humanity; in Italian and Spanish 2, the open and close; in French 6, viz.: open in *fête*, *il cède*, half open in *nous fêtons*, sharp in *été*, *parlez*, nasal in *bien*, half mute in *je*, *le*, *Breton*, and almost mute in *simple*, *sucre*, and is quite mute in *la rue*, *j'avouerai*. Both in English and French it influences preceding syllables by lengthening and changing their vowels; thus compare *made*, *mete*, *pine*, *note*, and *tube*, with *mad*, *met*, *pin*, *not*, and *tub*; and *il plane*, *il mène*, *fine*, and *une*, with *le plan*, *il ment*, *fin*, and *un*. In German it produces the metaphony of A, O, U, into Ä, Ö, Ü, as in *Männer*, men, *Vögel*, birds, *Hüte*, hats. It also lengthens vowels immediately preceding, as in Germ. *See*, sea, *dieser*, this, Eng. *true*, and Fr. *la vie*. It is very often elided, absorbing and absorbed; the elision is in many languages recorded by the sign of apostrophe; thus: *John's house*, *wish'd*, *l'homme*, and *l'erbe*. It is often a euphonic means for facilitating the utterance of words, as in *establish*, *établir*, *establecer*, *épice*, *espiritu*, *esprit*, *escribir*, *écrire*, *estado*, *état*, *estrella*, *étoile*, *Estevan*, and *Étienne*. It is prefixed for other reasons in εκεινος, *ecquis*, and many other

words. In Slavic languages it often coalesces with J, forming a sort of consonant; thus, *jest* (pronounced *yest*), Lat. *est; nie*, Lat. *ne, non.* E frequently occurs instead of I in ancient Roman memorials, as, for instance, on the *columna rostrata* of Duilius, on the tomb of the Scipios, and in the works of writers; thus, *sebe, quase, maecester, fuet*, for *sibi, quasi, magister, fuit.* In the Slavonic it occupies, as *jest*, the 6th place of the Bukvitsa as well as of the Cyrillic scheme, and has two softening forms as finals (*-er, -eri*) toward the close of the alphabet.—We give a promiscuous list of the substitutions or metaphonies of E, long and short, in different languages, resulting from glossic, dialectic, grammatic, euphonic, and other exigencies: τρεπω, τραπον, τροπος; λεγω, λογος; νεος, *novus*; πληγη, *plaga*; πατηρ, Ευπατωρ; Σικελος, *Siculus*; νεφος, *nubes*; κερας, *cornu*; *ago, egi*; *frango, fregi*; *facio, feci, effieio, fingo, fungor*; *pars, expers*; *bonus, bene*; *velle, volo, vis, vult*; *castus, incestus*; *vos, vester*; *sero, satus*, Eng. *sown, son*; *verto, vortex, adversus*, Eng. *toward*; *vermis, worm*; *audio, obedio*; *arista*, Germ. *Aehre*, Eng. *ear* (of corn); *fallo, fefelli*; *halo, anhelo*; *tego, toga*; *percello, perculi*; *vas*, Eng. *vessel*, Fr. *vaisseau*; *pes*, Eng. *foot, feet, fetter*, Fr. *pied*; *Anglia, England*, Ital. *Inghilterra*; *Cornelia*, Ital. *Corniglia*; *urbs vetus*, Ital. *Orvieto*; *decem*, Ital. *dieci*; *sequitur*, Span. *sigue*; *mecum*, Span. *conmigo*; *deus*, Span. *dios*; *nego*, Span. *niego*; *brevis*, Prov. *brieu*; *petra*, Wal. *peatre*; *sensus*, Portug. *siso*; *cera, ecclesia, racemus, ego, neptis*, Fr. (respectively) *cire, église, raisin, je, nièce*; *bene, mel*, Fr. *bien, miel*; *mensis, me*, Fr. *mois, moi*; Eng. *apple*, Iceland. *epli*; *aper*, Germ. *Eber*, Eng. *boar*; Eng. *man, men*, to *mean, mind*; *sell, sale, sold*; *enquire, inquire*; *fed, fat, feed, food*; *shed, shut*; *set, sit, sat, seat, site, sod*; Fr. *venir, vieus, vint*; Germ. *werden, ward, wäre, wird, wurde, würde, geworden.*—The figure of E is supposed by the abbé Moussard to be the base of the nose, ᚿ, its sound being symbolic of breathing, and hence of life. It has this or a similar shape in Phœnician, Hebrew, Samaritan, the ancient Italic alphabets, Idalian (Cyprian), and in their derivative systems. Court de Gébelin derives its form from the outline of the human face, which is a symbol, according to him, of the idea of existence. Dammartin pretends to have found its prototype for all graphic systems, including even the Chinese, in the southern triangle, and the bow of the constellation of the archer. It is represented by the *Stungen Ies* (*Stung* or pointed I) of the runic writing; its hieroglyphs are palm leaves or long feathers; the hieratic figure of it is a sort of tetragonal convolute, and the demotic is sickle-like.—Barrois asserts that E signifies one, since it is the initial of the Greek ἑις. As an abbreviation, E. stands for Ennius, *eques Romanus, egregius, emeritus, ergo, editio*, east, electricity, and excellence. The letters *d. e. r.* stand for *de eâ re*; *q. e. d.* for *quod erat demonstrandum*; *e. g.* and *c. c.* for *exempli gratiâ* and *exempli causâ.* In syllogisms, A = *asserit*, E = *negat.* On French coins it designates Tours; on those of Austria, Carlsburg in Transylvania; on those of Prussia, Königsberg. In Greek, E has the value of 5, and with a mark below it, of 5,000. According to Baronius, it represented the number 250 in the period of the decline of classic literature.—In music, it denotes the 3d great interval in modern musical nomenclature, or the 5th string in the chromatic scale, and is called *mi* in vocal music.

EACHARD, John, an English divine, born in Suffolk in 1636, died July 7, 1697. He studied and took his degree at the university of Cambridge, and became known by his satires against the clergymen of his time, making the sermons of his own father sometimes serve to give point to his ridicule. After becoming a clergyman himself, he wrote upon the "Grounds and Occasions of the Contempt of the Clergy and Religion," which he attributed to the insufficient salaries of clergymen, and the consequent necessity for them to eke out a living by unbecoming means. The work passed rapidly through 6 editions, and drew down upon its author abundant criticisms. He published 2 dialogues upon Mr. Hobbes's "State of Nature," in which he attacked the ideas of that philosopher in a humorous and vigorous way. An edition of his works, with a life, was published in 1714, and it is remarked by Warton that his writings must have been diligently studied by Swift.

EADMER, or Edmer, an English monk, the friend and biographer of Saint Anselm, died in 1124. He was chosen in 1120 bishop of St. Andrew's, in Scotland, but the Scottish king refusing to allow his consecration by the archbishop of Canterbury, and thus to admit the primacy of that see, he either declined the bishopric or abdicated it after a short possession, and died as a monk of Canterbury. Beside his life of Saint Anselm, contained in most of the editions of Anselm's works, he wrote the lives of Wilfred, Dunstan, and other English saints, a treatise on the "Excellence of the Holy Virgin," and on the "Four Virtues which were in Mary;" but his most valuable work is the "History of his own Times," an account of the principal events that happened in England and in the English church from 1066 to 1122 (best edition by Selden, 1623).

EAGLE, a bird of prey, of the order *aceipitres*, family *falconidæ*, and subfamily *aquilinæ.* The eagles have a strong bill, elevated at the culmen, straight at the base, and much arched to the tip, which is hooked and sharp; the sides are compressed, and the lateral margins festooned; the nostrils are in the cere, large; the wings are long and acute, the 3d, 4th, and 5th quills usually the longest; the tail is long, ample, mostly rounded at the end; the tarsi are long, either clothed with feathers to the base of the toes as in the golden eagle, or naked and covered with scales as in the bald eagle; the toes are long, strong, armed with large, curved, and sharp claws. In the type genus *aquila* (Mœhr.) belongs the golden eagle of Europe and America (*A. chrysaëtos*, Linn.). The length of this magnificent

bird is about 3 feet 2 inches, the extent of wings 7 feet, the bill along the back 2¾ inches, the tarsus 4½ inches, and the middle toe and claw the same; the bill is very robust, angular above; the head is moderate, the neck short, and the body full; the tarsi are feathered to the toes, and the feet are very stout; the middle toe has a membrane at the base connecting it with the others. The above dimensions are those of an adult female, the male being considerably smaller, in conformity with the rule that in birds of prey the females are larger than the males. The plumage is compact, imbricated, and glossy; the feathers of the neck and head are narrow and pointed, and may be erected like a short crest; the tail consists of 12 broad feathers. In the adult the bill is black at the tip, bluish gray at the base, the cere and margins yellow; iris chestnut; toes bright yellow, claws black; general color of the plumage dark brown, glossed with purple; the hind head and neck light brownish yellow, the feathers with dark shafts; the wing coverts light brown; primaries brownish black; tail rounded, dark brown, lighter at the base, irregularly marked with whitish; lower tail coverts, feathers of legs and tarsi, yellowish brown. The immature bird is of a deep brown color, with the tail white at the base for ¾ of its length, and dark at the end; this is the ring-tailed eagle of Wilson and others; the adult, from its majestic appearance, is called in Europe the royal eagle; the American species is considered distinct by some, and is called *A. Canadensis* (Linn.). The golden eagle is rarely seen in the eastern portion of the United States, though specimens have been obtained in all the northern states; a few years since a young bird was shot in Lexington, Mass.; the species is most common in the north-west, on the upper Mississippi, and in the mountainous regions of the country; it is also found in the cold and mountainous districts of northern Europe and Asia. The flight is powerful, though less rapid than that of the bald eagle, being continued for hours in majestic circles at a great elevation, and without apparent exertion; its prey is not seized on the wing, but is pounced upon on the ground from a great height with rarely failing precision. Its food consists of young fawns, raccoons, hares, wild turkeys, and birds and animals of similar size, and, when hard pressed by hunger, of carrion; capable of going several days without food, it gorges itself when opportunity offers. Its strength is great, and its weight about 12 lbs.; it is able to withstand extreme cold, and pursues its prey in the most violent storms. The voice is harsh and screaming, and very loud at the breeding season. The plumage does not attain its full beauty until the 4th year; the American Indians are fond of using the tail feathers as ornaments for their persons, pipes, and weapons. The nest is of large size, consisting of a rude collection of sticks, and placed on some inaccessible cliff; the eggs are generally 2, of a dull white color, with brownish shades, 3½ inches long and 2½ in diameter at the widest part; they are laid in February or March; the young, when able to provide for themselves, are driven from the eyry by their parents. This bird is long-lived, individuals, it is said, having been kept in captivity for more than a century. Though the eagle holds among the feathered race a position equivalent to that of the lion among beasts, being king of birds as the latter is the monarch of mammals, he belongs to the section of the ignoble birds of prey, which cannot be employed in the noble sport of falconry; in proportion to their size, the eagles are less courageous, and less powerful in beak, wings, and talons, than the falcons. The noble nature of the eagle, like that of the lion, is mostly a creation of the imagination, founded on external characters which have no corresponding internal qualities; he follows the instinct of his carnivorous nature, without regard to surrounding weaker animals, attacking where he is sure of victory, gorging himself like a glutton, patiently bearing forced abstinence from food, and at last soiling his royal beak with the foulness of carrion; the king-bird and the shrike are far his superiors in bravery, and all the qualities which have been specially assumed for him can be found in greater perfection in many common birds, beside many of the softer traits of character which find no place in his royal constitution; like most other kings, he has his superiors in many of the lowest of his subjects. The eagle is monogamous, and the mated pair are generally not far from each other; the same nest is used for many successive years. The scent of the eagle is feeble, but his sight is exceedingly keen; able to gaze at the sun at noonday, and rising toward it until beyond human sight, he can detect in the plains below his living prey. Like the condor, the eagle has been accused of carrying off little children to its nest, but such instances in both birds must be very rare, though doubtless they may have occurred. Another species of this genus is the spotted or rough-footed eagle (*A. nævia*, Gmel.), smaller than the golden, of a brownish color, with black white-tipped tail, and wings yellow spotted; it is found in the mountains of central and southern Europe and northern Africa, and preys upon the smaller animals.—In the genus *haliaëtus* (Sav.) belong the fishing or sea eagles, the best known and largest of which is the bald or white-headed eagle (*H. leucocephalus*, Linn.); the bill is 2¾ inches long, very robust, convex above; the head is large, and flat above; neck short and thick; body large, wings long, and tail rounded; the tarsus only 3 inches long, bare for its lower two-thirds and covered with large scales; the feet are short and robust, and the toes are free, rough, and tuberculous beneath, with very sharp curved claws. The plumage is compact and imbricated; the feathers of the head, neck, and breast are narrow and pointed, and of the other parts broad and rounded; there is a bare space between the bill and eye with a few bristly feathers; the eyebrows are bare and very prominent. In the adult the bill, cere, iris,

and feet are yellow, the first 3 being often almost white; the general color of the plumage is chocolate-brown, the feathers with paler margins; the head, greater part of neck, tail and its coverts, white; the quills are brownish black, with lighter shafts. The length is about 3 feet, and the extent of wings 7 feet; the female is somewhat larger. In the young bird the bill is black above, bluish gray at the end of the lower mandible; the feathers, which are white in the adult, are dark brown like the rest of the plumage, margined with lighter; the head and tail become white between the 3d and 10th year, according to circumstances of locality and captivity. It is very generally distributed over North America, on the sea-coast and in the interior; it has been found breeding from the fur countries to Florida. Its usual food is fish, which it procures easily, and for seizing and retaining which its sharp curved claws and rough feet are admirably adapted; but it eats the flesh of animals when it can get it, and often seizes small quadrupeds and birds of inferior flight; it has been accused of attacking children, and when pressed by hunger will feed on decaying carcasses. Strong, powerful in flight, free and independent in its habits, and noble in aspect, the bald eagle has been adopted as the emblem of the United States. Audubon, in his "Ornithological Biography" (vol. i. p. 161), gives a graphic description of the capture of a wild swan by the bald eagle; water fowl of smaller size are also taken by these birds hunting in company, and alternately pouncing upon the prey as it emerges from the water; young pigs, lambs, fawns, and poultry are greedily devoured; and the disgusting food of the vultures and carrion crows is often shared with this eagle. This representative of American prowess, though occasionally catching fish for himself, forces the fish hawk to obtain his favorite food for him in the following manner: when the fish hawk follows the shoals of fish in the rivers in spring, the eagle sits watching from the top of a tall tree; as soon as the former rises with a fish, and bends his course for the shore to devour it, the latter mounts above him, and by most unmistakable signs forces him to give up his prey to save his own life; the eagle closes his wings, drops down with great quickness, and seizes the fish before it reaches the water; and this marauding and mean career the eagle pursues till the migrations of the fish cease, and the fish hawks depart. The flight of this bird is very majestic, accomplished by easy flappings; it sails along with extended wings, and, according to Audubon, can ascend until it disappears from view, without any apparent motion of the wings or tail; and from the greatest heights it descends with a rapidity which cannot be followed by the eye. All authors are agreed as to the cowardice of the eagle when it is suddenly surprised or meets with unexpected resistance; a game cock put into a cage with a full-grown male at once attacked the eagle and beat him in the most approved manner, and even the common cock has fairly put this cowardly bird to flight. The females are somewhat larger, braver, and fiercer than the males. When wounded, or irritated in captivity, it defends itself with beak and claws, striking with the latter, and beating furiously with its wings. Like the golden eagles, these birds live to a great age. They are generally seen in pairs, and the union appears to last for life, the two hunting and feeding together, and driving off other birds of the same species. Along the southern Mississippi, incubation commences in January; the nest is placed on the top of a tall tree, and not on cliffs like the golden eagle's; it is a rude structure, made of sticks, turf, weeds, and moss, measuring 5 or 6 feet in diameter, used year after year, and added to annually. The eggs are usually 2, of a dull white color. The attachment of the old birds to their young is great. The weight of the adult male is from 6 to 8 lbs., that of the female from 8 to 12. The flesh of the young is said to be palatable, having the taste of veal. Audubon laments that this bird should have been selected as the emblem of the United States, and quotes the following from one of Benjamin Franklin's letters: "For my part, I wish the bald eagle had not been chosen as the representative of our country. He is a bird of bad moral character; he does not get his living honestly." After alluding to his tyranny over the fish hawk, Franklin continues: "With all this injustice, he is never in good case, but like those among men who live by sharping and robbing, he is generally poor. Beside, he is a rank coward; the little king-bird, not bigger than a sparrow, attacks him boldly, and drives him out of the district. He is, therefore, by no means a proper emblem for the brave and honest Cincinnati of America, who have driven all the king-birds from our country, though exactly fit for that order of knights which the French call *chevaliers d'industrie*." The writer, having had under his care for several months a large pair of these eagles, has had ample opportunity to observe their habits; the female not only attacks and abuses the male, but stretches her wings to the utmost extent, attempting to cover with them every piece of food placed in the cage. The name of bald eagle is really a misnomer, as the head is as thickly feathered as in any species; the proper name is white-headed eagle.—The bird of Washington (*H. Washingtonii*, Aud.) was first described by Audubon ("Ornithological Biography," vol. i. p. 58), and seems not to have been seen by any other ornithologist; he first saw it on the upper Mississippi in Feb. 1814; a few years after he met with a pair near the Ohio river in Kentucky, which had built their nest on a range of high cliffs; 2 years after the discovery of the nest he killed a male which was the subject of his description; after this he saw two other pairs near the Ohio river. His reason for giving the name to the bird is thus stated by himself: "Washington was brave, so is the eagle; like it, too, he was the terror of his foes; and his fame, extending from pole to pole, resem-

bles the majestic soarings of the mightiest of the feathered tribe. If America has reason to be proud of her Washington, so has she to be proud of her great eagle." The flight of this is said to be different from that of the white-headed eagle, the former encircling a greater space, sailing nearer the surface of the earth, and darting upon its prey in a spiral manner. The bill was bluish black, with pale edges; the iris chestnut-brown; upper part of the head, hind neck, back, scapulars, rump, tail coverts, and posterior tibial feathers, blackish brown, with a coppery gloss; the throat, fore neck, breast, and abdomen light brownish yellow, each feather blackish brown in the centre; wing coverts light grayish brown, those next the body approaching the color of the back; primaries and tail dark brown; anterior tibial feathers grayish brown. The length is given at 3 feet 7 inches, extent of wings 10 feet 2 inches, bill 3¼ inches, tarsus 4½ inches, and the weight 14½ lbs.; this was a male, and of course the female would have been considerably larger. Though this bird is generally admitted as a species on the authority of Audubon, many ornithologists do not regard it as such. The characters of the bill and color of the plumage are very like those of the young white-headed eagle; the increase in length is only 3 or 4 inches, while the increase in extent of wings is about 3 feet, which proportions throw some doubt on the accuracy of the measurements, as such a relative extent of wings belongs rather to the vultures than the eagles. It is very strange, too, that no other ornithologist should have been able to see or procure this bird, and that no specimen should exist in any cabinet. It does not appear that Audubon came very near the eagles which he calls "birds of Washington," except in the instance in which he shot one, which from his drawing and description might very well be a young white-headed eagle; in the other cases they were flying over him, except when he watched them from a nest at a distance of 100 yards, which certainly is not near enough to form a sufficiently accurate idea even of so large a bird as an eagle. The fact of the nest being on a cliff is in favor of their having been golden eagles, as the white-headed species builds in lofty trees. There seems, therefore, sufficient ground for doubting the validity of this species, which ought not to be acknowledged until further proof is given of its non-identity with the golden, the white-headed, or perhaps the white-tailed sea eagle of Europe; it seems to have some of the characters of all these, united to the wings of a vulture, which would place it, if a reality, in a genus distinct from *aquila* or *haliaëtus*.—The white-tailed or cinereous sea eagle of Europe (*H. albicilla*, Linn.), the young of which Audubon thinks bears the greatest resemblance to his bird of Washington, has at this age a blackish bill; head and hind neck dark brown, with white markings, disappearing with age; fore neck and breast brown, with brownish white marks; general color of the plumage light brown, with a dark streak on the middle of each feather. In the old bird the bill becomes yellow, the general plumage grayish brown, palest on the head and neck, and the tail white; the length is 3 feet, and the extent of wings 6 feet 9 inches. This species, called also osprey, ossifrage, and pygargus, is distributed over the northern portions of the old world; it feeds principally on fish, like our white-headed eagle, forcing the fish hawk to provide for him on the principle that "might makes right." It prefers cold climates, and the vicinity of the sea, though it visits the interior rivers and lakes; when unable to obtain fish, it feeds upon sea birds, young seals, and any small animals which it can surprise. Its flight is neither so elevated nor so rapid as that of the previously described species. The nest is placed on cliffs near the sea, and the eggs are 2, of a dirty white color; incubation takes place in April.—The northern sea eagle (*H. pelagicus*, Pallas) is the largest of the family, and inhabits the Russian American islands and northeastern Asia. The total length of the female is 3¾ feet; the wings are shorter than usual, and the tail is wedge-shaped. In the adult the bill and the legs are yellow; the general plumage brownish black, with a large frontal space, greater wing coverts, abdomen, and tail, white. In the young the tail is white, with brownish black marks, the quills black, the secondaries and tertiaries white at their bases; other parts dull brownish black. It is a fishing eagle, though it occasionally captures birds and quadrupeds. According to Pallas, it breeds in northeastern Asia.—There are several genera of smaller eagles, as the crested eagles (*spizaëtus*, Vieill.). The black-tufted eagle (*S. ornatus*, Daud.) is as large as a raven, black, with a long tuft hanging from the occiput, and the edge of the wings and bands under the tail whitish; the crest is mixed with white; the thighs and tarsal feathers banded with black and white; tarsus feathered to the toes; it inhabits South America. Other species of the genus are found in Africa and the Indian archipelago, where they live in jungles and woods, pouncing on pheasants, hares, and similar animals passing underneath; they also seize prey on the wing. The reptile eagles (*morphnus*, Cuv.) are peculiar to South America; they live in the forests, feeding on reptiles, small animals, and birds. A well-known species is the *M. urubitinga* (Gmel.); this is black, without a crest, rump and lower part of the tail white; the long tarsi are bare of feathers. The harpy eagles (genus *thrasaëtus*, Gray, or *harpyia*, Vieill.) are peculiar to South America; they will be described in the article Harpy. The genus *pandion* (Sav.) will be described under Fish Hawk, the common name of the best known species. The caracara, or Brazilian eagle, does not belong to the *aquilinæ*, but to the *polyborinæ*, a subfamily coming nearest to the vultures; this bird (*polyborus tharus*, Molina) is of various shades of brown, with streaks and mottlings of

brownish black; wings barred with white, and the tail coverts dull white barred with dusky; tail grayish white, with 16 narrow bars and a terminal band of blackish brown; the length is about 2 feet, and the extent of wings 4 feet, the bill 2¼ inches. It is found from Florida to Brazil, and it feeds with the turkey buzzards and carrion crows on carcasses; it has the habits of the vultures, with the additional power of carrying prey in its talons; beside carrion, it devours small reptiles and birds; it walks like the turkey buzzard. Its flight is rapid and graceful.—The eagle, in mythology, is the sacred bird of the Hindoo Vishnu and of the Greek Zeus. In the Roman ceremony of apotheosis an eagle ascended from the burning catafalco, and was believed to bear the soul of the deceased to Olympus. In the Scandinavian mythology, it is the bird of wisdom, and sits in the boughs of the tree *yggdrasill*.—The Etruscans were the first who adopted the eagle as the symbol of royal power, and bore its image as a standard at the head of their armies. From the time of Marius it was the principal emblem of the Roman republic, and the only standard of the legions. It was represented with outspread wings, and was usually of silver till the reign of Hadrian, who made it of gold. The double-headed eagle was in use among the Byzantine emperors, to indicate, it is said, their claim to the empire both of the East and the West; was adopted in the 14th century by the German emperors, and afterward appeared on the arms of Russia. The arms of Prussia were distinguished by the black eagle, and those of Poland by the white. The eagle is the emblematic device of the United States of America, is the badge of the order of the Cincinnati, and is figured on coins. Napoleon adopted it for the emblem of imperial France; it was not, however, represented in heraldic style, but in its natural form, with the thunderbolts of Jupiter. It was disused under the Bourbons, but was restored by a decree of Louis Napoleon (Jan. 1, 1852). The order of the white eagle was created in Poland by Ladislas the Short, in 1325, was renewed in 1706, and since 1831 has been united with the imperial orders of Russia. The order of the black eagle was founded in 1701 by Frederic I., the first king of Prussia, and is conferred upon princes of the royal family, members of foreign sovereign houses, and a few officers of state, to whom it gives personal nobility. The order of the red eagle, the second Prussian order in dignity, was founded in 1712 by the margrave George William of Baireuth, and was transferred with that principality to Prussia in 1792.

EAGLE, a gold coin of the United States, of the value of $10, first coined in 1795, as provided by the act of congress of April 2, 1792, of the fineness of 22 carats (916⅔ thousandths), and weighing 270 grains, thus containing 247½ grains of pure gold. The silver dollar contained at the same time 371¼ grains pure silver, the ratio of valuation of silver to gold being as 15 to 1. An ounce of pure gold being worth more than 15 of silver in Europe, our gold coins continued to be exported until the act of June 28, 1834, substituted the ratio of 16 to 1 by reducing the fineness of the eagle to 899 $\frac{2}{10}$ thousandths, and its weight to 258 grains, being 232 grains pure gold. By the act of Jan. 18, 1837, the fineness of the eagle, as of all the other coins, was raised to 900 thousandths, its weight remaining as before 258 grains, of which 232 $\frac{32}{100}$ were pure gold; and at these rates it continues to be coined.—There are also a half eagle, first coined in 1795, a quarter eagle, first coined in 1796, and a double eagle, first coined in 1849.

EAR, the organ of hearing. Anatomists divide it into the external, the middle, and the internal ear. The first consists of the visible external organ, a cartilaginous and fleshy structure, of the form best adapted to collect the atmospheric vibrations, and the meatus or tubular opening leading to the tympanum. The *tympanum* is a firm fibrous membrane stretched across this opening, whose office, as its name implies, is to communicate vibrations like the head of a drum. The middle ear is a cavity about the form and size of a kidney bean; from its lower point a tubular opening descends to the posterior part of the mouth, and terminates in a trumpet-like expansion; this is usually called the Eustachian tube, and sometimes *meatus auditorius internus*. Across the middle ear is stretched a chain of 4 minute bones, connected with each other by cartilage and tendon. These are the *malleus* or mallet, the *incus* or anvil, the *orbicularis* or round bone, and the *stapes* or stirrup, each named from some fancied resemblance. The office of this chain, which is attached to the tympanum at one end, and to the membrane covering the *foramen ovale* at the other, is to transmit the vibrations of the air; to and in this, they are controlled by 2 minute muscles, which render the 2 tympani tense. The whole of the middle ear, with these minute bones, is covered with mucous membrane, and when irritated, as by a cold, it secretes mucus very freely, and thus often induces temporary and partial deafness. The internal ear, also called the labyrinth, to which the external and middle ear are but the ante-rooms, consists of the vestibule, the 3 semicircular canals, and the cochlea. The vestibule is an irregular cavity shut out from the middle ear by the membrane covering the foramen ovale, and communicating with the semicircular canals by 5 openings, 2 of these canals being joined at one end. The *cochlea*, as its name implies, is a bony structure resembling in form a snail shell; internally it is divided by a lamina, bony, ligamentous, and muscular, into 2 cavities called the *scala vestibuli* and the *scala tympani*, which communicate at the top of the cochlea, in a curved channel called the *modiolus*. This modiolus has numerous orifices, through which pass the filaments of the auditory nerve. The whole internal ear is lined with a delicate serous membrane, which secretes a fluid called perilymph. Within the vestibule and the semicircular canals, we find the

membranous labyrinth; in the vestibule it consists of 2 membranous sacs, one called the *utriculus*, and the other the *sacculus*, communicating with each other and extending in slender tubes through the semicircular canals, of which they only occupy about one-third; in the vestibule and modiolus, these sacs receive the nervous filaments, and are thus connected with the serous membrane lining the labyrinth, but everywhere else they are free, and separated from it by the perilymph, while their internal surfaces secrete a similar fluid called endolymph. In the vestibular portion is found a crystalline powder, proved by chemical experiment to be carbonate of lime, and denominated *otolithes;* the office of this is supposed to be to communicate the vibrations to the nervous surfaces. The filaments of the auditory nerve terminate by loops, or minute points, in the sacculus, the utriculus, the *ampullæ* (the little membranous tubes which pass through the semicircular canals), and the lamina which divides the cochlea. In the process of hearing, the vibrations of the atmosphere, caused, we will say, by touching one of the keys of a piano, pass toward the ear, where they are collected and concentrated by its peculiar form and structure; thus concentrated, they pass along the canal to the tympanum, where they produce a vibration; this vibration is communicated by the little chain of bones we have described to the membrane covering the foramen ovale, by which it is passed to the fluid contents of the vestibule and to the sacs, and by the agitation of the otolithes it is transmitted to the nervous surface, which is expanded over the whole labyrinth, and produces the sensation of sound. The internal and middle ear are situated wholly within the temporal bone, which is here much thicker and harder than elsewhere, in order to protect the delicate and complicated structure from injury.—Under the head of Deaf and Dumb we have spoken in general terms of the causes which induce deafness; but we may say here that while congenital deafness is usually the result of deficiency or malformation of some portion of the organ, thus preventing the transmission of the vibration or sound wave, accidental deafness usually arises from perforation of the tympanum by ulceration or otherwise; mucous secretion, the result of inflammation, clogging or thickening the membranes of the middle ear, or ulceration attacking the little bones and causing their discharge; inflammation of the serous membrane of the labyrinth, or paralysis of the auditory nerve. As may be supposed, the cure of complete deafness is exceedingly rare, and most of the cases reported will be found on examination either not to have been cured, or not to have been of persons entirely deaf.—The sense of hearing, like most of the senses, is capable of a much higher cultivation than is generally given to it. The blind, to whom touch and hearing make up in part for the loss of vision, acquire remarkable powers of hearing. They will hear a footstep or the opening of a door, at a distance at which ordinary persons cannot distinguish a sound. The Indian, too, possesses extraordinary powers in this respect; applying his ear to the earth, he will discover the approach of an enemy, and obtain some idea of his numbers, long before the eye can detect his coming. In almost all brain affections, there is more or less morbid sensitiveness of hearing; and in that condition of the nervous system brought on by long continued and intense excitement, and which often terminates in insanity, the same phenomenon is observed.—The form of the external ear varies materially in different races of men, and still more in the animal tribes. In the Caucasian race it is of moderate size, well formed, and neither very prominent nor pressed closely to the head. In the Malay and Mongolian it is large, ill proportioned, the lobe naturally long, and the whole ear standing out prominently; in the Indian race the conformation is similar to the Mongolian, though less prominent; in the negro the ear is flat, broad, and adheres so closely to the head as to give the idea of having been fastened there by a bandage. Of the inferior animals, the mammalia only have an external ear; in birds it is merely a small orifice; in fishes, when it exists, it is covered by the skin, as it is also in reptiles. The variety in its form in mammals extends even to different varieties of the same animal. The drooping ear of the King Charles and other spaniels contrasts forcibly with the erect prominent ear of the foxhound and the Esquimaux dog; and both differ greatly from the short open ear of the bull-dog. The horse has a sensitive and well formed ear, though of small size; while the ass, with no better powers of hearing, is supplied with long aural appendages which seem most adapted for fans. The elephant has a small ear as compared with his great size, though the flap of skin which protects it is of considerable dimensions. The carnivora generally have small but very quick ears, and they usually possess erectile power which enables them to throw them into shapes in which they will most readily catch the sound wave. The mole, though his ear is hardly discernible in the fine fur which covers it, is yet very quick of hearing. Of all the mammals, the bat tribe possess the largest ears in proportion to the size of their bodies, the *phyllostonus* and the *megadenus* in particular being provided with these appendages so large as to form nearly $\frac{1}{3}$ of the superficial extent of their bodies. Among savage and half-civilized tribes the idea prevails that the lengthening of the lobe of the ear by heavy ornaments, and the enlargement of the perforations made for attaching them, both add greatly to the beauty of the wearer. In the Burmese statues of Gaudama, he is represented in a sitting posture, and the lobes of his ears extend to the level of his lap. Among the African tribes the perforation in the ear is enlarged so that a stick an inch or more in diameter may be thrust through it, and some of them use the ear instead of a pocket to carry small articles.

EAR RINGS, a kind of ornament common both among savage and civilized peoples. They are alluded to in the earliest literature of both Asia and Europe, and are found represented upon remnants of sculpture older than any literature. They have been discovered amid the ruins of Thebes, in the tombs of Egyptian kings, and have been dug from Herculaneum, Pompeii, and Nineveh. Abraham, the father of the Hebrews, sent them as a present to his son's wife; Alexander, when he marched to the East, met with them in Babylon, and on the banks of the Indus; Cortes found them in use among the wealthy Mexicans; among the Greeks and Romans they were equally worn by noble ladies and serving maids; and in the later Christian civilization they have enjoyed a nearly universal prevalence. They are termed rings in the Hebrew and other ancient as well as the English and other modern languages, and their original form was doubtless a simple circlet. Among the oriental nations, the Hebrews excepted, they were worn by both sexes, and though at first of gold or silver, were subsequently made with agate, chalcedony, onyx, coral, and pearls. They were sometimes single hoops of gold from 1½ to 3 inches in diameter, but were more frequently jewelled drops or pendants of various styles, hung from a small ring inserted in the ear. Even at the present day the finest ear rings in the world are in the harems of the East, and European princesses in devising this ornament have been unable to excel the taste of Persian maidens and of the slaves of the sultan. The use of ear rings among the Greeks and Romans was confined chiefly to women. The favorite style was a pendant, framed of gold and set with precious stones. Pearls were valued for being exactly spherical and for their delicate whiteness; and 2 or 3 of them were generally joined together to elongate a single drop, and 2 or 3 such drops were often suspended from a single ring. In the Iliad, Juno, adorning herself in her richest and most captivating attire, puts on ear rings made with 3 drops resembling mulberries; and in the Odyssey the splendid present which Eurydamus sends to Penelope is a set of ear rings of a similar style. The Venus de' Medici has the ears pierced, and probably there were once ear rings in them. At Rome the precious stones came especially into use for this ornament, and in the progress of luxury under the emperors the Roman matrons, according to Seneca, often carried suspended from their ears the worth of 2 or 3 rich patrimonies. The pendants were sometimes made to resemble a series of nuts, or were adorned with figures of centaurs or horses, or marine animals, and were so arranged as to vibrate against each other upon every motion of the head, and thus to produce a constant gentle tinkling. Instead of a ring, a hook was often used to attach the ornament to the ear, and the women of Italy still continue this practice, passing the hook through the lobe of the ear without any other fastening. One of the most famous of modern ear rings was the property of a Polish lady, and consisted of a series of diamonds, arranged so as to represent an acacia blossom, the setting being made to resemble a leaf of the same tree. The lotus blossom and the Bengal rose were sometimes copied in Egyptian and Indian ear rings, and the Chinese women wear ear rings resembling the fantastic flora of their country. Roman ladies of the highest rank sometimes wore this ornament in the shape of an asp, whose body was of gold set with precious stones; and among the women of South America it is often made to resemble a humming bird. Both among the ancients and moderns ear rings have sometimes borne miniature likenesses of friends. In recent times they have very generally been supposed to be beneficial to the health, and especially to be a protection against weakness of the eyes, and in this belief they are still frequently worn by men in France and Italy, and sometimes also in the United States, and are common among boys in Germany.

EAR TRUMPET. Under this title may be included all those contrivances intended to aid the hearing of persons partially deaf. We have no means of ascertaining at what period or by whom ear trumpets were invented. The practice of putting the hand to the ear in a trumpet shape probably first suggested it, and from occasional allusions to the use of the trumpet in old writers it would seem to have been of very early origin. The earliest form of which we have any knowledge was a rude imitation on an exaggerated scale of the form of the external ear; but as this was found inconvenient from the difficulty of retaining it in place, a form more nearly resembling a speaking trumpet was substituted. As this again was found inconvenient from the space it occupied and the difficulty of supporting it in position, a curved form was substituted, descending from the ear close to the side of the face and presenting the trumpet-shaped mouth upward. Another modification was a flat tube passing over the head and applied to each ear, while in front and immediately over the forehead was an opening to receive the sound. Another inventor, having observed that in listening intently people opened their mouths, contrived a sort of plectrum or vibrating body to be held between the teeth, and thus to convey sounds by the Eustachian tube. After the introduction of caoutchouc and gutta percha into the arts, a long tube of one or other of these materials, with a bell-shaped trumpet at the end, took the place of the metallic trumpet, and for many purposes is very convenient. In England in some of the churches pews are constructed with tubes to conduct the sound, opening in convenient positions for the ear of the listener. Among the more recent inventions for facilitating hearing are the auricle, a small tube of silver with a semiglobular expansion, intended to be inserted into the meatus of the ear; and the tympanum, a small thin disk of rubber, having a silver wire passing through it to transmit the sound wave. In a few cases

the latter has been of considerable service. In cases of total deafness, no such means are of any advantage.

EARL, the most ancient title of nobility used in Great Britain. Under the early Saxon kings the powerful nobles to whose charge shires or territories had been committed were called *ealdormen*, literally elder men (whence the modern alderman), a term equivalent to the Latin *senior* or *senator*, and given in Latin documents as *princeps*, *dux*, or *comes*. The Danes subsequently applied the term *eorle*, which signified originally a man of noble birth, as opposed to the *ceorl* or churl, to the same men who had borne the title of *ealdormen*. The Saxon earl derived his title solely from his office, which was originally in the gift of the crown, and in recompense for his services received a part of the revenues of his province to his own use. Toward the close of the Saxon dynasty these provincial governors not only greatly enlarged their authority, but claimed the dignity as hereditary; and in the time of Edward the Confessor the whole kingdom was divided between 5 powerful earls, including Godwin and his sons Harold and Tosti, of whom Harold subsequently usurped the throne. After the Norman conquest the territorial possessions of the Saxon nobility were declared forfeited, and with many newly created fiefs were distributed among the chief followers of William the Conqueror, who thereupon assumed the name of counts, from the Latin *comes*. But this title was very soon replaced by the old one of earl, while the territory from which the new dignitary received his name or over which he exercised jurisdiction was thenceforth called a county, instead of a shire as previously under the Saxons, and the consort of the earl became a countess. According to Cruise, there were 3 sorts of earldoms under the early Norman kings: the first and highest, where the dignity was annexed to the possession of a whole county, with the *jura regalia*, in which case the county became a county palatine, and the person created earl of it exercised all the authority of a sovereign; the next, where the earl was entitled to the third part of the revenues of the county court; and the third, where a tract of land was erected into a county and granted with civil and criminal jurisdiction to be held *per servitium unius comitatus*. This statement, however, is open to controversy, and Sir Harris Nicolas is of opinion that the Norman earls, excepting in the counties palatine, possessed no jurisdiction over the counties from which they were denominated, the dignity being of a nature altogether personal. At present the title conveys no local jurisdiction or revenue, and is no longer confined to the names of counties, but may be derived from those of towns or villages, or of families. It remained the highest hereditary dignity in England until the reign of Edward III., when the first dukedom was created, and is now the 3d order of the British nobility, being next below that of marquis, and above that of viscount. After the barons the earls are also the most numerous of any order, numbering (in 1859) 234, of whom 47 have Scottish and 68 Irish titles. They are styled by the sovereign "right trusty and well beloved cousin," an appellation attributed to Henry IV., who had his own reasons for flattering the powerful earls, with nearly all of whom he is said to have been allied by birth or marriage, by frequent allusions to the relationship. They are now created by letters patent, in place of the old practice by which the sovereign girded on the sword of the new earl and invested him with mantle and coronet.

EARL MARSHAL, an officer of state in England, who directs important ceremonies, takes cognizance of matters relating to honor, arms, and pedigree, and proclaims the declaration of war or of peace. The office was established in the reign of Richard II., who conferred it upon Thomas Mowbray, earl of Nottingham, and is now hereditary in the family of Howard, the head of which, the duke of Norfolk, is the present earl marshal of England.

EARLE, PLINY, an American inventor, born in Leicester, Mass., Dec. 17, 1762, died there, Nov. 19, 1832. In 1785 he became connected with Mr. Edmund Snow in the manufacture of machine and hand cards for carding cotton and wool; and in 1790, when Mr. Samuel Slater, the originator of cotton factories in this country, was establishing his first factory at Pawtucket, he applied to Mr. Earle to furnish him with what are technically termed twilled cards, all the cards then manufactured in this country being plain. Mr. Earle at first made these by hand, but soon invented the machine still in use for their manufacture, by which the labor of a man for 15 hours could be performed in as many minutes. Aside from his inventive genius, Mr. Earle deserves a record for his extensive attainments in science and literature.—PLINY, an American physician, son of the preceding, born in Leicester, Mass., Dec. 31, 1809. He was educated at the Friends' yearly meeting boarding school at Providence, R. I., where he was subsequently employed as a teacher. He received his diploma of M.D. in 1837, after which he spent 3 months in London and a year in Paris, and some 10 months more in travel, returning to Philadelphia in 1839. In 1840 he was appointed resident physician of the insane hospital at Frankford, Penn., under the care of the Friends, where he remained a little more than 2 years. In 1844 he was appointed physician to the asylum for the insane at Bloomingdale, N. Y., where he remained till April, 1849, when he visited the insane hospitals of England, Belgium, Germany, Austria, Poland, and a part of those of France. In 1847 he declined an appointment of visiting physician to the New York city lunatic asylum, but accepted it when again offered in 1853. He has been a somewhat voluminous writer, principally in the medical and scientific journals and the "Journal of Insanity." In 1841 he published a small volume of poems entitled "Marathon and other Poems;" but fear-

ing that they might endanger his professional standing, he withdrew the edition from the market very soon after its publication. The same year appeared his "Visit to 13 Asylums for the Insane in Europe." In 1848 he published the "History, Description, and Statistics of the Bloomingdale Asylum." After his return from his second European tour, he published in the "American Journal of Insanity" a series of articles on institutions for the insane in Germany and Austria, which were subsequently collected in a volume. Another series of articles on "Bloodletting in Mental Disorders" was also published in book form in 1854. His other contributions to the medical and psychological journals are very numerous. —THOMAS, a writer on law, brother of the preceding, born in Leicester, Mass., April 21, 1791, died in Philadelphia, July 14, 1849. His early education was obtained at the academy of his native town. In 1817 he removed to Philadelphia, and engaged in mercantile pursuits for a few years, and then having studied law commenced the practice of the profession in that city, where he was distinguished not only for legal ability, but for the large amount of time he bestowed without fee or reward in defending the cause of the poor, often refusing cases offering large pecuniary emolument in order to attend to those who were unable to pay. He edited in succession the "Columbian Observer," "Standard," "Pennsylvanian," and "Mechanics' Free Press and Reform Advocate;" and he took an active part in calling a convention to revise the constitution of Pennsylvania in 1837, was a prominent member of it, and is believed to have made the original draft of the new constitution. At this time he was so popular that any office in the gift of the people was at his command, but he lost the support of the party with which he was connected (the democratic) by advocating the extension of the right of suffrage to negroes. In 1840 he was the candidate of the liberty party for the vice-presidency. After that period he mingled little in political affairs, and devoted himself almost entirely to literary pursuits. His first published work was an "Essay on Penal Law," written while he was a member of the law academy of Philadelphia, and published by the library company. This was followed by an "Essay on the Rights of States to alter and annul their Charters," a work which elicited the approbation of Thomas Jefferson; a "Treatise on Railroads and Internal Communications," published in 1830; a spelling book for schools, which was highly approved by eminent teachers in Philadelphia and vicinity; a "Life of Benjamin Lundy," an eminent philanthropist. At the time of his death he had nearly completed a history of the French revolution and a translation of Sismondi's "Italian Republics."

EARLY, a S. W. co of Ga., bordering on Ala., bounded W. by the Chattahoochee river, and N. by Colamoka creek; area, 864 sq. m.; pop. in 1852, 8,641, of whom 4,211 were slaves. The surface is a fertile plain, watered by Spring creek and several of its branches, and occupied by corn and cotton plantations, interspersed with forests of oak and yellow pine. Scarcely a rock is to be seen in the county. The Chattahoochee is navigable along the border of the county by steamboats, and the smaller streams furnish good water power. On the bank of Colamoka creek is one of those remarkable ancient mounds which have been found in various parts of the United States. It is 75 feet high, with a level surface on the top 240 by 90 feet in extent. The productions of the county in 1850 amounted to 4,354 bales of cotton, 223,037 bushels of Indian corn, and 76,377 of sweet potatoes. There were 16 churches, 1 newspaper office, and 144 pupils attending academies and schools. Value of real estate in 1856, $994,031. Named in honor of Peter Early, governor of Georgia in 1813. Capital, Blakely.

EARLY, JOHN, a bishop of the Methodist Episcopal church south, born in Virginia in 1785. At an early age he joined the Virginia conference, and became an itinerant minister. He filled successively the offices of secretary of conference, presiding elder, and delegate of the general conference. At the general conference of 1846 he was elected general book agent, in which office he continued until elected bishop in 1854. As a traveller, revivalist, and systematic preacher, it is said of him that he has few equals in the ministry of the southern Methodist church.

EARTH, the planet upon which we live. (For its motions and its relations to the heavenly bodies, see ASTRONOMY.) The ancients, familiar with only a small portion of its surface, entertained the crudest notions of its form and extent. In the time of Homer it was regarded as a flat circle, everywhere surrounded by a dark and mysterious ocean. The nations which dwelt upon its borders were called Cimmerians and described as living in perpetual darkness. In every direction the most distant lands heard of were placed on the margin of this ocean, so that as geographical knowledge increased its shores in like manner receded. The strait at the pillars of Hercules, leading into the ocean, was for many centuries the boundary of the earth toward the west. The Black sea appears for a time to have been the boundary in the other direction, and Colchis on the margin of the Eastern sea. Ethiopia reached the sea to the south, and the Riphæan mountains stretched to the northern verge of the earth. The ancient Hebrews found the same boundary to the west; but in other directions they vaguely spoke of the "ends of the earth." Availing themselves of the commercial enterprise of the Phœnicians, they had in the time of Solomon prosecuted their trading voyages through the straits of Babelmandeb into the Indian ocean, bringing home from expeditions of 3 years' duration the products of tropical regions; while their ships sent westward toward the Atlantic returned laden with the tin, silver, lead, and other metallic products of Spain and Great Britain. The ex-

peditions of Alexander into Asia opened new countries in the east, and largely extended the geography of the Greeks. The Romans by their conquests added discoveries in the other direction; but these, while they removed further off, still served to fix the encircling ocean, the *mare tenebrosum*, as the impassable barrier and limit to the land. At a very early period the astronomers among the Egyptians, Chaldeans, and Greeks perceived that the heavenly bodies, while occupying the same positions, stood in different relations to different points upon the surface of the earth. In the school of Thales, Anaximander, Anaximenes, and Pythagoras, the sun dial was employed to mark the progress of the sun in its meridional range, and to determine the latitude of places, and the division of the year into 365 days. The length of the longest and shortest days at numerous places was determined by the Egyptians with this instrument, and they first added 5¼ days to the older division of the year into 360 days. Thales (born at Miletus, 640 B. C.) perceived the error of giving to the earth a plane surface, and ascribed to it a spherical figure and a position at the centre of the universe. Anaximander believed it was cylindrical; and in the Pythagorean cosmography the extraordinary advance was made of placing the sun in the centre of the system with the earth moving about it. But this step was soon lost, and the knowledge of the extent and form of the earth made but slow progress as the limited observations of travellers were gradually accumulated. A latitude observation is recorded of Meton and Enctemon at Athens, 432 B. C. As commercial intercourse was extended among the nations and navigation became an important art, the spherical figure of the earth must have become apparent by the same phenomena which are now commonly appealed to in proof of it, viz.: the sinking of distant objects seen upon a level plain, as the sea below the horizon; the greater or less elevation of the circumpolar stars, as the observer is further toward the north or the south; the different angles under which the sun is seen at noon of the same day at different points on the same meridian; and other appearances of the same character. This form being recognized, it was natural to seek the measure of its circumference, and it is extremely probable that attempts of this kind were made before any of those of which we have account. Some of the measures of the most remote antiquity appear to have relation to the terrestrial circumference; and, as stated by Laplace, they seem "to indicate not only that this length was very exactly known at a very ancient period, but that it has also served as the base of a complete system of measures, the vestiges of which have been found in Asia and Egypt." Aristotle states that before his time the circumference had been determined by mathematicians at 400,000 stadia. Eratosthenes, who lived the next century after Aristotle, appears to have been the first to clearly perceive the true method of applying astronomical observations to the measurement of a degree upon the surface of the earth, and from this to calculate the whole circumference. At Syene, in upper Egypt, was a well, at the bottom of which the full disk of the sun was seen at noon of the day of the summer solstice; at the same time from Alexandria, then taken to be on the same meridian, its angular distance from the zenith was 7° 12′. This was the measure of the celestial arc between the two zeniths, and bore the same relation to the whole circumference as the distance between the two points on the surface bore to the circumference of the earth. Presuming this distance to be 5,000 stadia, and 7° 12′ being $\frac{1}{50}$ of a circle, the total circumference was then 250,000 stadia. The world known by the reports of travellers extended only about 38,000 stadia in a N. and S. direction; and from the pillars of Hercules to the city of Thinæ upon the eastern ocean, along his base line drawn E. and W. across the Mediterranean, Eratosthenes reckoned a greatly exaggerated distance of 70,000 stadia, and yet less than $\frac{1}{3}$ of the whole circumference. He indulges only conjectures whether the remainder was occupied entirely by the ocean he called the Atlantic, or consisted in part of strange continents and islands. Posidonius next attempted a similar measurement by observations of the altitude of the star Canopus, when seen on the meridian at Rhodes, and again at Alexandria. Finding a difference of altitude of 7° 30′, and assuming the meridional distance of the two points to be 5,000 stadia, he made the whole circumference 240,000 stadia. Of the real value of the stadium employed we are entirely ignorant; and it is certain that it was not, as employed at that time, a fixed determinate measure. The great astronomer Hipparchus of Rhodes, born at Nice, in Bithynia, 140 B. C., first determined the longitudes of places upon the earth by the eclipses of the moon, and produced maps upon which localities were designated by their latitudes and longitudes. Thus a means was furnished of determining the relative positions of places without the necessity of measurements upon the surface between them; and afterward, when suitable instruments should be contrived, of finding directly any spot beyond the sea, and returning to the starting point. Adopting these principles, Ptolemy, the astronomer and geographer, prepared the most complete map of the world so far as it was known, designating places by their latitudes and longitudes, and causing the meridians to approach each other toward the pole. For want of accurate measurement of the length of a degree, his map, however, was very imperfect. Still it continued for many centuries to be the great authority in geography; and it was not until 1635, when the difference of longitude between Marseilles and Aleppo was found to be only 30° in place of 45°, as represented upon the map, it became apparent that more perfect observations for longitudes must be adopted than those of the ancients. The uncertainty of the results obtained by observing eclipses of the moon was soon perceived, and at

last the suggestion of Galileo was adopted of observing the eclipses of the satellites of Jupiter. In the 9th century an attempt was made by direction of the caliph Al Mamun, who reigned at Bagdad from 813 to 833, to determine the length of a degree of latitude. His mathematicians assembled on the plain of Shinar, and, taking the altitude of the polar star, separated in two parties, travelling in opposite directions till they found a difference of altitude of one degree. They made the distance upon the surface the same as that given by Ptolemy, probably adopting his conclusion, which they were set to verify. From this time to the middle of the 16th century no further attention was given to ascertaining the dimensions and true figure of the earth by astronomical observations; but vast accessions of geographical knowledge were made by the enterprise of the navigators of this period. They at last solved the mystery of the *mare tenebrosum*. The next attempt to determine the circumference was made by Fernel, a French physician, who died in 1558. In the want of exact surveys, by which the true distance between places might be known, he measured the space between Paris and Amiens by the number of revolutions of his carriage wheel, and making his observations for latitude he made the length of a degree 57,070 French toises; a remarkably close approximation to the actual length. Willebrord Snell, a mathematical teacher of Holland, made in 1617 a similar attempt between Alkmaar and Bergen-op-Zoom; and he was the first to apply a system of triangulation to expedite his geodetic measurements. His instrument for observing angles was a quadrant of 5½ feet radius. As afterward corrected by Muschenbroek, the length was 57,033 toises. In 1635 Norwood in England repeated the experiment, measuring along the road the distance between London and York, making the degree 367,176 feet, or 57,800 toises. Toward the close of the same century Picard first applied the telescope attached to a quadrant, and furnished with cross wires, to observe the angles for his triangulation, and twice measured between Amiens and Malvoisine with wooden perches a base of 5,663 toises, or nearly 7 m. in length, employing also at the other extremity a base of verification of 3,902 toises. The celestial arc of 1° 22′ 55″ was measured by a sector of 10 feet radius. He made the degree 57,060 toises, a result very nearly accurate, attained by a fortunate compensation of errors in his method and in his standard of measure. In 1718 the second Cassini published a work upon the magnitude and figure of the earth, with an account of measurements further north and south on Picard's line made by La Hire and himself. About the time of Picard's observations the question began to be agitated, whether the form of the earth was really that of a true sphere. The tendency of the centrifugal force of bodies revolving upon their axis, established by Huyghens and Newton, must evidently be to throw their movable particles from the poles toward the equator and there accumulate them in a belt, increasing the equatorial diameter. Newton calculated that to maintain the hydrostatic equilibrium the proportion of the polar to the equatorial diameter must be as 230 to 231. Richer, who was sent by the academy of sciences of Paris to Cayenne in 1672, observed that the pendulum which vibrated seconds in Paris lost about 2½ minutes daily at Cayenne. This fact, as Newton explained in his *Principia*, must be a consequence of the reduction of the force of gravity, either by effect of the centrifugal force or of increased distance from the centre. The deductions of Newton and Huyghens that the earth was a spheroid like that already observed of Jupiter, flattened at the poles, conflicting with the opposite conclusions of the first Cassini, induced the academy of sciences to cause exact measurements of meridional arcs to be made both near the equator and the polar circle. The celebrated commission of their members left Paris in 1735, Bouguer, La Condamine, and Godin to join in Peru the officers appointed by Spain, Antonio d'Ulloa and Jorge Juan; and Maupertuis with 4 others to proceed to the gulf of Bothnia, where they were joined by the Swedish astronomer Celsius. Ten years were spent by the party in Peru in the measurement of an arc of over 3° in length, extending from lat. 2′ 3″ N. to 3° 4′ 32″ S. In 2 measurements of the original base the difference was hardly 2½ inches; and a second base of 5,259 toises differed when measured less than a toise from its length as calculated from the triangles. The length of the degree at the equator, reduced to the level of the sea, was calculated by Bouguer at 56,753 toises, or 362,912 feet; by La Condamine, at 56,749 toises; and by Ulloa, at 56,768 toises. The northern party found a place for their operations between Tornea in Lapland and the mountain of Kittis, 57′ 29.6″ further north, in lat. 66° 48′ 22″. The difference of latitude being determined, they measured a base line upon the frozen rivers, 2 measurements giving a difference of only about 4 inches. The arc being then determined, it was found to give 57,422 toises to the degree. With this result they returned to France, being absent only 16 months. The greater length of the degrees as they approach the poles was thus established, and consequently the greater equatorial than polar diameter of the earth. Multiplied measurements in different parts of the earth now became important to determine its true figure. They have been made in various countries, and confirm the general conclusions of Huyghens and Newton. La Caille's measurement at the cape of Good Hope in 1751, the only one in the southern hemisphere, presented anomalies, or showed great irregularity in the figure of the earth, which were not explained till, nearly a century afterward, the arc was remeasured with great care under the auspices of the British government, and it was shown that the discrepancy was owing principally to the deviation of the plumb

line of La Caille by attraction of the mass of the mountain near by. In North America the first measurement of this character was by Mason and Dixon in 1764–'5, on the peninsula between Delaware and Chesapeake bays. The arc was measured throughout with wooden rods, and the degree in mean lat. 39° 12′ was found to be 363,771 feet, or 68.896 English miles. It has never been supposed that this was a very exact measurement, but its accuracy has not been disproved. In 1784 measurements were commenced larger than any ever before undertaken for the purpose of accurately determining the difference of longitude between the observatories at Paris and Greenwich. Instruments of great size and improved construction were prepared expressly for this work, and the base line of 27,404 feet upon Hounslow heath was measured once with wooden rods of 20 feet length, and once with glass rods of the same length in frames. The junction of the triangles on the two sides was completed in 1788; but the operations on the English side were regarded only as a portion of the full survey of the island to be afterward carried out. Still more extensive surveys were commenced in France in 1791, with the object of obtaining the exact length of the quadrant of the meridian, in order to make use of a definite part of this natural and permanent quantity as a standard for all linear measures. The pendulum vibrating seconds in some determined latitude had been proposed as a means of furnishing an unchangeable measure, but it was given up because of its dependence upon the element of time, the measure of which is arbitrary, and its sexagesimal divisions are inadmissible as the foundation of a system of decimal measures. Local causes also, as the geological structure of the locality, affect the rate of its vibrations. The length of the quadrant of the meridian, not being liable to these objections, was adopted instead, and a new measurement was carried out on the meridian of Paris under the distinguished astronomers Delambre and Mechain, and the work was not interrupted by the political disorganizations of the years 1792, 1793, and 1794. The line was extended across France from Dunkirk to Barcelona, making an arc of about 9°, and every precaution was taken to insure the most perfect accuracy in the measurements. The base line near Paris was more than 7 m. in length (6,075.9 toises), and another of verification of 6,006.25 toises near the southern extremity of the arc differed by measurement less than a foot in length from its extent calculated from the triangles extending from the first base more than 436 m. distant. Though this arc thus determined was sufficient for the purpose required, the French astronomers in 1805, after an interval of 3 years, began to carry the measurement still further south, Biot and Arago directing the work after the death of Mechain. The island of Ivica in the Mediterranean was connected with the system by a triangle, one side of which exceeded 100 m. in length; and by means of another the line was made to reach Formentara, distant 12° 22′ 13.39″ from Dunkirk, its northern extremity. The result of this extension affected the quadrantal arc before obtained so little, that the standard unit, the *mètre*, equal to the $\frac{1}{10,000,000}$ of the quadrant, would differ scarcely $\frac{1}{250,000}$ of the value before given it. A singular anomaly was noticed upon some portions of this arc, and the same was observed in the English surveys, that where these portions were considered separately, the length of the degrees appears to increase toward the equator. This is supposed to be owing to some disturbing cause, as, possibly, inequalities in the density of the strata which affected the instruments in use upon them. The effect is to produce a slight uncertainty in the exactness of the result obtained, and in the calculated proportion of the polar to the equatorial axis of the earth. The length of the quarter of the meridian was found to be 5,130,740 toises. Of the other measurements which have been made of an arc of the meridian, the most important are those conducted in Hindostan by Col. Everest, in continuation of the work commenced by Col. Lambton in the early part of the present century; and those by Struve and Tenner in Russia (the latter commenced in 1817 and completed in 1853). A small arc of 1° 35′ was measured near Madras by Col. Lambton; and another was commenced from Punnæ in the southern extremity of the peninsula, in lat. 8° 9′ 32.51″, and extended to Damargida, lat. 18° 3′ 15″. After Lambton's death in 1823, Col. Everest carried the work on further north for some time. In 1832, after an interruption, it was resumed and continued till 1840, when it reached Kaliana, lat. 29° 30′ 48″, thus including 21° 21′ (1,477 m.). Every precaution was taken, and the most perfect instruments were provided, to insure the utmost accuracy; and notwithstanding the natural obstacles of the climate, the heat, rains, and thick atmosphere, the malaria of the plains, and the impenetrability of the jungles, the results obtained from the bases of verification indicate as great exactness as has been attained in the best European measurements. The whole extent of the Russo-Scandinavian arc is from Ismaïl near the mouth of the Danube, in lat. 45° 20′, to Fugeloe in Finmark, lat. 70° 40′. The portion extending N. from Tornea (4° 49′) was measured by the Swedish and Norwegian engineers. The ground throughout the whole extent of the line is remarkably favorable for the execution of this work, on account of its freedom from great irregularities of surface; but in the southern part forests spreading over a level country have rendered it necessary to raise many temporary elevated stations; and in the north the extraordinary refractions of that region have added to the difficulties of the work. This arc, and that of Hindostan, give the measure of a large portion of the quadrant of the meridian, leaving only the degrees between 29° 30′ and 45° 20′ unmeasured from lat. 8° 9′ to 70° 40′.

The French arc, extending from lat. 38° 40′ to 51°, fills up a portion of this gap, and they all together afford abundant data for an exact computation of the curvature of the meridian; and this is rendered the more certain from the standards of length used in India and Russia having been directly compared. Other arcs have been measured by Bessel and Bayer in Prussia; Schumacher in Denmark; Gauss in Hanover; beside a few others of less import. The longest arc measured in the progress of the U. S. coast survey is one of 3½°, extending from Nantucket to Mount Blue in Maine. Great confidence is felt in the accuracy of this measurement, from the extreme care with which the triangulation is conducted. The work is not yet quite completed. An arc of parallel will also be measured along the Mexican gulf.—From the various measurements that have been already made, different values have been calculated for the ellipticity of the earth, or the proportions between the polar and equatorial diameters. Prof. Airy, before the completion of the recent surveys, found the ellipticity $\frac{1}{299}$, and Bessel afterward made it $\frac{1}{299}$. The French and Indian arcs give a smaller ellipticity, as $\frac{1}{316}$, but the Russian, it is thought, will be about $\frac{1}{300}$. The following statement presents the average of several of the measurements: Equatorial diameter, 41,843,330 feet, or 7,924.873 miles; polar diameter, 41,704,788 feet, or 7,898.634 miles; difference of diameters, or polar compression, 138,542 feet, or 26.239 miles; ratio of diameters, 302.026 : 301,026; ellipticity, $\frac{1}{301.026}$; length of degree at equator, 362,732 feet; length of degree at lat. 45°, 364,543.5 feet. Profs. Airy and Bessel, calculating from different sets of measurements, obtained the following results:

	Airy, miles.	Bessel.
Equatorial diameter.....	7,925.648	7,925.604
Polar diameter.....	7,899.170	7,899.114
Polar compression.....	26.478	26.471
Ratio of diameters.....	299.33 to 298.33	299.15 to 298.10

The ellipticity of the earth is always expressed by a larger fraction than the above when computed from observations upon the vibrations of the pendulum in different latitudes. It is variously given from $\frac{1}{289.3}$ to $\frac{1}{286.3}$. These observations have been made at so large a number of places, that the effects of local causes of irregularity would be expected to disappear; yet there is an unexplained discrepancy with the results of the geodetic method. This is perhaps owing in part to the variable resistance opposed by air of different densities, the effect of which can be obviated by conducting the experiments in a vacuum. The ellipticity has also been calculated from some irregularities in the motions of the moon, caused by the equatorial protuberance; and it may well be remarked as an extraordinary fact that from this source a strong confirmation should be afforded of the correctness of the results obtained from the measures of the meridional arcs. The ellipticity thus obtained is generally $\frac{1}{306}$ or $\frac{1}{304}$, different values being allowed for the rate of increase in the density of the earth from the surface toward the centre. Degrees of longitude might be measured instead of latitude for determining the figure of the earth; but the difficulty would be in the precise estimation of differences of longitude in the celestial arc. The close approach of the earth in its general form to the figure of hydrostatic equilibrium forcibly suggests the probability of the particles which compose its mass having been in condition to move freely together under the influence of the centrifugal force and their mutual attractions. The conditions that now obtain upon the outer portion of the earth in the mobility and transporting power of its waters, which cover ⅔ of its surface, may be regarded as sufficient to give, in long periods of time, the observed external form; but the indications afforded by the pendulum of regularly increasing gravity from the equator toward the poles, and hence of symmetrical arrangement of the layers throughout, imply the existence of similar conditions during the entire period of the construction of the earth.—The form and dimensions of the earth being obtained, calculations respecting its density or weight may be made by several distinct methods. The one first applied was originally suggested by Bouguer—a comparison of the attractive power of a mountain of known dimensions and density with that of the earth of known dimensions, whence its density might be computed. Newton had already estimated that a hemispherical mountain 3 m. high and with a base of 6 m. diameter would cause a plummet to be deflected 1′ 18″ from the vertical. In making the trial the plummet is attached to a delicate astronomical instrument, with which observations are made to determine the meridian altitudes of stars near the mountain, and on the same parallel at a distance accurately determined and sufficiently far off to be beyond its influence. The difference in the 2 altitudes shows the power of attraction. Observations are sometimes made from stations on opposite sides of the mountain, and the result is then obtained by a different plan from the above. Bouguer, in 1738, observed the influence of Chimborazo in deflecting the plummet, and unsuccessfully endeavored to compute its amount from observations made at 2 stations on the S. side only. In 1772 Dr. Maskelyne proposed to the royal society to try the experiment upon some mountain in Great Britain; and the society thereupon appointed a "committee of attraction," including in it, with Maskelyne, Cavendish, Franklin, and Horsley. Mr. Charles Mason was intrusted with the selection of a proper hill, and finally Schehallien in Perthshire, Scotland, was fixed upon. The primary measurements were made by Mason in 1774, to determine the distance apart of the stations to be used, one on the N. and the other on the S. side of the hill, under similar slopes. By triangulating, Dr. Maskelyne found this distance to be 4,364.4 feet, corresponding in that latitude to a

meridional arc of 42.94″. But by 337 observations the difference of latitude appeared to be 54.6″, giving 11.6″ as the double attraction. By complicated calculations, devised by Cavendish and carried out by Dr. Hutton, the density of the earth was computed to be to that of the hill as 17,804 : 9,933. Dr. Playfair, after carefully examining the geological structure of the hill, made the probable mean specific gravity of the earth to be between 4.56 and 4.87. By a similar experiment made by Col. James, superintendent of the ordnance survey, at Arthur's Seat, the mean density of the earth has been found to be 5.316.—A second method of estimating the density of the earth is by an experiment exceedingly delicate and beautiful, in which the attractive power of small spheres of known weight is weighed and compared with that of the earth. The principle of this method has also been recognized by Newton, in his observation that the attraction at the surface of any sphere is directly as its radius, but incomparably less than its tendency toward the earth, or in other words, its weight. The experiment was devised by the Rev. Mr. Michell, who also prepared the apparatus with which it was first conducted by Cavendish ("Philosophical Transactions," 1798). Two balls of lead of about 2 inches diameter were fixed one at each end of a slender wooden rod 6 feet long, which was suspended by a fine wire 40 inches long attached to the centre of the rod. At each extremity of a support of the length of the rod was placed a leaden sphere of 174 lbs. weight; and the support was adjusted upon a centre exactly beneath the centre of the rod suspended above it, so that the great balls could be swung around and present their opposite sides in turn to opposite sides of the smaller balls. When brought near to the latter as they swung at rest, protected by a glass case from currents of air, they turned toward the large balls, slightly twisting the wire till its torsion equalled the attractive force. This observation being made through a telescope at a little distance off to avoid disturbing influences, the large balls were then moved round, and a similar measure of the movement was made on the other side. Cavendish after a long series of trials found the attractive force equal to $\frac{1}{4\,3\,0\,0}$ of a grain weight, the centres of the balls being 8.85 inches apart, and he computed from this the density of the earth to be 5.48 times that of water. The experiment has been repeated by Reich of Freiberg and Baily of London, the latter making more than 2,000 observations. Reich made the density 5.44, and by a still later trial ("Philosophical Magazine," March, 1853), 5.58. Baily found it 5.66. It is remarkable that Newton should have stated in his *Principia* (iii. prop. 10) that the quantity of matter in the earth is probably 5 or 6 times what it would be if all were water. Another method of determining the density is by comparison of the different rates of vibration of the same pendulum at different distances from the centre; either at the summit and base of a mountain, or on the surface and at a considerable depth below it. The Italian astronomers Plana and Carlini, from their experiments on Mont Cenis, in Savoy, obtained the figures 4.950 as the result. Professor Airy made a similar experiment at the Harton coal pit, near South Shields, in 1854. He found that a pendulum vibrating seconds at the surface gained 2½ seconds per day at the depth of 1,200 feet; and he hence computed the density of the earth to be 6.565. Sir John Herschel ("Outlines of Astronomy," 5th ed., p. 559) thus presents the final result of the whole inquiry: "The densities concluded being arranged in the order of magnitude:

Schehallien experiment, by Maskelyne, calculated by Playfair	D = 4.713
Carlini, from pendulum on Mont Cenis (corrected by Giulio)	4.950
Col. James, from attraction of Arthur's Seat	5.316
Reich, repetition of Cavendish experiment	5.438
Cavendish, result 5.48, corrected by Mr. Baily's recomputation	5.448
Baily's repetition of Cavendish experiment	5.660
Airy, from pendulum in Harton coal pit	6.565
General mean	5.441
Mean of greatest and least	5.639

calculating on 5½ as a result sufficiently approximative and convenient for memory; taking the mean diameter of the earth, considered as a sphere, at 7,912.41 m., and the weight of a cubic foot of water at 62.3211 lbs.; we find for its solid content in cubic miles, 259,373 millions, and for its weight in tons of 2,240 lbs. avoird. each, 5,842 trillions ($=5842 \times 10^{18}$)." All these experiments give a less density to the earth than would appear to be required by the somewhat compressible nature of its materials, and to explain this the theory of the existence of a high degree of temperature in the interior is appealed to by some as presenting a sufficient counteracting influence. The probabilities of the existence of such conditions have been considered in the article Central Heat.—The various divisions of the earth's surface are described in the article Geography; its structure is treated in Geology. See also Physical Geography. The subject may be further studied in the following works: Steffens, *Beiträge zur innern Naturgeschichte der Erde* (Berlin, 1801); Ritter, *Die Erdkunde im Verhältnisse zur Natur und Geschichte des Menschen* (Berlin, 17 vols., 1832–'52; not yet complete), and other writings of the same author; Steinhuser, *Neue Berechnung der Dimensionen des Erdsphäroids* (Vienna, 1858); Burmeister, *Geschichte der Schöpfung* (Leipsic, 6th ed. 1856); Sandberger, *Der Erdkörper* (Hanover, 1856); Berghaus, *Was man von der Erde weiss* (Berlin, 1857, parts 19–23); Newton's *Principia;* Laplace, "System of the World," Harte's translation; Humboldt, "Cosmos" (5 vols., 1844–'58); Guyot, "Earth and Man" (revised edition, Boston, 1858); Sir John F. W. Herschel, "Outlines of Astronomy" (5th ed., 1858).

EARTH WORM (*lumbricus terrestris*, Linn.), an articulate animal belonging to the abranchi-

ate division of the class of annelids. (See Annelida, for the characters of the class.) This well-known worm has a long, cylindrical, contractile body, divided into many apparent rings (sometimes 150) by transverse wrinklings; the internal surface of the muscular envelope sends off annular septa, dividing the cavity of the body into as many chambers as there are segments, the partitions having openings which allow the passage of the contents of the general cavity from one chamber to the others. Each segment is provided with *setæ* or bristles, beginning at the 14th ring from the head, 4 on each side, united in pairs, forming 8 longitudinal rows, of which 4 are lateral and 4 inferior; they are short and rough, and are used as fulcra during creeping or climbing in the ground. The sense of touch is very acute, as is shown by the quickness with which they retire into the ground when touched, or at the jar produced by an approaching footstep; the sense is believed to be most acute toward the head, especially in the 1st segment. The eyes are wanting. The mouth is near the anterior extremity of the body, without teeth, with 2 somewhat prominent lips; the pharynx is simple, short, and muscular, the œsophagus narrow, the stomach very muscular, and the intestine short, straight, constricted by the muscular septa, and opening at the posterior extremity of the body. The blood is red, and the circulation is complete and closed; the several pairs of simple transverse canals, situated above the stomach, whose pulsations may be distinctly seen, may be considered the heart. The dorsal vessel lies upon the intestinal canal enveloped in the hepatic tissue. The blood, though red, is quite different from that of the vertebrates; according to Siebold, it contains colorless, spherical, unequal-sized granular globules; these, Quatrefages says, are not part of the blood, but belong to the fluid of the general cavity; the latter maintains that the coloring matter is in simple solution. There is no apparent external organ of respiration, and the peculiar canals in the abdominal cavity are regarded by some as internal branchiæ or aquiferous vessels. The structure of these organs is little understood; but in all genera of the division there are at the commencement of the intestine very tortuous canals, opening generally on the ventral surface; these canals are lined with ciliæ, which have an undulatory movement always in one direction; they never contain air, according to Siebold, but circulate an aqueous respiratory fluid by means of the ciliæ; even the terrestrial earth worms can live only in damp earth, from which they obtain the necessary aqueous fluid. In the *lumbricus* these canals are surrounded by a distinct vascular net-work; they appear to end in loops, and their external orifices have not been satisfactorily ascertained. The most probable opinion is that the respiration is carried on principally by the general integument, and partly by the vascular system on the walls of the intestine; the ciliated canals described by Siebold are believed by Quatrefages to be organs for the secretion of the mucus which invests the body; but Dr. Williams (in his "Report on the British Annelida" to the British association, in 1851) considers them as utero-ovaria. The *lumbrici* reproduce by sexual organs; their eggs are spherical and present nothing remarkable; both sexes are united in the same individual. During the breeding season, from 6 to 9 of the segments (from the 26th to the 37th, as generally described) are developed into a kind of collar, nearly surrounding the body, by which these animals seize each other during coition; its component glandular follicles secrete a whitish viscid fluid, probably used for the formation of their cocoons or egg-cases. According to Dufour, these cocoons have a long narrow neck, each, in the large species, containing from 1 to 6 eggs; the statement of Montègre that the young are born alive seems to be confirmed by the observations of Dr. Williams (*op. cit.*), who says that they escape from the egg before leaving the body of the parent; these conflicting opinions have been reconciled by some authors by calling these animals ovo-viviparous, producing their young sometimes completely formed, and at others surrounded by their egg-like envelope; it is probable that, like the leech, most *lumbrici* lay oviferous capsules, fringed at the ends, in which the young are developed without undergoing metamorphosis. It seems certain from the experiments of Dufour (*Annales des sciences naturelles*, t. v. p. 17, and t. xiv. p. 216, 1st series) that the earth worm reproduces by means of eggs; he describes them as an inch in length, of a corneo-membranous consistence, deposited in the earth at a depth of from 6 inches to 6 feet, in localities where the soil is neither inundated nor too dry, isolated, and each egg containing 1 or 2 young. In this case the eggs cannot properly be called cocoons, as the young undergo no metamorphosis in them; this would be the mode of reproduction usually noticed in the class; in the branchiate annelids it is stated by good observers that some are born alive and mature, and others of the same species are developed from eggs deposited in a gelatinous covering; so that there is no anomaly in the mode of reproduction described by Dr. Williams, and there would seem no necessity for maintaining that the viviparous mode of reproduction rested on mistaken observations, or that the excluded worms in these cases are entozoa, which, it is well known, are very common in the earth worm. Still, the subject is much in need of a thorough revision. Earth worms live in moist earth, in which they make galleries in all directions, swallowing the earth as they proceed; their food is principally soft and decaying vegetables, as may be proved by any one who chooses to watch a garden walk by the light of a lantern on a damp evening, when they may be seen creeping out of their holes, elongating their first tactile segment, feeling in all directions for food, and, seizing any suitable substance with their projected proboscis, retiring backward into the ground; their constant presence wherever there is decaying vegetable matter proves that their food is principally

derived from such substances; they also, as Montègre observed, will feed upon animal matters; it seems more reasonable to believe, with De Blainville, that they swallow earth for the purpose of making progress in their galleries, than that they do this to extract humus or any other nutritious substance from it. They seek each other chiefly at night and in the latter part of spring, though some species have been noticed together at all times of the day, and during all the warm months; it is well known that they are most abundant on the surface of the ground during and after nocturnal rains. It has long been believed that this animal possesses a remarkable power of reproducing parts lost by accident or design, even to the extent of forming perfect individuals from separated portions; the experiments of Dugès prove that very important parts may be reproduced, and it may easily be believed that in a worm divided into two, the anterior portion might produce an anus by the simple contraction of the wound; but that the posterior portion should be able to reproduce cerebral ganglia, mouth, stomach, cardiac and sexual organs, cannot be admitted; the anterior may survive a long time, but the posterior division gradually dries up and dies. Dr. Williams, after attending to the experiments of Bonnet, Spallanzani, and others, to which Prof. Owen gives assent, says: "On the authority of hundreds of observations, laboriously repeated at every season of the year, the author of this report can declare with deliberate firmness, that there is not one word of truth in the above statement." In 1853 Mr. Newport exhibited before the Linnæan society of London 3 specimens of earth worms, one of which was living, in which more than ⅓ of the anterior part of the body had been restored, smaller in diameter and with shorter segments than the anterior portion; and he says that it is not uncommon to find specimens with parts similarly restored. Though generally a despised creature, and occasionally marring the beauty of the garden walks by little hillocks of earth, they not only do not injure vegetation, but are really useful in permitting air and water to penetrate the ground through the channels which they pierce in every direction, manuring the fields, and throwing up fine dirt around the roots of grass; a field in which no worms exist can be safely put down as of little value to the agriculturist; they are most active in spring, when most needed, and retire during winter deep into the ground; according to Mr. Darwin, they perform under ground that which the plough and the spade do on the surface, and have covered a field manured with marl, in the course of 80 years, with a bed of earth 13 inches thick. Worms also furnish food for birds, moles, frogs, and other small animals, and are used as bait for many kinds of fish. The rapid ascent and descent of worms in the ground are easily understood from the action of their numerous setæ; they have often been seen high up on perpendicular surfaces, and in situations which they could not have reached without climbing perpendicularly. In their movements they display great muscular force, each seta being moved by its appropriate system of muscles; Dr. Williams says that these setæ, with their fine hair-like appendages, will actually penetrate a deal board, and that the path of a worm on such a polished surface will show under the microscope 4 series of minute perforations. This would hardly explain their ascending perpendicular surfaces, especially when of glass or similar impenetrable material; in such cases, which are incontestable, they must retain their hold by means of the tenacious mucus with which their skin is covered. There is no question that many species have been confounded under *L. terrestris* (Linn.). The largest European species is called *L. gigas*, and is 18 inches long, and as large as the little finger; other common and smaller species are *L. anatomicus* and *L. trapezoides*. Whether all the American species are distinct or not has not been sufficiently demonstrated; there are certainly some species described peculiar to this country, but probably the *L. terrestris* is common to both hemispheres. The history and habits of this commonest of animals, trodden under foot by everybody, show how creatures apparently the best known may give rise to the most contradictory opinions among naturalists, and how a complete study of the most insignificant worm may illustrate some of the highest problems of animal physiology.—Those who wish to pursue this subject into its details are referred to the writings of Dufour, Dugès, Milne-Edwards, Blanchard, and especially Quatrefages in the *Annales des sciences naturelles* since 1828; to the article "Annelids," in the "Cyclopædia of Anatomy and Physiology;" to the report of Dr. Williams, above quoted; and to Siebold's "Comparative Anatomy," with its ample references to the best works.

EARTHENWARE. See Pottery.

EARTHQUAKE. In every part of the world the surface is subject to be shaken at times by movements taking place in the interior and transmitted somewhat like a wave to distant regions. No country escapes these visitations, but in volcanic districts they occur more frequently than elsewhere; and commencing in these, they have been known to pass beneath sea and land, from one hemisphere to another, till full ⅛ of the entire surface of the globe has been more or less disturbed by the movement. Such was the great earthquake of the year 1755, known as that of Lisbon, which will be described below. Some countries are so subject to these disturbances that the habitations of the people are built low, with broad bases and substantial walls, with particular reference to their stability against the shocks. This is the case throughout Central America, and in Chili, Peru, &c. Taking into account the whole surface of the earth, there is probably not a day that passes without the occurrence somewhere of a sensible disturbance of this kind, and hardly a month

without one or more worthy of note. The same countries have continued to be frequently visited by earthquakes from remote periods. Calabria, the southern extremity of Italy, has been repeatedly devastated since its early settlement by the Greek colonists, and, together with the neighboring island of Sicily, has been the scene of some of the most terrible earthquakes on record. From Feb. 1783, to the end of the year 1786, a period of nearly 4 years, this country was almost constantly disturbed. No fewer than 949 shocks were experienced in the first of these years, of which 501 were shocks of the first degree of force. Lyell observes that these convulsions were not remarkable above many others for their duration, violence, or extent, but great importance is given to them from the minuteness of the observations of men competent to collect and describe with accuracy the physical facts which throw light on geological questions. The details that have been recorded of the earthquakes in the countries bordering on the Mediterranean would make this region appear more subject to them than any other part of the globe; but had any other volcanic region been settled during the same periods by a population of the same degree of civilization, it is probable that the records of the two would not have materially differed in this respect. Among the earliest accounts of earthquakes of particular interest is that which resulted in the destruction of Herculaneum and Pompeii in the year 63, which was 16 years previous to the time when those cities were buried in the ashes from Vesuvius. The ancient city of Antioch in Syria was almost destroyed in the year 115, at the time of the visit of the emperor Trajan, who was himself hurt. In 458 it was again visited by an earthquake, and in 526 occurred the most disastrous one of which any record has been preserved. Gibbon states that 250,000 persons are said to have perished at this time, a conflux of strangers to the festival of the Ascension swelling the multitudes belonging to the city. "History," he remarks, "will distinguish the periods in which these calamitous events have been rare or frequent, and will observe that this fever of the earth raged with uncommon violence during the reign of Justinian. Each year is marked by the repetition of earthquakes of such duration that Constantinople has been shaken above 40 days; of such extent that the shock has been communicated to the whole surface of the globe, or at least of the Roman empire."—The approach of earthquakes is heralded by several premonitory symptoms of an unmistakable character. The air appears to be affected in some respect, perhaps in its electric condition, and the brute animals show a sensitiveness to this by uttering cries of distress and running wildly about. Men sometimes are affected with dizziness, and a sensation like seasickness. The atmosphere is often hazy for months, and the sun seen through it appears red and fiery. The weather suddenly changes from fierce gusts of wind to dead calms, and rains pour down in torrents at times, or in places in which they are usually of rare occurrence. Immediately before the shocks occur, the air is generally very still, while the surface of the ocean or lakes is unusually disturbed. A sound then breaks upon the stillness like distant thunder, or like a carriage rumbling afar off upon a rough pavement; or it may break at once with an awful explosion, as when the peal and the flash come together from every part of the cloud in which one is enveloped; at the same time the ground is shaken and lifted upward, or thrown forward, as by the passage of an irresistible wave beneath it. The shocks may be repeated several times in quick succession, or recur after long intervals; the movements may be so great as to rend the surface into chasms, and these may open and shut again, or remain in fissures of the width of a few feet or yards, and extending to unknown depths; smoke and flames are occasionally sent forth from them during the continuance of the earthquake, even if the region be not volcanic. Torrents of water are ejected from these chasms, and springs of water are often forced by the convulsion into new outlets and directions. Objects upon the surface, as dwellings, trees, and animals, are engulfed in the chasms; and by subsidence of the surface, large trees, mountains even, and whole cities are swallowed up. Occurring as they most frequently do along the seaboard, the water is observed commonly to retire to some distance, leaving the harbors dry, and then to return in a great wave of many feet in height, which sweeps every thing before it. This may occur by the progress of the great wave, the recession being occasioned in the same way as the similar movement upon a small scale noticed along the shore as a steamboat approaches it, the water first receding, and then returning in a great wave; or it may be owing to a tract being uplifted in the sea at some distance, toward which the waters would first be drawn from every direction, and immediately after be propelled back with redoubled force.—Of all the calamities to which man is exposed, there are none of so fearful a character as earthquakes; none involve such terrible and devastating destruction to life and property. There are none of the approach of which he is less forewarned, and none against which he can take fewer precautions. The very mysteriousness of the danger oppresses him with terror. He is ignorant in what form it is most imminent, or in what direction to seek a way of escape. Of modern earthquakes, that of Lisbon, in 1755, and that of New Madrid, Mo., in 1811, present some of the most interesting details. That of Chili, in 1822, is interesting for the permanent elevation of the country between the Andes and the coast which attended it. The area thus raised has been estimated to equal fully 100,000 square miles, and the height of the elevation to vary from 2 to 7 feet. Lines of sea beaches at higher levels and further inland indicate the previous lifting up of the same region at different times along the same lines.

A depression of the land was occasioned in the island of Jamaica in 1692, when Port Royal, the capital, was carried down, with the greater part of the buildings in the city, beneath the surface of the water. A thousand acres or more thus sank in less than one minute, the sea rolling in and driving the vessels in the harbor over the tops of the houses. A similar catastrophe occurred on a much more gigantic scale in the island of Java in 1772, when Papandayang, then one of the loftiest of the volcanoes of this region, was in action; an area suddenly sank down, including the mountain of 15 m. long and 6 m. broad, carrying with it 40 villages, and destroying 2,957 of the inhabitants. The great earthquake of Lisbon commenced on Nov. 1, 1755. The rumbling sound below the surface was immediately followed by the shock, which threw down the principal portion of the city. In the short space of 6 minutes it is believed that 60,000 persons perished. The sea retired, leaving the bar dry, and returned in a great wave 50 feet or more in height. The mountains around were shaken with great violence, and were even rent and thrown in fragments into the valleys below. Multitudes of people sought safety from the falling buildings by crowding upon the marble quay, which had just been constructed at great expense. It suddenly sank with them like a ship foundering at sea; but when the waters closed over the place no fragments of the wreck, none of the boats and vessels near by that were drawn into the whirlpool, and not one of the thousands of bodies carried down, reappeared upon the surface. Over the spot the water stood 600 feet deep; and beneath this, locked in the fissured rocks, in chasms of unknown depth, lie the relics of what was the life and wealth of this portion of the earth's surface in the middle of the 18th century. These rocks are the clayey and other comparatively soft strata of the tertiary formation. When in some future epoch they are raised again to the surface by a convulsion of the same nature with that which engulfed them, the vestiges they contain may reappear, converted in part or wholly into stone, like fossils entombed when the strata were deposited. The portion of the surface of the earth that was shaken by this earthquake was estimated by Humboldt as equal to 4 times the extent of Europe. The shock was felt in the Alps and on the coast of Sweden. In Germany the thermal springs of Töplitz disappeared for a time, and again burst forth, deluging the region around with ochre-stained waters. The waters of the lakes in Scotland, as Loch Lomond especially, rose suddenly more than 2 feet, and then subsided below their usual level. On the shores of Barbados, Martinique, and Antigua, the tide suddenly rose 20 feet, and the sea was of inky blackness. Even the distant waters of Lake Ontario were strangely agitated, and the shock was sensibly felt along the coast of Massachusetts. In Deane's "History of Scituate" it is stated that the earth was seen to wave like the swellings of the sea, and occasionally break into fissures. This lasted for 15 minutes, during which chimneys were shaken down and houses disjointed. The sea roared with the unusual commotion, and with the rumbling of the earth the noise was more appalling than that of the loudest thunder. Water spouts burst forth, and springs opened, which continue to flow to this day. As the movement passed beneath the ocean, it was felt by several ships, the impression being like that produced by striking upon rocks. The motion is described as undulatory, and proceeding at the rate of about 20 m. a minute.—The earthquake of New Madrid, below St. Louis, on the Mississippi, in 1811, is the most important that has occurred in this country of which we have any record. Humboldt remarks that it presents one of the few examples of the incessant quaking of the ground for several successive months, far from any volcano. Over an extent of country 300 m. in length, from the mouth of the Ohio to that of the St. Francis, the ground rose and sank in great undulations, and lakes were formed, and were again drained. The surface burst open in fissures, from which mud and water were thrown as high as the tops of the trees. The direction of these fissures was generally from the N. E. toward the S. W., and the inhabitants, noticing this, felled the tallest trees at right angles to this line, and stationing themselves upon them, thus escaped being engulfed. Flint, the geographer, observed hundreds of these chasms 7 years after this catastrophe; and Lyell, who visited the same region in 1846, noticed many, which then appeared like artificial trenches, which might be traced for more than half a mile. They were generally parallel, and varied, according to his measurements, from 10° to 45° W. of N. The country is still called the "sunk country," and its extent, along the White Water and its tributaries, is 70 to 80 m. N. and S., and 30 m. E. and W. During the continuance of these convulsions the inhabitants distinguished 2 classes of earthquakes, those in which the movement was vertical, and those in which it was horizontal; the latter were regarded as far more desolating than the former. They continued until the destruction of the city of Caracas, which took place March 26, 1812. One evening, about this time, is described by the inhabitants of New Madrid as brilliant and cloudless, during which the western sky was a continued glare of vivid flashes of lightning, and peals of thunder were incessantly heard, proceeding apparently, as did the flashes, from below the horizon. In the destruction of Caracas, the whole city, with its splendid churches, was in an instant a heap of ruins, under which about 12,000 of its inhabitants were buried.—Fissures are occasionally met with in different parts of the country which extend through the solid rock to a great depth, and which were without doubt produced by earthquakes of some unknown period. A remarkable chasm of this nature may be followed

from the western base of the Shawangunk mountain at Ellenville, in Ulster co., N. Y., for about a mile to the summit. At the foot one may easily step across the fissure, but higher up it becomes wider till the hard vertical walls of sandstone are separated by a gorge several feet wide and of great depth. At the top the strata which sloped nearly with the mountain have curved over and assumed a horizontal position. An area of a hundred acres or more is here rent in every direction; the continuity of the surface is interrupted by sudden steps of rock, presenting abrupt walls, while the gorge traced up the mountain has spread out into a frightful abyss, more than a hundred feet wide. Among the loose rocks which lie upon the bottom, trees are seen growing, the tops of which hardly reach half way to the edge of the precipice.—Earthquakes of especial interest, from their late occurrence and destructive effects, are those of 1857 and 1858 of the kingdom of Naples, and of Mexico. The former commenced Dec. 16, 1857, and continued at intervals through the early part of January. In the city of Naples repeated shocks were felt, alarming the inhabitants, who often rushed from their houses into the streets, many fleeing from the city altogether. But as in former catastrophes of this nature, which laid waste the surrounding country, the city itself, though more or less injured, was singularly protected. This is supposed to be owing to the proximity of Vesuvius, which continued in eruption, discharging clouds of smoke, accompanied with terrific explosions. Resina at different times was in a continual state of vibration for hours together, the shocks appearing to proceed from the mountain. But the chief scene of destruction was in the provinces, particularly those of Principato Superiore and Basilicata. Potenza, the capital of the latter, was left without a single house inhabitable. Tito, Marsico Nuovo, Laurenzana, Porienza, Pollo, and other places, were reduced to heaps of ruins. The loss of lives was estimated by thousands; according to some statements made at the time, from 22,000 to 40,000. The late earthquake in Mexico occurred June 19, 1858. It extended throughout the valley of Mexico, demolishing many houses in the city, and also the aqueduct which supplies the city with water, and destroying property to the value of several millions of dollars. It was felt with more or less destructive effects in Guadalajara, Jalapa, San Luis Potosi, Toluca, &c. In the city of Morelis, the shock was the greatest ever experienced there, lasting 1½ minutes; and in Patzacuaro, 15 leagues further west, it was still more severe, levelling 4 churches, and many private houses. The city of Quito in Ecuador was almost entirely destroyed by an earthquake, March 22, 1859, and many thousand lives are said to have been lost. Several small towns north of the capital were destroyed at the same time.—The cause which produces the earthquake shock, and the manner in which it is communicated over vast distances in short time, have been variously explained. Slight impulses sometimes produce perceptible movements in what appears to be solid and fixed. Thus at Greenwich observatory the shutting of the outer gate has so jarred the transit telescope as to throw the star to which it pointed out of the field of view. The effect of the jarring of dams by the fall of water is also felt miles off. Various agents are well known to be at work in the interior of the earth, producing chemical changes, which are often attended with violent movements. By such forces immense columns of lava are lifted up in the craters of volcanoes, and stones of vast size are ejected. One mass of rock thrown from Cotopaxi, a distance of 8 or 9 m., was estimated to contain about 100 cubic yards of matter, consequently weighing over 200 tons. It has been suggested that many of the gases which are evolved from volcanoes may, under the immense pressure to which they are subjected in the interior, exist in a liquid or solid form, and that by a considerable increase of heat these are made to assume the gaseous form, and in doing this display an elastic power which no superincumbent mass can resist. It has been found that when powder is exploded in rocks a shock is communicated to distances varying with the quantity fired and the quality of the rock as to elasticity; and the rate of progress of this impulse has been observed to be from about 1,000 to 1,700 feet per second. Many instances have been recorded of the velocity of the earthquake shock, ascertained by noting the time at which chronometers at different localities have been stopped by it, and this has been found to vary from 1,000 to 5,000 feet per second. The movement in both these cases is no doubt of analogous character, though accompanied in the earthquake by a vastly increased display of force. Mr. R. Mallet, who has recounted these and other observations in his valuable essay on the dynamics of earthquakes, defines their efficient cause to be "a wave of elastic compression, produced either by the sudden flexure and constraint of the elastic materials forming a portion of the earth's crust, or by the sudden relief of this constraint by withdrawal of the force, or by their giving way and becoming fractured." When, as frequently is the case, the shock originates beneath the ocean, its effect is transmitted first in the wave of sound, which, rushing forward through the rocky crust of the earth at the rate of 8,000 to 10,000 feet per second, gives notice by its rumbling of the vibrating motion that is following behind. The great sea wave generated by the same movement, advances still more slowly than the vibration transmitted through the rocky strata, but at last pours in upon the land, its effects modified by the contour of the coasts and the depth of the waters through which it has passed. Lastly may come the atmospheric agitation and the sound of the outbreak, transmitted through the air. The vibrating movement imparted to the solid strata is the chief agency in the disastrous effects of earthquakes. Its rate of progress must vary with the varying elasticity

of the rocks, and a greatly increased shock must consequently be experienced in the passage of the wave from soft alluvial strata into the hard crystalline rocks, or *vice versa*. It was on this line of junction of the 2 formations that the most disastrous effects were experienced in the great earthquake in Calabria in 1783. It is by such an elastic wave, moving forward and suddenly back again, that Mr. Mallet explains the curious effects which have been observed in the twisting movement given to the blocks which form portions of columns, as if the upper stones had been partially turned around on the lower. Such effects were noticed by Darwin in the cathedral at Concepcion, and others of the same nature are described as having occurred to 2 obelisks in a convent in Calabria. The effect has also been referred to a vorticose or whirling motion, and by others to a rotary movement caused by the crossing of 2 waves of horizontal vibration. The Profs. Rogers "attribute the movement to an actual pulsation engendered in the molten matter itself by a linear disruption under enormous tension, giving vent explosively to elastic vapors, escaping either to the surface or into cavernous spaces beneath." By others the movement had previously been ascribed to elastic vapors, passing between the strata or between the crust and the fluid lava beneath it.—For further details the reader is referred to the work of Robert Mallet, C.E., and John W. Mallet, professor of chemistry in the university of Alabama, published in an octavo volume in 1858. It contains the able papers published from 1852 to 1858 in the "Transactions" of the British association for the advancement of science; that of 1858 reviewing the facts and theories of earthquakes, and illustrated by several fine maps. Mr. Mallet has also collected some interesting data respecting the distribution of earthquakes, having compiled a catalogue embracing nearly 6,000. In Guinea and southern Africa no earthquakes are recorded. The same may probably be said of Greenland. One spot in the Atlantic ocean, near the equator and about midway between Guinea and Brazil, appears to be peculiarly subject to them. Vessels passing over this tract almost always experience shocks, and the soundings are found to be subject to sudden and extreme variations, a depth of 400 fathoms being often directly succeeded by one beyond the reach of the sounding line. It is naturally inferred that this may be a submarine volcanic region.

EARTHS, in chemistry, a class of certain compounds of metallic bases and oxygen, which before the decomposition of some of them by Sir Humphry Davy were regarded as elementary bodies. The earths proper are alumina, glucina, zirconia, thoria, didymia, lantana, ceria, yttria, terbia, erbia. Silica, formerly regarded as an earth, is a combination of silicon with oxygen, and possesses the properties of an acid. The following possess alkaline properties, and are classed as alkaline earths: baryta, strontia, lime, magnesia, lithia. Excepting alumina, the pure earths are rarely seen; they are insoluble in water, and when taken up by acid solvents are precipitated white by ammonia or soda.

EARWIG, an orthopterous insect, of the family *cursoria* or runners, which also includes the cockroach; it belongs to the genus *forficula* (Linn.). All the 6 feet are formed for running; the wings are 4, the upper pair very short, coriaceous like the elytra of *colcoptera*, without veins, enclosing the under wings, which are folded both longitudinally and transversely; the mouth is formed for mastication; the body is long and somewhat flattened, and armed at the hinder end with a pair of curved blades shutting like scissors or nippers; there are 3 joints to the tarsus; the antennæ are filiform. These insects undergo a partial metamorphosis. They seem to form the connecting link between *coleoptera* and *orthoptera*, resembling the former in their elytra, and the latter in the shape of the wings and mouth, and the metamorphosis; for these reasons most English entomologists adopt for them the order *dermaptera* of Mr Kirby and Dr. Leach, considering them *coleoptera* with the metamorphosis and caudal appendages of *orthoptera*. They are common in moist earth, under stones, in decayed wood, and in similar damp and dark places; they are considered in Europe injurious to peaches, pears, apples, to greenhouse plants, and to pinks, dahlias, and other favorites of the flower garden. The full-grown insect, including its caudal forceps, is not quite an inch long, and its width is $\frac{1}{5}$ of an inch; the color is light brown. Being nocturnal insects, they creep in the daytime into any crevice or hole which can conceal them, and this has given rise to the popular belief that they enter the human ear; they might attempt this, but the waxy bitter secretion of the ear would probably prevent their entrance; there are no well authenticated instances of their doing this, and no harm could result if they did, as the drum of the ear would arrest them, and a drop or two of oil would soon destroy them by stopping up their respiratory tracheæ. The common way of catching them in England is by hanging up any convenient vessel or tube for them to crawl into in the morning, from which they are shaken and killed. In the larvæ there are no wings nor elytra, but the skin is changed several times; the nymph differs little from the perfect insect; in both these conditions they are voracious, even devouring each other. In this country there are several species, rather uncommon, and never injurious to vegetation.—The many-footed creeping animal erroneously called earwig in America (genus *iulus*), is not an insect, but a myriapodous crustacean, equally innocent of entering the human ear.

EASDALE, or EISDALE, an island of the Hebrides group, about $1\frac{1}{2}$ m. long, and of nearly the same width, and noted for its slate quarries, which have been worked 150 years. The island consists entirely of slate stone, and has been so much cut away that a large part of it is now even with or below the level of the sea.

EAST (Anglo-Saxon, *East;* the corresponding

word in many other languages having a similar etymological significance), the quarter in which the heavenly bodies rise. Due east is the direction toward the east, precisely at right angles to a horizontal meridian line; the reverse direction is due west. An object is said to bear due east when it is seen exactly in this direction; but it is said to be due east when it is on the same parallel of latitude as the observer, *i. e.*, when it may be connected with the observer by a line every point of which runs due east and west. An object that is due east will in N. latitudes bear N. of E., unless it be very near the observer, or he be very near the equator, for in other cases the parallel of latitude curves to the north, keeping at the same distance from the N. pole. A column of smoke, for example, over New York city, could it be seen at Nauvoo, would bear 5¾° N. of E., and smoke rising from Nauvoo would bear from New York 5¾° N. of W. The bearing is the direction in which a great circle from the observer through the object starts from the observer; while the course or actual direction is the direction of a line to the object cutting every meridian at the same angle. Madagascar is in a S. E. direction from New York, but bears due east. "Bearing" is sometimes used in the sense of course or actual direction instead of in the sense here given. East is a different direction for every spot on the earth's surface; at the poles there is no east or west; nor among the stars, except by reference to the nearest part of the earth's surface.

EAST FELICIANA, a N. E. parish of Louisiana, bordering on the Mississippi and Amite rivers; area, about 480 sq. m.; pop. in 1855, 14,101, of whom 10,266 were slaves. It has a moderately uneven surface, and the soil is well watered, fertile, and easily tilled. There are forests of pine, oak, and bay, and extensive plantations of sugar and cotton. In 1855 the productions were 16,970 bales of cotton, 2,464 hogsheads of sugar, 448,475 bushels of Indian corn, and 3,857 barrels of molasses. Value of real estate, $2,079,735. The parish contains a lunatic asylum and a college. Capital, Clinton.

EAST INDIA COMPANIES. The establishment of direct trade with the Indies was the aim of all the most enterprising cities and governments of early Europe. The Italian republics were long foremost in the trade, but they never entirely overcame the obstacles in the way of secure overland passage; and when the Turks were established in Europe and Africa by the conquest of Constantinople and Egypt, India became almost a closed land to the merchants of western Europe. Thus arose the necessity for a new channel of communication, less liable to interruption. Prince John of Portugal was foremost among the rulers who encouraged the then growing spirit of maritime exploration. A new way to the Indies was the dream of the day, under which Columbus discovered America, while Vasco da Gama first rounded the cape of Good Hope in 1497 and reached the Malabar coast in 1498. While the Spaniards colonized the new world, the Portuguese established themselves in India, and for nearly a century, with the help of the papal bulls in their favor, monopolized the trade, supplying all Europe with spices, silks, and Indian produce, and raising their country to the pinnacle of its wealth and power. When in 1580 Philip II. united Portugal to Spain, and presently began his war upon England, he closed the ports of his empire against British vessels. This was the first blow at the supremacy of Portuguese commerce in the East. The British were forced to get their supplies of Indian produce from the Dutch, who immediately raised the price of pepper by 200 per cent. The revolt of the Netherlands, and consequent exclusion of Dutch vessels also from Lisbon, till then the great European depot for Indian wares, at once compelled the Dutch to seek a direct passage to India. The English were not slow to follow their example, and thus during the last 10 years of the 16th century was laid the foundation in Holland and England for the great commercial corporations known to history as East India companies. After the union of Spain and Portugal, the Portuguese East India commerce, founded in 1498 and conducted on government account, was managed with laxity; all kinds of corruption grew up among officers and servants, and it was presently found that the trade was a losing business for the government. Hereupon the exclusive privilege of commerce with India was in 1587 granted to a company of Portuguese merchants, in consideration of the annual payment of a stated sum. Attempting to enforce its rights in India, the agents of this company found themselves in collision with the Portuguese government there, which was engaged in smuggling; they found the Portuguese hated by the natives, and their designs thwarted wherever possible by the Arabs. On the breaking out of the war between England, Holland, and Spain, which struck a disastrous blow at the India trade, the Portuguese company became unable to pay its annual tribute; and thenceforth it gradually declined, until in 1640 the company was finally abolished. Since that time the unimportant commerce of Portugal with India has been carried on by the crown; though an unsuccessful attempt was made in 1731 to establish another company.—The Dutch, driven from the southern passage, monopolized by the Portuguese, made three unsuccessful attempts at the opening of a way by the ocean which bounds Europe on the north. A north-east passage was never discovered, and the wars turned southward the attention of the Dutch. A "Company for Remote Parts" was formed at Amsterdam, and on April 2, 1595, 8 years after the establishment of the new Portuguese company, 4 small vessels, equipped with a capital of 70,000 guilders, sailed from the Texel under the command of Cornelius Houtmann, bound around the cape of Good Hope. Houtmann had been a prisoner, whether among the Turks or the Portuguese is uncertain, and was acquainted with the Portuguese East India trade. Several other companies, start-

ed in others of the United Provinces, finally joined that of Amsterdam, and in March, 1602, they received a charter from the states-general conferring on them the exclusive privilege of trade to the East Indies for 21 years, with the necessary civil and military powers. They began with a capital of 6,500,000 guilders; 6 towns were interested; 65 directors, chosen in stated numbers from each, equipped the vessels; 15 others had the general direction of affairs. They were so successful that in 20 years they divided among the stockholders the large sum of 30,000,000 guilders, more than 4 times the amount of the capital, beside owning vast amounts of property in colonies, fortifications, and vessels. The charter was extended to 1644; Batavia was founded; the commerce with Japan, which returned silver and copper for commodities, was extended; in 1641 Malacca, capital of the then neglected Portuguese East India possessions, fell into the hands of the Dutch by the treachery of the governor; and from 34 to 41 freighted vessels were sent out annually, of which from 25 to 34 returned loaded. Yet so rapidly did the English and French commerce increase during these years, that in 1644 the Dutch East India company could scarce command the 1,600,000 guilders required as a subsidy to the government, on again renewing its charter for 21 years. The peace of Westphalia, which secured the independence of the republic of the United Provinces, once more gave the company life. Between 1650 and 1670 they colonized the cape of Good Hope, at an expense of 20,000,000 guilders. In 1658 they succeeded in wresting Ceylon from the Portuguese; and the island of Formosa, which they then held, received a valuable colony of 30,000 expatriated Chinese, who brought industry and wealth with them. In 1661 they lost Formosa—Koxinga, a Chinese adventurer, expelling them from it. In 1663 they took possession of the most valuable Portuguese settlements on the Malabar coast. In 1666, after a prolonged struggle, they gained Macassar, and with it the monopoly of the spice trade. In 1665 the charter was with much opposition renewed till 1700, on condition of the payment of a large sum. At this time the civil and military expenses of the company, exclusive of those of the Macassar war, amounted to 3,500,000 guilders. Their report showed a prodigious extension of commerce and of territory. They held the principal seats of commerce in Ceylon, Sumatra, Java, Borneo, and in fact throughout the Indian archipelago. They commanded the trade with Pegu, Siam, Tonquin, Japan, the Banda and Molucca isles, Amboyna, &c. Batavia was then in all its glory, and the straits of Sunda on which it is situated had become, instead of those of Malacca, the channel to the further Indies. The charter was renewed in 1701, in 1741, and in 1776, the last time for 30 years, and on condition of paying down 2,000,000 guilders, with 360,000 annually. Turning their hands against every one in the East, and seeking by oppression of natives, exclusion of Europeans, and the forced production of some spices with prohibition of the cultivation of others, to rule the markets of the world and to extend and consolidate their dominion and wealth, the company was yet so exhausted by war with England and political expenses, that in 1781 the states-general were obliged to assist it with a loan. In the first French revolution it lost nearly all its possessions. The establishment of the Batavian republic, Sept. 15, 1795, terminated its existence, and the affairs of the company passed into the hands of the government. A new company was established in 1824, called the *Handel Maatschapij* or trading association. This company is the agent for the sale of the government produce in Europe, the carrier of this produce, and farms some branches of the public revenue of Java and the other Dutch East India colonies. In 1851 this company sent to Europe about $20,000,000 worth of produce, while the amount sent from the same colonies by private merchants was only about $10,000,000. The Dutch are still noted throughout the East for their narrow policy, and their extreme severity toward the natives whom they have reduced to their yoke.—A French East India company, founded in 1740, was broken up in 1770. A Danish East India company was founded in 1618, dissolved in 1634, reconstituted in 1670, and again dissolved in 1729. A new company, formed in 1732 under the name of the Danish Asiatic company, was prosperous during the 18th century, but has since declined, especially since 1845, when Denmark ceded Tranquebar and Serampore to Great Britain. A Swedish India company, established in Gottenburg toward the middle of the 18th century, and renewed in 1806, is still in existence; its operations, however, are inconsiderable. —The English endeavored to open commercial intercourse with India as early as 1553, during the reign of Edward VI.; but their expeditions sent out overland failed of reaching their destination, from want of geographical knowledge. The next attempts were made by sea, the belief being that a north-west passage about the upper part of the newly discovered American continent was practicable, and that this would give to England a channel to the Indies, over which the pope (who, in his capacity of chief of Christendom, had granted to the Portuguese the exclusive right to pass round the cape of Good Hope, a right which was long respected) would have no control, and which would enable them to compete successfully with the Portuguese. John Cabot, looking for India in 1497, had discovered Newfoundland. In 1553 his son Sebastian took charge of 3 vessels, to discover a north-east passage to India. This was sent out by a company chartered by Edward VI. with a capital of £6,000. In 1581 the English Turkish company endeavored, but without success, to pass overland to India. Meantime the desire for Indian wealth, the arbitrary closing of the Portuguese markets against British and Dutch, and the impossibility of going to India by the north, all conspired to make the British mer-

chants lose respect for the pope's bull and its prescribed boundaries, and to set out for India by the forbidden route. On Sept. 22, 1599, a company of London merchants was formed, representing a capital of £30,133, which received a charter from Queen Elizabeth, Dec. 31, 1600, under the title of the "Governor and Company of Merchants of London trading with the East Indies." The charter was for 15 years, and granted the exclusive right of trading to all countries from the cape of Good Hope eastward to the straits of Magellan, excepting those which were possessed by friendly European powers. The first Englishman who sailed to India by way of the cape of Good Hope was a Capt. Stephens, in 1582. Sir Francis Drake and Thomas Cavendish followed by way of Cape Horn. The latter sailed from England in July, 1586, in a small squadron fitted at his own expense, explored all the Indian ocean as far as the Philippines, and returned with a valuable stock of information in Sept. 1588. Two large Portuguese carracks laden with all the riches of the Indies fell into the hands of the English about 1593, and, beside rousing the cupidity and enterprise of their captors, were found to possess documents and charts of the greatest importance to the merchants shortly to adventure a trading expedition into unknown parts. These circumstances facilitated the formation of the company, of which Thomas Smythe, Esq., was the first governor, assisted by 24 directors named in the charter. The charter empowered them to elect a governor and directors and other office-bearers; to make by-laws for their government; to inflict punishments, corporal or pecuniary, on those in their employ, provided such punishments be within the laws of Great Britain; to export all goods duty free for 4 years, and to export foreign coins as bullion to the amount of £30,000 a year, £6,000 of the same being previously recoined at the mint; with the proviso, however, that they must import within 6 months from the conclusion of every voyage after the first an amount of specie equal to that before exported. It was also provided that should the company not be found to the public advantage, its charter might be cancelled after 2 years' notice given. There does not seem, after all, to have been very great zeal in fitting out vessels. Many of the stockholders did not pay up, and until 1613 but a small part of them united at all in the speculation, and these each on his own account, only using the ships of the company, and conforming to certain other regulations. The first expedition to India sailed under command of Capt. Lancaster, Feb. 15, 1601, from Torbay. It consisted of 5 ships, varying in size from 130 to 600 tons, having a cargo of bullion, iron, tin, broadcloths, cutlery, glass, &c. The entire venture, ships and all, was valued at £69,091. It arrived at Acheen, Sumatra, June 5, 1602. Lancaster made treaties with the kings of Acheen and Bantam, and returned to the Downs, Sept. 11, 1603, with a cargo of pepper and other produce, and a prize—a richly laden Portuguese carrack of 980 tons burden, taken with the aid of a Dutch vessel. For several years the expeditions were not increased in size or value, but were generally fortunate in their results. The profits for the first 8 years were stated at 171 per cent.; but when it is remembered that a voyage lasted from 2½ to 4 years, that long credits were given for goods sold, and that consequently it was often 6 to 8 years from the beginning of a voyage ere its accounts were settled, the profits were not so enormous as they look; and taking into consideration the real and the fancied risks, it is not surprising that the business of the company did not more rapidly enlarge. The profits of the trade with the islands were never very satisfactory, however. In 1607 Capt. Hawkins was sent out to endeavor to establish commercial intercourse with the dominions of the Great Mogul. His mission proved of no avail, the Portuguese intriguing successfully against him. In 1612 Capt. Beal obtained from the court at Delhi several considerable privileges, among which was that of establishing a factory at Surat, which city became at once the chief British station in India, until the organization of Bombay. Factories were depots for goods, fortified, in order to protect the lives and property of resident representatives of the company. They invariably proved the entering wedges for territorial aggrandizement on the part of the Europeans. In 1613 the capital of the company was united; the largest stockholders took the management of affairs, and these were so prosperous that in the course of 4 years the shares of the company rose to the value of 203 per cent., while its factories were extended to Java, Sumatra, Borneo, the Banda islands, Celebes, Malacca, Siam, the Coromandel and Malabar coasts, but chiefly to the dominions of the Great Mogul, whose favor the company had secured, after divers fruitless attempts. From the beginning of the company's trade to July, 1620, they had sent 79 ships to India, of which 34 had come safely home richly laden, 4 had been worn out in India, and 20 had been lost—2 by careening, 6 by sea perils, and 12 captured by the Dutch. At that time (1620) the capital of the company in ships, goods in India, &c., amounted to £400,000; they had exported from England to India the value of £840,376; had imported what cost £356,288 in India, which brought no less than £1,914,600 in England; and finally quarrels with the Dutch, their most energetic rivals, had occasioned losses to the amount of £84,088. In 1616 a new stock subscription had been opened, and £1,629,040 was raised. But in 1627 complaints were made of abuses and bad management in the company; during the reign of the Stuarts there was much murmuring against the monopoly, and Charles I. in 1635 gave to Sir William Courten and several private individuals the right to trade to India. In 1645 permission was given by the natives to the company to build Fort St. George at Madras. In 1655 Cromwell attempted, but vainly to make the

East India trade free. In 1657 he renewed the company's charter, which was confirmed by Charles II. in 1661, who at the same time conferred on them the further powers to make peace or war with any power not of the Christian religion; to establish fortifications, garrisons, and colonies; to export ammunition and stores to their settlements duty free; to exercise civil and criminal jurisdiction in their settlements according to English law; and to seize and send to England all Englishmen found trading on their private account. The years 1667–'68 witnessed the beginning of the tea trade—a branch of commerce which in a very few years proved to be of vast importance to the company. In 1669 the island of Bombay was granted to the company by Charles II., who had received it as part of the marriage portion of the princess Catharine of Portugal; but its possession was not secured without a long struggle between the English and the Portuguese residents. In 1676 a factory was established on the banks of the Hoogly, which formed the foundation of Calcutta; and other factories were shortly started in Bengal. In 1677 the company received a renewal of its charter, with indemnity for past misuses, and permission to establish a mint at Bombay. In 1681, by a report of the governor, the company had 35 ships, of from 100 to 700 tons, trading between India and England, or coastwise in India; and the exports from England of lead, tin, cloth, stuffs, &c., amounted to from £60,000 to £70,000 a year. The trade was astonishingly small; the affairs of the company were not prosperous, and in 1688 doubts were thrown upon the validity of its charter by the numerous interlopers and free traders to India. In 1693, after a heavy struggle, it received a renewal of its charter. In 1694 a vote of the house of commons threw open the trade to all England. In 1698 a new company received a charter (conferring much the same privileges as those of the old one), for the consideration of a loan of £2,000,000 to the state. The two companies could not live independently, and in 1702 they were united, under the title of "The United Company of Merchants trading to the East Indies." They advanced a further sum to the state, making in all a loan of £3,200,000, at 3 per cent., in consideration of which their charter was extended until the expiration of a notice of 3 years, which could not be given sooner than March, 1726, nor until the money borrowed by government should be repaid. The act ratifying this was passed in 1708. By it the local affairs of the company were intrusted to the 3 councils of Madras, Bombay, and Calcutta, while the general direction was retained in England. Meanwhile, in 1698 the company had acquired a grant of Calcutta and two adjoining villages, with right of jurisdiction over the inhabitants, and leave to erect fortifications, which was immediately done. In 1701 an act prohibited the importation into England of manufactured Indian goods. In 1715 an embassy to the emperor Feroksere obtained from him various highly important concessions for the company, among which were liberty for them to purchase the lordship of 37 towns contiguous to Calcutta, to sue and have given up to them all persons in Bengal indebted to them, and leave to pass goods for exportation duty free through the province. In 1732 the renewal of the charter was obtained with much difficulty. In 1744 the company bought its extension to 1780 by a loan of £1,000,000 at 3 per cent.—The political power of the British in India began in 1748. The acquisitions of the company were inaugurated in 1749 by its expulsion and ultimate protection of the rajah of Tanjore, he making some concessions of territory on each occasion of the British exercise of protection. In 1757 they deposed Surajah Dowlah, nabob of Bengal, gaining thereby several large and rich provinces. In 1761 the defeat of the French left the English free to pursue their schemes of aggrandizement in India. In 1792 Tippoo Sahib was compelled by Cornwallis to give up half his dominions, and £3,500,000 in bullion. In 1799 Seringapatam was taken, Tippoo slain, and some more territory annexed. Subsequently, by war with the Pindarees, with Burmah, Nepaul, the Afghans, &c., and by judicious protection, interference, and annexation, the company mastered the whole of Hindostan, with small exceptions. The sudden increase of territory and power in India threw every thing into confusion. Corruption reigned everywhere. The revenues fell short of expenses, and in 1772 the company, notwithstanding its immense possessions and privileges, was obliged to raise a loan of £6,000,000 from the bank of England, and of £1,400,000 from government, for current expenses. In 1773 reform was called for, but only incompletely effected. In 1781 the privileges of the company were extended to 1791, with 3 years' notice; the dividend on its stock was fixed at 8 per cent.; £400,000 was to be paid as an annual subsidy to the government, and ¾ of the surplus revenue after paying the subsidy was to go to the government, ¼ to the company's use. Yet in 1780 the East India trade formed only $\frac{1}{33}$ part of the entire foreign trade of the empire. In 1783 the company was again so involved, on account of wars, &c., as to be unable to pay the subsidy. In the same year, on the proposition of Mr. Pitt, a board of control was appointed. It consisted of such members of the British privy council as the sovereign of England chose to appoint, the 2 principal secretaries of state and the chancellor of the exchequer being 3 of the members. The president was usually a cabinet minister. The salaries of the president, paid commissioner, and secretary were paid by the company. In 1793 the charter was prolonged to 1814. From that date the charter was again prolonged 20 years, but the trade to India was substantially thrown open, though the monopoly of the trade to China was continued, and did not cease till 1834. Parliament in 1833 granted a new charter, by which: 1, the company ceased to be a trading

association; 2, it was continued in the government of India for 20 years, that is, until April, 1854, subject, however, to the authority of the board of control; 3, India was thrown open to the independent enterprise of British subjects; 4, all the property, real and personal, in possession of the company on April 22, 1834, was vested in the crown, and was to be held and managed by the company, in trust for the crown; the stockholders were assured by government an annual dividend of 10½ per cent. on the stock; 5, of the treasure of the company, valued in 1834 at £21,103,000, £2,000,000 was formed into a sinking fund, with the proceeds of which, in or after 1874, to buy out the stockholders at 200 per cent. valuation; £8,423,000 was consumed in the payment of the company's debts, and the balance was appropriated to various improvements in India; 6, the stock might be bought in by parliament at the rate of £200 for £100, any time after 1874, with the further condition that if at any time after 1854 the company were deprived by parliament of the government of India, stockholders may demand of parliament to purchase their stock, after 3 years' notice given. When, in 1854, the last charter of the company expired, it was determined by act of parliament to renew it, but not for any given time.—The capital stock, originally £2,000,000, had been increased at various times, till in 1793 it amounted to the sum of £6,000,000. At this it remained by law. This stock was owned in 1835 by 3,579 persons. As it was marketable, of course the number of stockholders continually changed. The ownership of stock to the amount of £1,000 (worth in 1835 £2,540) gave the privilege of one vote at the stockholders' meetings. The owner of £3,000 had two votes, of £6,000 three, of £10,000 and over, four. Women as well as men, and foreigners as well as Britons, if owning the requisite amount of stock, and present in London in person or by proxy, had the privilege of debating and voting. Stock must, however, have been held 12 months before the owner was entitled to a vote. In 1852 there were 2,583 voters, of whom 372 were women, 20 were peers of the realm, 10 members of parliament, 50 ex-directors, 86 clergymen, 19 physicians, 222 army officers, and 28 naval officers. Before 1836 the majority of the stockholders were merchants and bankers. The changes in the constitution, which extinguished the company as a trading association, caused a material lessening of the number of merchant stockholders. The stockholders met quarterly, in March, June, September, and December. Those owning £500 and upward of stock were permitted to be present. In 1835, 53 members had 4 votes, 54 had 3, 347 had 2, 1,454 had 1; 221, owning £500 each, were present without voting, and 396, owning smaller amounts, had no share whatever in the government. Special meetings could be called at any time at the instance of 9 holders of £1,000 each. Should the court of directors refuse to call a meeting after 10 days, the 9 stockholders took the matter in their own hands, and posted the call upon the pillars of the royal exchange. Voting was *viva voce;* the open ballot might, however, be called for by any 9 of the voting stockholders. The attendance was generally small, and in many important cases the directors, who were always present, had matters all their own way. Thus in 1854, a Mr. Levin brought before the stockholders' meeting the case of a judge in the Soodra court of Bombay, who had been dismissed by the court of directors. The question on reinstating the judge came up; 19 stockholders and 1 director were in favor of reinstatement, but 9 stockholders and 15 directors were against it, and the appeal fell to the ground. Thus the court of directors actually decided upon an appeal from themselves. A similar case occurred in 1856, when the same Mr. Levin opposed, in general meeting, the directors' donation of £5,000 to the marquis of Dalhousie. The court of directors was originally composed of 24 stockholders, qualified by the ownership of at least £2,000 of stock. Should a director sell out his stock, he ceased to hold office. Six were elected each year to serve for 4 years. After 12 months out of office members were eligible to reëlection. Directors must be British subjects. The act of 1853 changed the number and component parts of the court. It has since consisted of 18 members, of whom, by the act, 12 are elected by the stockholders, and 6 are chosen by the crown from men who have served a certain time in India. A third of each part go out of office each year, but may be immediately reappointed. In 1834 the court consisted of 10 former civil officers of the company, 4 army and 4 navy officers, 3 India merchants, and 9 bankers. Since then the number of London bankers has decreased, while the number of company men has increased. At that time (1835) 2 of the directors had held office 30 years, 2 between 20 and 30 years, 11 between 10 and 20, and 15 under 10 years. The directors choose annually from among themselves a chairman and deputy chairman, to serve one year each. The court meets once a week, and oftener if business requires. Nine members form a quorum. Absentees are fined 19*s.*, and the fines are divided once a year among the directors, so that even the absentees receive back a portion of their fines. Voting is by secret ballot. The deputy chairman is generally chosen chairman upon the expiration of his term of office. In case of a tie vote upon any question, the treasurer of the court decides the same by drawing lots. The directors had the initiative among the stockholders upon all questions of Indian government. For purposes of expediting business the members were annually divided into 3 committees: one on finance, and interior and marine interests connected therewith; the second on politics and war; and the third on the judicial and legislative interests. The chairman and deputy chairman were members of all these committees. The committees were formed according to seniority in the court; but after

the first meeting exchanges were permitted for good cause. The most important part of the court of directors, however, was the secret committee. To this, composed of the chairman, deputy chairman, and the senior director, were referred all communications of a confidential and delicate nature between the board of control (the chief power) and the court. The despatches of the board as to political matters were transmitted through the hands of the secret committee, and might be sent on by them without being submitted to the court. The members of this committee were sworn to secrecy, and had no secretary. The directors had a salary of £500, and the chairman £1,000. The chief privilege of directorship, however, was that of making appointments; the directors filled all vacancies, not only in the English branch of the company's service, but also in all the subordinate functions in India. They were thus enabled to provide for friends and relatives. The board of control, the governing power in the company, consisted at first of 6 members, but afterward the sovereign had the privilege of appointing what appeared to be a suitable number, of whom the lord president of the council, the lord privy seal, the first lord of the treasury, the two principal secretaries of state, and the chancellor of the exchequer, must form part. The president of the board received a salary of £3,500; two secretaries, who must be members of parliament, received £1,500 each. There were a number of assistant secretaries, writers, &c. The expenses of the board were limited to £26,000 per annum, paid by the East India company. The powers of the board gradually grew, until long before its abolition in 1858 it had become a court from whose decisions there was no appeal.—The total expense of the company's military force in the East Indies in 1856 was £10,229,584. The estimated receipts of the home treasury for the year ending April 30, 1858, amounted to £11,649,387 (including the balance from the old account), and the disbursements to £8,930,330, leaving an estimated balance in favor on April 30, 1858, of £2,719,057. The debts of the Indian government in England on May 1, 1857, amounted to £9,377,401, and the credits to £5,488,467, leaving a surplus of debts of £3,888,934. The establishment of the company in England entailed a yearly charge of £133,622 for 525 employees, and the amount of new or increased salaries created or granted between May 1, 1856, and May 1, 1857, was £6,467.—The recent disturbed state of the British possessions in the East in 1857–'8 called public attention more forcibly than at any previous period to the management of Indian affairs by the company; and after much discussion on the subject in parliament and in the press, an act "for the better government of India" was passed, Aug. 2, 1858, by which "all the territories heretofore under the government of the East India company are vested in the British queen, and all its powers are to be exercised in her name, one of the principal secretaries of state to have all the powers hitherto exercised by the company or by the board of control. The military and naval forces of the East India company are to be deemed the forces of the queen, and all persons holding any office, employment, or commission in India are transferred to the service of the crown. All functions and powers of the courts of directors and proprietors are to cease, together with the salaries paid, and the board of control is likewise abolished." This act, however, although depriving the East India company of all its power and importance, does not abolish it, and provides for the manner in which the directors shall hereafter be appointed; but its functions are now almost exclusively confined to the administration of the stock and the distribution of the fixed interest or dividends upon the old share capital of the proprietary body of the company.

EAST INDIES, a vague geographical term applied to southern Asia east of the Indus, and to the adjacent islands. The name India is unknown to the people of the countries so designated, and was derived by the languages of modern Europe from the Greeks, who probably borrowed it from the Persians; and it is doubtless a modification of the Sanscrit *Sindhu*, the appellation of the Indus and of the people on its banks. It was unknown to the earlier Greeks, and is mentioned neither by Homer, Pindar, nor the great dramatists. The later Greeks used it to signify an indefinite extent of country lying beyond the Indus, of which they had a very imperfect knowledge. The modern Europeans applied it in much the same way until after the discovery of America. Columbus supposed that he had reached India by sailing westward, and the lands discovered by him and the other Spanish navigators in the western hemisphere were for a time collectively known as India. The king of Spain assumed the title of king of the Indies, and the council for the colonies was styled the supreme council of the Indies. When the mistake was discovered, the distinctive term West Indies was applied to America, and that of East Indies to Asiatic India. In process of time the term West Indies became restricted to the islands lying between North and South America, and the term India to the two peninsulas of Hindostan and Further India, or India beyond the Ganges. The latter country is also called Chin-India or Indo-China, and in its most restricted sense the term India now includes only Hindostan. The term East Indies, as vaguely and popularly used, comprises Hindostan, Burmah, Siam, Laos, Anam, Malacca, Ceylon, Sumatra, Java, Borneo, Celebes, the Sunda and Banda islands, the Moluccas, the Philippines, and the rest of that vast archipelago, and is sometimes extended even to China and Japan.

EAST RIVER, a strait about 18 miles long, and between New York and Brooklyn about ¼ of a mile wide, connecting New York bay with Long Island sound. It leaves the sound at a point called Throg's neck, where there is a lighthouse with a fixed light, and where the

strong fortress of Fort Schuyler defends the E. approach to New York; and it enters the bay to the S. E. of Manhattan island, between the metropolis and Brooklyn. It also communicates with the Hudson by a narrow channel called the Harlem river, which forms the N. boundary of Manhattan island. It has a rapid current caused by the tide from the Atlantic, which, gathering force as it flows W. into the narrowest part of the sound, reaches its greatest height in the East river, arrives at New York ¼ of an hour earlier than that which rises in the bay, and drives upward along the E. shore of the Hudson many miles in advance of the tide on the W. shore. The East river is navigable by vessels of the largest size, and is crossed by numerous steam ferries. It contains several islands, and has a pass called Hellgate, 7 m. from New York bay, the navigation of which is attended with considerable danger. Some of the most serious obstructions have recently been removed by a new method of blasting, which consists of simply exploding the powder on the rock by means of an electric spark, the superincumbent mass of water acting with a resisting force powerful enough to break the rock without the necessity of boring.

EASTBURN, James Wallis, an American author, born in England in 1797, died on the passage from New York to Santa Cruz, Dec. 2, 1819. He was graduated at Columbia college, New York, and subsequently studied theology under Bishop Griswold at Bristol, R. I., with a view of taking orders in the Protestant Episcopal church. While thus employed, with occasional assistance from Robert C. Sands, a former college associate, he undertook a new metrical version of the Psalms, which he did not live to complete. At the suggestion of Eastburn the two friends commenced, in Nov. 1817, and finished before the succeeding summer, "Yamoyden," a romantic poem founded on the history of King Philip, the sachem of the Pequots. With many marks of youth and inexperience, it has merits of a high order, and for a joint production of juvenile authors may be considered a remarkable performance. He also wrote several fugitive poems, some of which are very gracefully versified. In 1818 Mr. Eastburn was ordained, and left New York to take charge of a parish in Accomac, Va. Failing health interfered with the discharge of his duties, and he sailed from New York for Santa Cruz to try the effects of a change of climate, but died a few days after embarking.

EASTBURN, Manton, D.D., an American clergyman, brother of the preceding, bishop of the Protestant Episcopal church in Massachusetts, born in England, Feb. 9, 1801. His parents came to the United States when he was a boy, and settling in New York, he was educated in that city, and was graduated at Columbia college in 1817. After suitable preparation, he was ordained in May, 1822, was assistant minister of Christ church, New York, for a few years, became rector of the church of the Ascension in 1827, and gathered under his ministry a large and influential congregation. He was consecrated assistant bishop of Massachusetts in Trinity church, Boston, Dec. 29, 1842, and on Bishop Griswold's death, Feb. 15, 1843, became bishop of the diocese. Dr. Eastburn was appointed lecturer on poetry in Columbia college, but declined the appointment; in 1825 he delivered 4 lectures on Hebrew, Latin, Italian, and English poetry before the New York Athenæum; in 1829 he contributed a portion of a volume of "Essays and Dissertations on Biblical Literature;" in 1833 published his "Lectures on the Epistles to the Philippians," a volume which met with considerable favor; and in 1837 he delivered the oration at the semi-centennial anniversary of the incorporation of Columbia college. He has edited Thornton's "Family Prayers."

EASTER, the festival of the resurrection of our Lord, or the Christian passover. The English name Easter and the German *Ostern* have been supposed by some writers to be derived from the name of the feast of the Teutonic goddess Ostera (the goddess of spring), which was celebrated by the ancient Saxons in the spring, and for which the early missionaries substituted the Christian festival. According to Adelung, both the English and the German words are derived from the old Saxon word *oster*, *osten*, which signifies rising, because nature arises anew in the spring. According to the Mosaic law, the passover among the Jews was celebrated on the 14th day of the month Abib, afterward called Nisan, that is, within a day or two before or after the vernal equinox. The early Christians differed in regard to the time of celebrating Easter. The churches in the West, taught, as they declared, by St. Philip and St. Paul, observed the nearest Sunday to the full moon of Nisan, without taking account of the day on which the passover was celebrated. The Asiatic churches, on the other hand, in accordance as they said with the tradition derived from St. John, followed the Jewish calendar, and adopting the 14th of Nisan as the day of the crucifixion, celebrated the festival of Easter on the 3d day following, whatever day of the week that might be. From this circumstance they were called Quartodecimans. The dispute on this point in process of time became serious, and neither side was able to convince or convert the other. The venerable Polycarp, bishop of Smyrna, went to Rome, A. D. 158, and had a conference with Anicetus on this subject. Forty years later, Victor, bishop of Rome, was appealed to, and was very peremptory in requiring the Asiatic bishops to conform to the rule of the western church. This they refused to do, and Polycrates of Ephesus, in behalf of his brother bishops, sent Victor word that they had resolved to maintain the custom which they had received from their fathers. Victor then went so far as to break off communion with the eastern churches, for which he was rebuked by St. Irenæus of Lyons. After this the contending

parties agreed to maintain their respective customs and practices on this subject, without censuring one another. Saving occasional disputes, matters continued in this state until the time of Constantine, who had the subject brought before the council of Nice (A. D. 325). The question was fully discussed, and finally settled for the whole church by adopting the rule which makes Easter day to be always the first Sunday after the full moon which happens upon or next after March 21; and if the full moon happen on a Sunday, Easter day is the Sunday after. By this arrangement Easter may come as early as March 22, or as late as April 25.—This sacred festival has been termed the queen of festivals; it has been observed from the very beginning, and it is celebrated in every part of the Christian world with great solemnity and devotion. The primitive Christians very early on the morning of Easter saluted each other with the words: "Christ is risen;" to which the response was made: "Christ is risen indeed, and hath appeared to Simon." The Greek church still retains this custom. In nearly all Christian countries the recurrence of Easter has been celebrated with various ceremonies, popular sports, and superstitions. Among the best known is the English custom of making presents of colored eggs, called pasche or paste eggs, which were often elaborately ornamented; and in a royal roll of the time of Edward I., preserved in the tower, appears an entry of 18*d.* for 400 eggs to be used for this purpose. Colored eggs were used by children at Easter in a sort of game which consists in testing the strength of the egg shells, and this practice is retained in many places in England and the United States. In some parts of Ireland the legend is current that the sun dances in the sky on Easter Sunday morning. This was once a prevailing superstition in England also, which Sir Thomas Browne, the author of "Inquiry into Vulgar Errors," thought it not superfluous to declare unfounded. The game of ball was a favorite Easter sport, in which municipal corporations formerly engaged with due parade and dignity; and at Bury St. Edmund's within a few years the game was kept up with great spirit by 12 old women. In the northern counties of England on Easter Sunday the men parade the streets and claim the privilege of lifting every woman 3 times from the ground, receiving in payment a kiss or a silver sixpence. The same is done by the women to the men on the next day. In a part of Oxfordshire, after evening service on Easter Sunday, men and women used, as late as 1822, to throw great quantities of apples into the churchyard, and those who had been married during the year threw 3 times as many as the rest; after which all went to the minister's house and feasted on bread, cheese, and ale. A less innocent custom once prevailed in France of stoning Jews at this season; and Dulaure in his "History of Paris" tells us that Aimeric, viscount de Rochechouard, having visited Toulouse at Easter, the chapter of St. Étienne appointed his chaplain Hugues to beat a Jew in his honor, an office which was performed so zealously that the victim expired on the spot. In England it was common for the boys to run about the streets on Easter morning crying:

> Christ is risen, Christ is risen;
> All the Jews must go to prison.

To mark their abhorrence of Jews, the English used also to make a point of eating bacon on this festival, but with it they had tansy pudding, a relic of the bitter herbs of the passover.

EASTERN EMPIRE. See BYZANTINE EMPIRE.

EASTLAKE, SIR CHARLES LOCK, an English painter, born in Plymouth in 1793, studied under Fuseli at the royal academy, London, of which institution he was made president in 1850, after having given evidences of proficiency in his art by a great variety of pictures, of which his "Christ weeping over Jerusalem," his "Escape of Francesco di Carrara," and his "Pilgrims arriving in sight of Rome," are the best. He visited France, Italy, and Greece, and then settling for some time in Rome, found many opportunities for painting pictures illustrative of Italian life. Among his early paintings is an interesting portrait of Napoleon I., as he appeared on board the Bellerophon, and the most famous of his poetical pictures is an illustration of a passage in Byron's "Dream." In 1850 he was knighted, and in 1855 appointed director of the national gallery, with a salary of £1,000. He has translated Goethe's *Farbenlehre* into English, and written much on art. He married Miss Elizabeth Rigby, author of "Letters from the Shores of the Baltic" (1841), "Livonian Tales" (1846), and other writings.

EASTMAN, CHARLES GAMAGE, an American poet and journalist, born in Fryeburg, Me., June 1, 1816, removed at an early age with his parents to Barnard, Vt., in 1829 commenced his preparatory studies at the academy in Royalton, Vt., continued them at Windsor, and finished them at Burlington, in 1837. He was principal editor of the Burlington "Sentinel" in 1835–'6; commenced the "Lamoille River Express" newspaper at Johnson, Vt., in the spring of 1838; established the "Spirit of the Age" at Woodstock, Vt., in 1840; and purchased the "Vermont Patriot" and removed to Montpelier in 1846. He was postmaster at Woodstock and Montpelier for several years, senator for Washington county in 1851–'2, district delegate to the democratic national convention in 1852, candidate for elector and delegate at large to the national convention in 1856, and candidate for congress in 1858. He published a volume of poems in 1848, which was well received by the public. He has been until of late years a liberal contributor of poetry to reviews and magazines, and his poems pronounced at Dartmouth, university of Vermont, and other colleges, have gained a high reputation. He resides at Montpelier, and continues to be editor and proprietor of the "Vermont Patriot."

EASTMAN, Mary Henderson, an American authoress, born in Warrenton, Fauquier co., Va., about 1817. She was married in 1835 to Capt. Seth Eastman, of the U. S. army, with whom she resided for many years at Fort Snelling, Min., and at other frontier stations. She has published "Dacotah, or Life and Legends of the Sioux" (New York, 1849); "Romance of Indian Life" (Philadelphia, 1852); "American Aboriginal Portfolio" (1853); and "Chicora and other Regions of the Conquered" (1854). In 1852 Mrs. Eastman published "Aunt Phillis's Cabin," intended as a reply to Mrs. Stowe's "Uncle Tom's Cabin," and which reached a sale of 18,000 copies in a few weeks. She is also the author of "Tales of Fashionable Life," and of many tales and sketches for "Arthur's Home Magazine," and other periodicals.

EASTON, a borough and the capital of Northampton co., Penn., on the right bank of the Delaware river, between the mouths of Lehigh river and Bushkiln creek, 56 m. N. from Philadelphia; pop. in 1859, about 10,000, exclusive of the adjoining borough of South Easton and village of Glendon, on the opposite bank of the Lehigh, containing not less than 3,000 inhabitants. Excepting the eastern part of the town, the site is hilly, but the plot is nevertheless very regular, and the streets are wide and at right angles. The town has a public square, is lighted with gas, and supplied with water from a spring at a distance of one mile, and from the river. The height of reservoirs on the surrounding hills is so great that in a large portion of the town fires are extinguished without the aid of engines. The Delaware is spanned by 2 bridges, one of them a handsome railroad bridge of wood about to be replaced by iron, and the other a fine wooden bridge 570 feet long, erected at a cost of $80,000. Bushkiln is spanned by 3 long and substantial stone bridges and one of wood, and the Lehigh by 2 fine wooden bridges. Beside an extensive high school, an academy, and 2 other schools, situated on a tract of land set apart perpetually for educational purposes, Easton contains several other academies, &c., and a public library of 4,000 vols. It is also the seat of Lafayette college founded in 1832 with its normal school, having in 1858 6 professors, 100 students, and a library of 4,500 vols. There are 2 banks with an aggregate capital of $500,000; 5 weekly and 2 daily newspaper offices; 11 churches (1 Baptist, 1 Dutch Reformed, 1 Episcopal, 1 German Reformed, 2 Lutheran, 1 Methodist, 2 Presbyterian, 1 Roman Catholic, 1 Universalist), and 2 Jewish synagogues. A handsome cemetery of 40 acres was commenced in 1849 on picturesque and broken ground overhanging the Bushkiln creek, in which is erected a monument over the remains of George Taylor, one of the signers of the declaration of independence, who lived and died in Easton. There is also a farmers' and mechanics' institute, incorporated in 1856, whose buildings and grounds, erected and prepared at considerable expense, cover 30 acres, where fairs are annually held. Being the outlet of a rich agricultural country, Easton has always manufactured, and formerly exported, a large amount of agricultural products, which at this time are more generally absorbed by home consumption. As late as 1851, however, it exported over 110,000 barrels of flour, 50,000 barrels of corn meal, and 14,000 barrels of whiskey. In 1850 there were in the town, and within a few miles circuit, 18 grist mills, 6 saw mills, 1 planing mill, 3 oil mills, 3 tanneries, 5 founderies, 2 large blast furnaces, 1 wire factory, 7 distilleries, 2 cotton factories, and 2 rifle factories. The surrounding country contains inexhaustible deposits of the best iron ore, which is largely manufactured here; and within 12 miles are found large deposits of the best zinc ore, which is manufactured near the mines. In the immediate vicinity of Easton are 3 large blast furnaces, which manufacture about 30,000 tons of pig iron annually. Easton is at the terminus of the celebrated Lehigh valley, which is the route through which the Lehigh canal and Lehigh valley railroad penetrate the great anthracite coal formation. The avenues from Easton to market are the Delaware river, Delaware canal, Belvidere Delaware railroad, and Lehigh valley and north Pennsylvania railroads to Philadelphia, and the Morris canal and central railroad of New Jersey to New York. By the Warren railroad and the Delaware and Lackawanna railroad it has unbroken communication with the railroads of New York and with the lakes. The borough was laid out in 1738 and incorporated in 1789. The Six Nations and 7 other Indian tribes met here in council in 1758 with the governors of Pennsylvania and New Jersey and Sir William Johnston. Gen. Washington made it in the revolution a place of deposit for numbers of British prisoners; and in 1779 Gen. Sullivan made it the rendezvous of a body of troops previous to his campaign against the Indians.

EASTPORT, a township of Washington co., Me., situated upon the boundary line between that state and the province of New Brunswick; pop. in 1858, 4,650. Its area is little more than 3 sq. m., comprising Moose island and several smaller islands in Passamaquoddy bay. It was incorporated in 1798. The village is compactly built on the S. E. shore of Moose island, and communicates with the mainland by a covered bridge 1,200 feet long to Perry, and by ferries to Lubec and other places. It has a spacious harbor, in which the tides rise over 25 feet, and which is never blocked up by ice. In the season of navigation steamers run daily up the river St. Croix to St. Andrew's and Calais, and semi-weekly to Boston, Portland, and St. John, N. B. It contains 7 churches, 6 large school houses, a bank, a railway for repairing vessels, gas works, a weekly newspaper office, and a public library. The trade with the neighboring British provinces is large, ship-building is an important branch of industry, and lumber is exported in considerable quantities. It is also the centre of an extensive fishing business; at

times 200 or 300 boats may be seen employed in fishing within sight of the town, and large quantities of herrings are taken in weirs about the shores of the bay. Easton is the port of entry for the extensive collection district of Passamaquoddy. A fine brick and stone custom house was built by the federal government in 1850 at an expense of $36,500. The shipping of the district amounted, on June 30, 1858, to 17,490 tons registered, and 7,736 tons enrolled and licensed. On July 11, 1814, the place was captured by a British force under the command of Lieut. Col. Pilkington and Capt. Sir Thomas Hardy. It was claimed as included in the original limits of the province of New Brunswick, and the British commissioners at Ghent refused to agree to the surrender of the islands in Passamaquoddy bay. The matter was referred to another commission, and on June 30, 1818, the place was surrendered to the United States. During the 4 years of military occupation it was governed by martial law. Fort Sullivan, which stands on a hill in the midst of the village, is now without a garrison.

EATON, a central co. of Mich., intersected by Grand river; area, 576 sq. m.; pop. in 1850, 7,058. The surface is undulating; the northern and middle parts are occupied by dense forests, and in the south are plains over which are scattered oak trees. The soil is generally a deep calcareous and sandy loam, suitable for grain, potatoes, maple sugar, and pasturage. The productions in 1850 were 50,860 bushels of wheat, 73,212 of Indian corn, 44,290 of oats, 7,207 tons of hay, 23,769 lbs. of wool, and 210,167 of maple sugar. There were 2 churches, 1 newspaper office, and 2,192 pupils attending public schools. Capital, Charlotte.

EATON, a post village of Washington township, and capital of Preble co., Ohio; pop. in 1853, about 1,600. It is situated on a fine mill stream called Seven Mile creek, in the centre of a rich agricultural country, 46 m. from Cincinnati, with which city it has communication by means of the Eaton and Hamilton railroad. About one mile W. from Eaton is the site of Fort St. Clair, which was built during the winter of 1791–'2. General Harrison, then an ensign, commanded the guard during its erection. The village was laid out in 1806.

EATON, Horace, governor of Vermont, born in Barnard, Windsor co., Vt., June 22, 1804, died in Middlebury, Vt., July 4, 1855. He was graduated at Middlebury college in 1825, received the degree of M.D. in 1828, and practised medicine at Enosburg, Vt., from 1828 to 1848, when he accepted the professorship of chemistry and natural history in Middlebury college, performing its duties until the autumn of 1854, when he resigned by reason of ill health. He was repeatedly a member of the state legislature, was lieutenant-governor of Vermont in 1843, and twice reëlected, and was governor of Vermont from 1846 to 1848. From 1845 to 1850 he was state superintendent of common schools. He was a member of the constitutional convention in 1843. He published several literary and political addresses, and educational reports.

EATON, William, an American soldier, born in Woodstock, Conn., Feb. 23, 1764, died in Brimfield, Mass., June 1, 1811. At 16 years of age he cloped from home, and enlisted in the American revolutionary army, from which he was discharged in 1783. In 1790 he was graduated at Dartmouth college, and two years later received a captain's commission in the U. S. army. After remaining several years in the service, he was appointed, in the summer of 1797, American consul at Tunis, but did not depart for that place until Dec. 1798. He arrived at the scene of his new duties in March, 1799, and for several years was engaged in a series of negotiations and altercations with the bey, having reference to the annual payment of tribute money. In this difficult position he acted with a boldness and tact which secured to the commerce of his country an immunity from the attacks of Tunisian cruisers. Upon the commencement of hostilities between the United States and Tripoli in 1801, Eaton conceived the idea of inducing Hamet Caramelli, the rightful bey of Tripoli, who had been deposed by his brother, to organize a land force for the purpose of coöperating with the American fleet in its attack upon the city. Finding the American naval officers averse to this project, he resigned his consulship, and in 1803 returned to the United States. He was unable to procure there the means to prosecute his scheme successfully, but received the appointment of navy agent of the United States for the Barbary states. Although very slight powers were attached to this office, he accompanied the American fleet to the Mediterranean in the summer of 1804. Learning that Hamet Caramelli, after a series of reverses in an attempt to recover his throne, had taken refuge in Egypt, he sought him out, and in the early part of 1805 assisted him in assembling a force of about 500 men, four-fifths of whom were Arabs, the remainder being Christian adventurers, principally Greeks, with 9 Americans. Having secured the coöperation of the American fleet, the little army, under the command of Eaton, took up its march across the Libyan desert for Derne, the capital of the richest province of Tripoli, a distance of about 600 miles. On several occasions the mutinous disposition of the Arab sheiks, and the irresolution of Hamet, imperilled the safety of the handful of Christians belonging to the expedition; but the energy and courage of Eaton triumphed over all obstacles, and the forces were brought in safety to Bomba, on the coast, where the American ships Argus and Hornet were in waiting. On April 25 Eaton encamped before Derne, and on the 27th, with the assistance of the ships of war, attacked and carried the city after a furious assault, in which he was wounded. A few days later an army of several thousand Tripolitans, despatched by the reigning bey, approached

the town, and for several weeks occasional sharp skirmishes took place between the opposing forces, Eaton's army having meanwhile been considerably augmented. On June 11 a general engagement was fought, in which several thousand men took part, and the enemy were totally routed, and driven back to the mountains. At this moment, when Eaton was preparing by a rapid march to fall upon Tripoli, reinstate Hamet on the throne, and release the American captives detained there without ransom, intelligence arrived that a peace had been concluded by Col. Tobias Lear, the American consul-general at Algiers, one of the conditions of which was that $60,000 should be paid the bey for the ransom of the Americans. Eaton soon after returned to the United States, where he received many marks of popular favor. The president spoke of him in flattering terms in his annual message, and the legislature of Massachusetts voted him a tract of 10,000 acres of land, in acknowledgment of his services. The remainder of his life was passed in Brimfield, Mass., which town he at one time represented in the state legislature. According to his testimony given on the trial of Aaron Burr, he was solicited by the latter to embark in his project of establishing a southern empire, but declined. Habits of inebriety grew upon him in his latter years, and hastened his death. Eaton was a well informed man, and from his official and private correspondence appears to have possessed a strong, nervous style, and graphic powers of description. A memoir of him was published in Brookfield, Mass., in 1813; and another by Prof. C. C. Felton, compiled from his original papers, is contained in Sparks's "American Biography."

EAU DE COLOGNE, alcohol perfumed with essential oils, named from the city of Cologne, in which its manufacture is extensively prosecuted, and from which several million bottles are annually exported. The inventor and most famous maker was Jean Marie Farina; but his name is now adopted by several of the manufacturers of Cologne, and in other countries it is attached to very different preparations, resembling the genuine only in the bottles and labels, which are perfect copies of the original. Numerous recipes are given for this preparation, some of which are stated to have come from Farina himself. Most of them are very complicated from the great number of ingredients. Purity of the volatile oils, and also of the alcohol, and freedom especially of the latter from fusel oil, are essential to the perfection of the perfume. It is also important that no one of the volatile oils should so predominate that its odor may be perceived above the rest. Distillation after mixing is recommended in some cases, and in others condemned, as the volatile oils do not distil over so readily as the spirit, and therefore a portion of their strength is lost by the process. When not distilled, the mixtures should stand for some weeks or months, that the oils may be thoroughly dissolved in the alcohol. The following is given as the process of Farina in the *Dictionnaire des arts et manufactures:* balm and mint of Notre Dame, each 350 grammes; petals of roses and violets, each 120 gram.; lavender flowers, 60 gram.; absinthium (wormwood), 30 gram.; sage and thyme, each 30 gram.; orange flowers, nutmegs, mace, cloves, and cinnamon, each 15 gram.; camphor and angelica root, each 8 gram. These ingredients are digested in 660 lbs. avoirdupois of rectified alcohol for 24 hours, adding 2 lemons and 2 oranges cut into slices. The mixture is then distilled by heat of the sand bath until 440 lbs. have passed over. To this product are then added essences of lemon, of cedrat, of balm, and of lavender, each 45 gram.; essences of neroli and of rosemary, each 15 gram.; essence of jasmine, 30 gram.; essence of bergamot, 350 gram. The whole are thoroughly mixed and then filtered. It is also prepared without distillation, but the odor is never so fine. Lebeaud and Fontenelle (*Nouveau manuel complet du distillateur et du liquoriste*, Paris, 1843) recommend the following: dried rosemary, thyme, sweet marjoram, wormwood, balm, and hyssop, 1 oz. each; cloves, cinnamon, angelica root, juniper berries, anise, cummin, fennel, and caraway seeds, fresh orange peel, and oil of bergamot, 1 oz. each; cardamoms, lavender flowers, and bruised nutmegs, each 2 oz.; the whole to be digested in 10 quarts of alcohol several days, and then distilled to dryness by water bath. Or, to the same quantity of alcohol may be added 1 quart each of tincture of balm and rosemary; 2 oz. each of oil of bergamot, rosemary, citron, and cedrat, and 1 dram of oil of orange flowers. This may be improved by the further addition of 2 oz. each of essence of roses and of jasmine, and 1 dram of oil of cloves. Distillation is not essential in this case. Dr. Brande gives the following method of preparing a good imitation: alcohol, 1 pint; orange flower water, 1 pint; oils of bergamot, orange peel, and rosemary, each 1 drachm; and bruised cardamoms, 1 drachm. From this mixture 1 pint is to be distilled by water bath.

EAU DE LUCE (*aqua luciæ*), a kind of liquid soap made by mixing a little oil of amber and mastic or balm of Gilead with ammonia. It is merely scented ammonia. It is esteemed a remedy for the bites of poisonous animals. The compound tincture of ammonia is substituted for it, made by dissolving 2 drachms of mastic in 9 fluid drachms of rectified spirit; pouring off, and adding a pint of strong ammonia, and 14 minims of oil of lavender.

EBAL AND GERIZIM, mountains in Palestine. These 2 mountains are within 200 paces of each other, and separated by a deep valley, in which stood the old city of Shechem, now Nabloos. They are much alike in size and form, being semi-circular in figure, from 700 to 800 feet in height, about half a league in length, and on the sides nearest Shechem nearly perpendicular. They were made memorable by the solemn ratification of God's covenant with the

Jews after they had passed over Jordan, when 6 tribes were placed on Gerizim and 6 on Ebal, the former to pronounce blessings on those who should faithfully keep the divine law, and the latter to pronounce curses on those who should violate it; whence they were known as the mount of blessing and the mount of cursing. (Deuteronomy, xxvii. and xxviii.) According to the injunction of Moses, the Jews after obtaining possession of Canaan built an altar and celebrated a feast on Ebal. This, the Samaritans contended, should have been done on Gerizim, and they afterward built a temple on the latter, the ruins of which are still visible, and regarded it as the Jews regarded their temple at Jerusalem. The remark of the Samaritan woman to Christ at Shechem (John iv. 20) is in allusion to this difference of opinion as to the proper place of worship.

EBELING, Christoph Daniel, a German scholar, born near Hildesheim, Hanover, in 1741, died in Hamburg, June 30, 1817. He was noted for his extensive knowledge of oriental languages, of classic and foreign literature, and of history and geography. He published a history and geography of North America (7 vols., Hamburg, 1796–1816), for which he received a vote of thanks from the U. S. congress. He paid special attention to the geography of the new world, and collected about 10,000 maps and nearly 4,000 books, all relating to America. This library was purchased in 1818 by Mr. Israel Thorndike of Boston, and presented by him to Harvard college, where it now is.

EBENEZER, the name of the field in which the Israelites were defeated when the ark of God was taken (1 Sam. iv. 1), and also of a memorial stone or monument set up by Samuel to commemorate their victory over the Philistines at Mizpeh, when God interposed for their deliverance (1 Sam. vii. 5–12). The compound word signifies the stone of help, and was probably not applied to the field before the second event. The monument was erected by the prophet, saying: "Hitherto hath the Lord helped us." Hence it is often said: "Here will we set up our Ebenezer," *i. e.*, will establish some memorial of the divine faithfulness and goodness.

EBERHARD IM BART (Eberhard with the Beard), the 1st duke of Würtemberg, born Dec. 11, 1445, died Feb. 14, 1496. His early life was signalized by great irregularities; his father, Count Louis the Elder, dying while he was young, his education was neglected, and before he was 14 he wrested the government from his uncle Ulric, who had been appointed regent during his minority. A pilgrimage to the Holy Land, however, and the influence of his wife, the princess Barbara of Mantua, had a happy effect upon his character. He became eventually celebrated in German history as the founder of the undivided sovereignty and of the representative constitution of Würtemberg. He devoted himself to study, promoted science and literature, and founded in 1477 the university of Tübingen. He improved the laws and the condition of the convents in Würtemberg, and was a friend of peace, without however shrinking from war. The emperor Maximilian of Germany, who conferred on him the title of duke of Würtemberg (1495), declared at his grave several years afterward: "Here lies a prince who has left no equal in the German empire in princely virtues, and whose advice I have frequently followed with advantage."

EBERHARD, Johann August, a German philosopher, born in Halberstadt, Aug. 31, 1739, died Jan. 7, 1809. At first a teacher, he afterward became a pastor, and was one of the first and principal of the German rationalists. In a work entitled *Neue Apologie des Sokrates* (3d ed., Berlin, 1788), he opposed with great vigor and with what was deemed dangerous latitudinarianism the opinion which had been lately advanced that the virtues of the pagans were only splendid vices. A religious romance entitled *Amyntor* did not, as it was designed to do, cause the temerities of this apology to be forgotten. In 1778 he was appointed professor of philosophy in the university of Halle, and soon after a member of the academy of Berlin. He was attached to the philosophy of Leibnitz and Wolf, and combated more zealously than successfully the systems of Kant and Fichte. Though his learning was as superficial as it was extensive, and he was rather a rhetorician and historian than a philosophic thinker, he was yet a brilliant and elegant writer. He predicted that the "Critique of Pure Reason" would be in the future only a curious document for a history of the aberrations of the human mind, and he was one of the few adversaries whom Kant honored with a reply. He had affirmed that the critical philosophy was found in other systems, particularly that of Leibnitz, and Kant vanquished but did not silence him by proving that he did not understand Leibnitz. Eberhard maintained the simplicity and identity of the thinking and feeling faculty, the soul being, according to him, active when it thinks, passive when it feels. His writings upon philosophical and æsthetical subjects are numerous.

EBERHARD, Konrad, a German artist, born in 1768, died in Munich, March 13, 1859. The ex-king Louis was his patron, and sent him in 1806 to Rome, where he laid the foundation of his reputation. In 1816 he became professor of sculpture in the academy of fine arts at Munich. He also painted many pictures illustrating the conflicts, progress, and triumphs of the Christian religion. Among his best works are the tomb of the princess Caroline in the *Theatinerkirche*, and the statues of St. George and St. Michael before the Isar gate in Munich.

EBIONITES, a party in the early Christian church. The name was first used to designate all in the church who held to Jewish opinions or practices. Its origin is disputed. Tertullian maintained that one Ebion, a Samaritan Jew, contemporary with the apostle John, was the founder of the sect. But the existence of any

such man is now generally questioned, and the explanation which Origen gives that the word comes from the Hebrew אביונים, "poor people," is accepted by most critics. Until the 4th century the Ebionites seem to have been identical in practice with the sect of the Nazarenes, and the two sects are in the writings of the fathers frequently confounded. The doctrine of the Ebionites was a mixture of Judaism and Christianity. While they accepted the Old Testament in its integrity, they rejected the New Testament, substituting a gospel based upon the facts in the Gospel of Matthew. This gospel was known to the primitive Christians as the "Gospel of the Hebrews." The Ebionites denied the divinity of Christ, retained the practice of circumcision while observing baptism and the Lord's supper, kept the 7th day of the week as a sabbath, and conformed themselves in many things to the ascetic discipline of the Essenes. Their opinions were afterward somewhat modified, and they were divided particularly in their dogma concerning the birth of Jesus and the method of his union with God. As Epiphanius represents them, they believed that Jesus was the incarnation of an exalted superangelic spirit, who came to republish the law which Moses had published before, and which was the law of right and truth given to the original Adam. They were opposed to the doctrine of priestly and monastic celibacy. They interpreted literally the Hebrew prophecies in regard to the Messiah's kingdom, and expected that material reign of Christ which Isaiah describes. The residence of the Ebionites was chiefly in the neighborhood of Jerusalem.

EBN. See Aben.

EBOLI, Anna de Mendoza, a Spanish princess of the 16th century, the daughter of a viceroy of Peru. At an early age she was introduced at the court of Philip II. by her husband the prince of Eboli, a favorite of the king and preceptor of his son Don Carlos. Though one of her eyes was defective, her beauty attracted general attention, and she became noted for her amorous as well as political intrigues. Foremost among her admirers were the king and his secretary of foreign affairs, Antonio Perez. She was implicated in the assassination of Escovedo, the envoy of Don John of Austria.

EBONY (*diospyros ebenum*, Willdenow), a tree with hard, heavy wood, native of the East Indies. The black ebony, the most highly prized, grows spontaneously in Ceylon, Madagascar, and Mauritius. There are other colors, however, such as green, red, yellow, and white and black striped. There is another kind called ironwood from its intense hardness. The heart wood of *D. reticulata*, a lofty tree in Mauritius, is also esteemed. The ebony of the Coromandel coast is derived from *D. melanoxylon* (Roxburgh). Ebony is likewise procured from *D. tomentosa* and *D. Roylei* of the East Indies. The fruit of many of the ebony trees is considered edible by the natives, although it is generally astringent. The famous oblivion-producing fruit of the lotus is supposed to be that of *D. lotus* of Africa. The persimmon (*D. Virginiana*, Linn.) of the middle and southern United States is a representative of this genus. The imports of manufactured and unmanufactured ebony into the United States in the year ending June 30, 1858, were valued at $3,394.

EBRO, a river of Spain, the Iberus of the Romans, which formerly gave the name of Iberia to the fine country which it waters. It has its source in the mountains on the N. border of Spain, in the province of Santander, and pursues a S. E. course, flowing at first between lofty and picturesque heights, separating Biscay and Navarre from Old Castile, intersecting Aragon near its centre, and after a course of about 400 m. emptying into the Mediterranean through a double embouchure at Cape Tortosa, near the S. extremity of Catalonia, in lat. 40° 42′ N. At Mequinenza it passes through a defile where once was probably a barrier to its waters, restraining them as a lake in the country of Aragon. Its principal tributaries are the Aragon, Gallego, and Segre, on the left or N. side, and the Oca, Jalon, and Guadalupe, on the right or S. It abounds with shoals and rapids, but boats may pass with difficulty as high as Tudela, 180 m. from its mouth. It presents so many obstacles to navigation that a canal has been cut parallel to its bank for a long distance N. of Saragossa and S. of Amposta; and the bed of the river between these 2 points is now being elaborately improved. The principal traffic on the river is the transport of grain, and the floating of timber from the northern forests.

EBULLIOSCOPE, or Ebullition Alcoholometer, a form of thermometer used for determining the boiling point of spirituous liquors, from which the quantity of alcohol present is calculated. It is variously graduated as modified by different chemists. That of Dr. Ure is adapted to the scale of Sykes's hydrometer. For the purposes of manufacturers this instrument may be useful, but not for analysis. The boiling point of pure water and the height of the barometer should be noticed in making the observation.

EBULLITION. See Boiling Point, and Evaporation.

ECBATANA, one of the most renowned of ancient cities, the capital of the Median empire, and the favorite summer residence of the kings of Persia. Its foundation, like that of several other towns which were older than historical record, was attributed to Semiramis; and Diodorus locates it near the foot of Mt. Orontes, the modern Elwend. Herodotus assigns to it a later origin, making Deioces its founder, and describes particularly its position upon a conical hill, and its enclosure by 7 concentric walls, each inner one being higher than the next outer one, which were painted with a series of different colors, the innermost wall being gilded, and the next plated with silver. He swells the account beyond probability by saying that the outer wall equalled in circumference that of the

city of Athens. There are various discordant allusions to Ecbatana in the Bible and in several of the Greek historians, but the comparison of texts and the observations of modern travellers have rendered it probable that this city was founded and flourished subsequently to Babylon and Nineveh, and that it occupied the position ascribed to it by Diodorus and others near the site of the modern city of Hamadan. Its citadel was of enormous strength, and adjoining it was the royal palace, rivalling in elegance the noblest edifices of the East. The fragrant cedar and the cypress were the only kinds of wood that entered into its construction, and its columns, beams, and ceilings were covered with golden and silver plates. Its splendid architecture and spacious apartments, its fountains and gardens, and the mild climate of the place, attracted to it, even after the fall of the Median empire, the sovereigns of Persia, to repose during the summer months from the fatigues of war and the cares of state. Darius fled from his defeat at Arbela to Ecbatana, and Alexander the Great, having become master of the town, bore away a rich booty. Under the Seleucidæ its edifices and palaces were plundered, and its ramparts began to crumble away; yet Antiochus the Great found wealth still remaining to be pillaged. Ecbatana subsequently fell to the Parthians, and was the frequent residence of Parthian kings; but its ruin was completed amid the revolutions which preceded the establishment of the new Persian empire, and of its former magnificence there remain only a few broken columns, cuneiform inscriptions, medals, and fragments of sculpture, dug from the earth in the vicinity of Hamadan. Though most modern travellers and scholars have supposed Hamadan to occupy the site of ancient Ecbatana, Col. Rawlinson, in a learned and most elaborate paper in the "Geographical Journal" (x. 65–158), has contended for the existence of two capitals of this name, one of which he places at Hamadan, and the other in the hill country of Upper Media at Takhti-Soleiman. He accounts for the discrepancies in the ancient allusions by supposing that the two districts of Media were not properly distinguished, and has illustrated the subject by a careful study of all the authorities and localities. The Chaldean form of the name in Ezra (vi. 2), Achmetha, answers both to the name found on the Behistun inscriptions, Hagmatana, and the modern Hamadan. In the Greek, Agbatana, the *m* of the original form is changed into *b*, both letters being labial.

ECCALEOBION (Gr. εκκαλεω, to call out, and βιος, life), an apparatus for hatching eggs by artificial heat. A uniformly warm temperature, it is found, is all that is required for successful incubation, and this may as well be supplied artificially as by the hen. This fact was understood by the ancient Egyptians, who made use of stoves for this purpose; and the art is still practised by the modern Egyptians. Public attention was directed to the subject by Réaumur in France more than 100 years ago; and before the period of the French revolution the operation was successfully conducted in that country by M. Bonnemain, an account of whose apparatus is given by Dr. Ure, from his own observations, under the head of "Incubation, Artificial," in his "Dictionary of Arts." In the "American Journal of Science" (vol. ix., 1824) is an account of a similar apparatus of Mr. Barlow, near London, first published in the *Bulletin d'encouragement;* and "Chambers's Edinburgh Journal," No. 400, contains an interesting description of the same operation. The apparatus of M. Bonnemain appears to have been the first application of heated water conveyed from a boiler in iron pipes to the warming of apartments. In that of Mr. Barlow the ovens were warmed by steam pipes. Each was an arrangement of shelves one above another, upon which the eggs were placed and kept 21 days, when the chicks came forth. By introducing every day the same number of eggs, the apparatus is continued in regular operation, and with greater certainty than when eggs are hatched in the natural way. In order that the eggs may not become too dry, water is evaporated in the ovens. When the chickens emerge from the shells they are left a few hours to become dry, and are then removed to another apartment kept at a temperature of about 80°, where they are left for a day without feeding, the yolk of the egg which passed into the intestines 24 hours previous to the hatching supplying the necessary nourishment for 30 hours after it. They are then fed with millet seed or cracked grain. Care is required at night that they should be provided with warm coops lined with flannel, in which a dozen or so may comfortably nestle together as under the wing of the hen. The advantages of this method of raising chickens are, the large numbers that may be produced with comparatively little cost of attendance; the supplies thus obtained at all seasons of the year; the reduction of the loss occasioned by the frequent death of chickens left to the ordinary method of raising; and the saving effected by the hens being kept constantly laying eggs instead of spending a month or two at a time in the hatching and rearing of their broods. In some localities in Europe advantage has been taken of the heat afforded by hot springs, and eggs have thus been successfully hatched without other expense for the required warmth. Numerous localities in the United States afford opportunities for the same process.

ECCENTRIC, having different centres; in opposition to concentric, which signifies that the centres coincide. In machinery, an eccentric is a crank in which the length of the arm of the crank is very short in comparison with the diameter of the crank; so that it is conceived of as a circle, rotating round a line not passing through its centre.

ECCHELLENSIS, or Echellensis, Abraham, a learned Maronite, professor of the Syriac and Arabic languages in Paris and in Rome, born at Eckel, in Syria, died in Italy in 1664. He went

to Rome to pursue his studies, and took there the degree of doctor of theology and of philosophy. In 1630 he was invited to Paris to assist in editing the polyglot Bible of Le Jay, and for his services received 600 crowns annually. He contributed to this work the book of Ruth in Syriac and Arabic, and the 3d book of Maccabees in Arabic. In 1642 he returned to Rome, and obtained in that city a professorship of the oriental languages.

ECCLESIA, in ancient Athens, a general assembly of the citizens for the purpose of discussing and deciding matters of public interest. The ordinary assemblies were held 3 times monthly on established days; the extraordinary were specially convened on any sudden and pressing emergency. When the occasion was one of extreme importance, special messengers were despatched into the country to summon the people to attend, and the assembly thus convened was termed a cataclesia. These assemblies were originally held in the Agora; but during the most flourishing periods of Athens, in the times of Themistocles, Pericles, and Demosthenes, they were usually held upon the rock of the Pnyx, where a semi-circular space, partially formed by excavation from the native rock, and containing 12,000 square yards, could accommodate all the Athenian citizens. There were neither seats nor awning, and the assembly met at daybreak. The *bema* on which the orators stood to address the people was carved from the rock, and yet remains. It was often called "the stone;" and as the destinies of Athens were swayed by the orators who stood upon it, it became a figure of speech for the existing government, and the phrase "master of the stone" indicated the ruling statesman of the day. At a later period the assemblies were often held in the great theatre of Dionysus, and also in the Piræus, and in the theatre at Munychia. The right of convening the citizens was vested in the *prytanes*, or presidents of the council of 500, but in times of war or sudden emergency the generals also had the power to call extraordinary assemblies. Notice was given of the meeting by public proclamation, and any citizen refusing to obey the call was fined. The poorer classes received a small pecuniary fee for their attendance as a recompense for their time. Before the assembly entered upon any business, a sacrifice, usually of a suckling pig, was offered, and incense was burned. Then the herald proclaimed silence and offered a prayer to the gods; after which, under the direction of the prytanes and the *proëdri*, or heads of tribes, the subjects to be discussed were stated, and permission given to the speakers to address the people. No measure could be acted upon in the assembly which had not previously received the sanction of the senate, but the decrees of the senate might here be approved, altered, or rejected; and a new bill might be introduced upon a subject which had already been discussed in the senate. According to the older regulations, those persons who were above 50 years of age had the privilege of speaking first; but this distinction was obsolete in the days of Aristophanes, and citizens of every class and age had an equal right to speak. No new decree, however, could be publicly proposed till it had been shown to the proëdri, that they might see whether it contained any thing injurious to the state or contrary to existing laws. The people voted either by show of hands or occasionally by ballot, the latter method being by white and black pebbles. Beside the legislative powers of the assembly, it could make inquisition into the conduct of magistrates, and in turbulent and excited times exercised a power resembling that of impeachment, as in the cases of Demosthenes and Phocion. The assembly was sometimes suddenly broken up at the occurrence of an unfavorable omen, as thunder and lightning, sudden rain, or any unusual natural phenomenon.

ECCLESIASTES, or the Preacher (Heb. *Koheleth*, assembler), one of the didactic books of the Old Testament canon, professing to be the words of the preacher, the son of David, king in Jerusalem. It contains allusions to the writer's riches, palaces, and parables, and its sententious style reminds one of the author of the Proverbs. Yet its diction is marked by Chaldaisms and linguistic usages which are thought not to have been introduced into the Hebrew language till about the period of the Babylonish captivity. The authorship of the Ecclesiastes has been attributed to Solomon, whose claims have often been challenged and always defended; and if it be not his, it must remain entirely uncertain, for no writer of the Babylonian period is known so nearly resembling him in wisdom and wealth of thought. The book consists of philosophical reflections upon human life, and while it affirms: "Vanity of vanities, all is vanity," it also comes to the conclusion of the whole matter in the words: "Fear God and keep his commandments, for this is the whole duty of man." Some entertain the opinion that its original form must have been a dialogue in which the sage carries on a discussion with a sceptic and a libertine. Yet it is more commonly regarded as the monologue of a Hebrew moralizing on life and searching for the highest good, scanning the perversities and follies of man, and at length, after a review of the evidence, declaring the verdict that obedience to God is the only real and substantial good.

ECCLESIASTICUS, one of the apocryphal books of the Old Testament, called also the "Wisdom of Jesus, the Son of Sirach." The author lived in the 2d or 3d century B. C., and wrote in Hebrew, though no copy of the Hebrew original has been preserved; and his work was subsequently translated into Greek by his grandson. The book contains: 1, an anthology of moral and prudential precepts for the various circumstances of life; 2, a discourse which the author puts into the mouth of wisdom herself, inviting men to virtue; and 3, a panegyric in which the author celebrates the praises of God

and eulogizes the great men of his nation. In the Roman Catholic church it has been held as canonical since the council of Carthage, whose decision was confirmed by the council of Trent.

ECHELON (Fr., round of a ladder), in military language, the order of arrangement when separate bodies are drawn up behind each other obliquely, each to the right or left of the one preceding, so that the whole force presents the outline of a stairway.

ECHEVIN (Lat. *scabini*), a name given in France from the time of Charlemagne to the assessors in the provinces. They were royal officers, and appointed with the design of securing a uniform administration. At first they combined the administration of justice with that of finance, but in the 12th century the judicial functions were performed by other officers, and from that time the echevins were found only in cities. In Paris they were not only assessors, but had authority in matters of police relating to commercial affairs, till they were suppressed by the law of 1789, which organized new municipalities.

ECHINADES, a group of islands in the Ionian sea, off the coast of Acarnania, near the entrance of the gulf of Corinth. They lay at the mouth of the Achelous, and were said to have been formed by the alluvial deposits of that river; and Herodotus says that many of them in his time had become reunited to the mainland. According to the legend, they were nymphs who dwelt upon the mainland at the mouth of the Achelous, but having forgotten on one occasion to pay their offerings to the god of that river, the angry divinity tore them away from their residence on the land, carried them out to sea, and formed them into islands. They took their name from the *echinus*, or sea urchin, in consequence of their sharp and prickly outlines. The largest of them was Dulichium, now a part of the mainland. Homer describes them as inhabited, but later writers speak of them as barren and deserted. At the present time they are the seat of 5 small villages, but are of little importance for their extent or productions.

ECHINODERMS, ECHINODERMATA (Gr. ἐχινος, a hedgehog, and δερμα, skin), a class of invertebrate animals, so named from the spines with which many of the species are covered. It includes a number of families, both recent and fossil, among which the echinidans or sea urchins, the stelleridans or star-fish, and the crinoideans, are the most prominent. The class is distinguished among the radiata by the animals possessing the power of locomotion, and being protected by a strong external covering. Though ranked as the highest class in Cuvier's 4th division of the animal kingdom, the radiata, it has been shown by Agassiz that they do not conform to the structure upon which this great division is founded, viz.: of organs disposed like rays about a common centre, which is the mouth or axis of the body. On the contrary, they have a bilateral arrangement of organs, or a right and left side, which really belongs to the other divisions. The order *holothurida* of this class has long been regarded as a connecting link between the radiata and articulata. The echinoderms are found in all the fossiliferous formations, abounding especially in the oolitic and cretaceous. It is remarkable how little they have changed in their forms, most of the oldest fossils of this class being referred by Goldfuss in his *Petrefacten* to existing genera.

ECHINUS (Gr. ἐχινος, hedgehog), a genus of the echinoderms, the type of the class, and represented by the sea urchins or sea eggs common on our coast. They are animals inhabiting globular-shaped cases with flat bases, formed of calcareous plates accurately fitted together in rows of larger alternating with smaller plates, the former covered upon the outside with movable spines like coarse bristles. In some species they are 5 or 6 inches long, exceeding in length the diameter of the body. These spines fit by a ball and socket joint into little depressions, which occupy the centre of tubercles that cover the larger plates, and by the movement of the outer skin to which they are all attached, they admit of considerable motion. Beside these organs of motion, upon which the weight of the animal not buoyed up by the water is sustained, hundreds of tubular feet project through smaller tubercles upon the smaller plates. These being transparent are seldom noticed, but they may be thrust out beyond the spines, and having a little sucker at their ends, they serve to take hold of any object that comes in contact with them; and thus the animal may cause the shell to roll slowly, the spines aiding the motion. The tubular feet also serve to seize their prey, one foot after another fastening to it and passing it around to the mouth, which is in the centre of the under portion of the shell. This being furnished with a powerful arrangement of teeth, small shellfish and crabs are easily masticated. The echini are found of numerous species, fossil as well as recent. They first appeared in the epoch of the coal, and have since abounded in the later formations. In the greensand formation of New Jersey they are found in large quantities, beautifully preserved in the straw-colored limestone. The chalk of Great Britain is also a famous repository of them.

ECHO. Sound comes to the ear direct from the object producing it; and is returned, as light is reflected to the eye, from surfaces that intercept its progress. When the interval of time between the direct and reflected sounds is sufficient to be appreciated, a repetition of the noise is produced, which is called an echo. The same repetition of a flash of light from distant surfaces upon the earth would be perceived, were the velocity of light no greater than that of sound. The distance of the reflecting surfaces is thus an important element in the qualities of the echo. The time occupied by the passage of sound over the space of 100 feet may be appreciated, inasmuch as 10 distinct impulses upon the sense of hearing may be distinguished in a second, during which time the sound at ordinary temperatures passes 1,125 feet, or at the freezing tem-

perature 1,090 feet. Sounds reflected from the walls within ordinary buildings are confused, and do not form distinct echoes from their succeeding one another too rapidly for the ear to detect the intervals between them. But if the building be very large, distinct echoes may be produced in some parts of it, and these may be repeated several times by the wave of sound being reflected from surfaces at different distances, and consequently coming back at distinct intervals. A wave also may be reflected from one side to another, as a ball upon a billiard table, and at last, having traversed a space much greater than its extreme distance at any time, come back to the starting point. The analogy, however, is not complete in the case of concave surfaces, the waves of sound in these being concentrated, as the rays of light are concentrated in the focus of a concave mirror, and returned with increased effect. The number of distinct sounds that may be brought back depends upon the distance of the reflecting surface; the further off this is, the more time there is for a number of successive impulses to be sent forth before the first of the series can return to be confused with the direct sound of the last. If the surface be 500 feet distant, about one second is occupied by the sound in going and returning, and in this time 9 or 10 distinct sounds may be uttered. Such an echo may be a repeating one also, giving the same sounds several times over. They may come back in the same pitch, or each sound a note lower. An instance of the latter is cited by Dr. Charles G. Page in the "American Journal of Science" (vol. xxxvi., 1839). The locality is upon his father's grounds in Fairfax co., Va. Three reflections are given, the second much the most distinct, and 13 syllables may be distinguished. Twenty notes played upon a flute are returned with perfect clearness. Some notes in the scale, however, are not returned in their places, but are supplied by notes which are either thirds, fifths, or octaves, and the effects are observed to vary with the changes of the atmosphere or of the wind. Another echo is noticed in the same article, which has been observed between two barns at Belvidere, Alleghany co., N. Y. It repeats a word of 3 syllables distinctly 11 times, at whichever of the two the sound is made, becoming fainter each time. A person placed about midway between the two barns can distinguish a monosyllable as the sound traverses each way past him in quick succession to the number of 22 times. The distance apart of the two barns is not given. Back of each is a range of hills, the valley being that of the Genesee river. At the Simonetta palace near Milan an echo is spoken of in the "Philosophical Transactions" (1766), which repeats the sound of a pistol no less than 60 times. In this instance the experimenter is probably nearly midway between the two reflecting surfaces. The rolling of the thunder is in part probably a continuation of echoes returned from the clouds. The effect in the heavens may possibly be owing to the great difference of distance from the observer along the line of an instantaneous flash, the sound of the more remote portions coming to the ear after that produced nearer by. The stunning crash sometimes heard may be when one happens to stand near the focus of a circular discharge, as within the dome of a cathedral. In large buildings of this class some very curious effects are often noticed resulting from the reflection of sounds from their walls; a slight noise is multiplied into a confused roar, or it may be reflected from some surface and conveyed to a remote part of the building with all its original clearness and distinctness. Though this is not properly an echo in the usual sense of a returned sound, it is a reflection of sound sent to another point by a different route than the direct one, and may therefore be classed with echoes. Whispering galleries are of this nature. Two points within the building stand in the relation to each other of the two foci of an ellipse, the ceiling presenting the ellipsoid reflecting surface more or less perfectly; the more perfect and extended, the more distinctly is the sound produced at one of the foci concentrated at the other, even when their distance apart is so great that the direct sound may not reach half so far. Were the ceiling in this case a bright mirror, the rays from a light at one of the foci would in like manner be reflected and concentrated at the other, illuminating the surface of any object, though the faint glimmer might scarcely be perceptible in the dark intervening space. Examples of these galleries are often met with in large structures. That of St. Paul's, London, is often cited. The gallery is 140 yards in circumference, and is just below the dome. The distance across is nearly as many feet. A whisper near the wall on one side is conveyed to a person on the opposite side, as a loud voice apparently close to his ear, yet it is not heard in the intermediate space. The shutting of a door produces a sound like a peal of thunder rolling among the mountains.—To avoid the confused sounds produced by echoes in buildings designed for public speaking, and at the same time properly distribute the sound of the voice with all its distinctness, it is recommended to give to the apartment a length equal to $1\frac{1}{2}$ or $1\frac{1}{4}$ times the breadth, and a height somewhat greater than the breadth. The ceiling should be higher in the centre than at the sides, and should join these by bevelled edges. Its surface also should be broken into compartments and roughened by pendants.

ECHO, in Greek mythology, an oread nymph, daughter of the earth and air. She dwelt upon the banks of the Cephissus, not far from Athens, at the foot of Mt. Pentelicus, and became so desparately in love with Narcissus, son of the river, that she followed him through the forests, in the chase, to the darkness of grottoes, and to the borders of fountains, and ever repeated in solitary places the name of her beloved. Narcissus disdained her passion; and she retreated into the depth of the woods, and concealed her-

self. There she pined away in secret, and no longer appeared among the choirs of nymphs. Only her plaintive voice was always heard in the distance, which occasioned the saying that her bones were changed into rocks, and her voice alone remained.

ECIJA (anc. *Astigis*), a city of Andalusia, Spain, on the Genil, 42 m. E. N. E. of Seville; pop. 23,722. Its industry consists chiefly in the manufacture of woollens, leather, shoes, and saddlery. Some have supposed that Ecija was visited by the apostle Paul. It was the rival of Cordova and Seville, and for a long time a border town between the Moors and Christians, and the scene of many romantic adventures. Many inscriptions and relics of antiquity still exist here.

ECK, or ECKIUS, JOHANN MAYR VON, a German theologian, distinguished by his opposition to Luther, born in Eck, in Swabia, Nov. 13, 1486, died in Ingolstadt in 1543. The son of a peasant, he acquired, by a profound study of the Christian fathers and the scholastic philosophers, an erudition and skill in disputation which Luther and Melanchthon much admired. He was doctor of theology, canon of Eichstädt, and vice-chancellor of the university of Ingolstadt, when in 1518 he appeared as an adversary of Luther by his notes upon the theses of that reformer. He subsequently met Luther and Carlstadt in the conferences at Augsburg and Leipsic, but failing to convince them by his arguments, he repaired to Rome to urge more severe measures against them. He returned to Germany with a papal bull of condemnation, but at Leipsic the people had so warmly embraced the new doctrines, that he saved himself from violence only by retreating to a convent. He subsequently labored fruitlessly to reunite the divided church.

ECKERMANN, JOHANN PETER, a German literary man, born in Winsen, Hanover, in 1792, died in Weimar, Dec. 3, 1854. He is chiefly celebrated for his intercourse with Goethe, to whom he became first known by a volume of poetry which he published in 1821. He assisted Goethe in his last edition of his complete works, and was named in his will editor of his literary remains, which were accordingly published in 1832–'3. In 1839–'40 he edited a complete issue of Goethe's works in 40 volumes; but the work which won for him much reputation was his publication of his conversations with Goethe, or *Gespräche mit Goethe* (3d and last volume, Magdeburg, 1848). Extracts of this work were translated into many foreign languages, including the Turkish. The first English translation was made by Margaret Fuller, and published at Boston, Mass., in 1839. Another English translation by Oxenford appeared at London in 1850. Eckermann accompanied Goethe's son to Italy in 1830; and on his return to Weimar he was appointed teacher of the hereditary grand duke. In 1836 he became director of the library of the grand duchess of Weimar. Of Eckermann's original poetical productions, those published at Stuttgart in 1823 derive interest from their allusions to Goethe.

ECKFORD, HENRY, an American ship-builder, born in Irvine, Scotland, March 12, 1775, died in Constantinople, Nov. 12, 1832. At the age of 16 he was sent to Canada and placed under the care of his maternal uncle, Mr. John Black, a naval constructor of Quebec. In 1796 he removed to New York, where his skill in modelling and constructing vessels soon gave him ample employment. He was in the habit of obtaining from the commander of each of his ships an accurate account of her properties under all the casualties of navigation, and with the experience thus gained he endeavored to improve step by step upon each succeeding model. Many important changes in the hull and rigging of vessels date from the commencement of his labors in New York, and the supremacy of that city in naval architecture became generally recognized throughout the United States. During the war of 1812 he entered into a contract with the U. S. government to construct vessels of war on the lakes, and soon had an excellent fleet afloat and equipped, notwithstanding that it was necessary to fell the timber in the neighboring forests, and to transport the rigging, sails, and other materials from the seaboard. Shortly after the war he constructed the steamer Robert Fulton, which in 1822 made the first successful voyage by steam to New Orleans and Havana. She was subsequently altered into a sailing vessel, and became the fastest sloop of war in the Brazilian navy. In 1820 he accepted the appointment of naval constructor at the navy yard in Brooklyn, where the line-of-battle ship Ohio was built from his designs. On the day that she was launched, however, he resigned his commission, in consequence of disagreements with the officers composing the bureau of construction. He subsequently constructed vessels of war for various European powers, and for some of the South American republics. Upon the accession of Gen. Jackson to the presidency he was invited to furnish a plan for a new organization of the navy, and the suggestions which he offered, though not adopted, were considered judicious and practical. About this time he projected a work on naval architecture and the establishment of a professorship on that branch of science in Columbia college. In 1831 he built a sloop of war for Sultan Mahmoud, and received from that sovereign an invitation to enter his service as naval constructor. He accordingly took up his residence in Constantinople, where he organized a navy yard, and laid the keel of a ship of the line, which, however, he did not live to see completed.

ECKMÜHL, a village of Bavaria, on the river Great Laber, in the circle of Lower Bavaria, 13 m. from Ratisbon, memorable for the great victory gained here by Napoleon over the Austrians under the archduke Charles, April 22, 1809. Marshal Davoust, having especially signalized his valor during the engagement, was created

prince of Eckmühl. This battle, and the partial actions which had preceded it, cost Austria 25,000 men, and obliged the archduke Charles to retire into Bohemia, and to leave open to Napoleon the highway to Vienna.

ECKSTEIN, Ferdinand, baron d', a French publicist, born of Jewish parents in Denmark in 1790, became a convert to Lutheranism in 1807, and afterward to Catholicism. He studied in Göttingen and Heidelberg, took a part in the campaigns of 1812–'14, held various offices under the government of the Netherlands and of the Bourbons in France, who conferred on him the title of baron, and retired from public life in 1830. From 1826 to 1829 he conducted a periodical, *Le Catholique*, in which he advocated the religious views of De Maistre and De Bonald. He has since written for the *Avenir*, the Augsburg *Allgemeine Zeitung*, and various scientific periodicals, and enjoys a high reputation for his familiarity with the literature of Hindostan.

ECLECTICS (Gr. εκλεγω, to select), a class of ancient philosophers who professed to select whatever was good and true from all the other philosophical sects, that they might combine it in a new system. They held Plato in the highest esteem, but did not hesitate to add to his doctrines whatever they thought conformable to reason in the tenets of the other schools, or to reject from his teachings whatever they disapproved. The eclectic system is supposed to have originated with Potamon of Alexandria, a Platonist; it was in a flourishing state at Alexandria about the beginning of our era; and it reached its perfection under Ammonius Saccas, who blended Christianity with his views, and founded the sect of the Ammonians, or New Platonists, in the 2d century. The moral doctrine of the Alexandrian school was, that the mind of man, originally part of the Divine Being, having fallen into darkness and defilement through its connection with the body, is to be gradually emancipated from the influence of matter, and rise by contemplation to the knowledge and likeness of God; and that this result, which is the great end of philosophy, is to be attained through abstinence, voluntary mortification, and religious exercises. In the infancy of this school, not a few professors of Christianity were led, by the pretensions of the eclectic sect, to think that a coalition might advantageously be formed between its system and that of the gospel; and this union seemed the more desirable when several prominent eclectics became converts to the Christian faith. The only consequence, however, was the corruption of the pure and simple doctrines of the New Testament, by their mixture with pagan ideas and opinions.—The term Eclecticism is also used by Victor Cousin to represent his own philosophical system. (See Cousin, Victor.)

ECLIPSE (Gr. εκλειψις, failure), the interception of light from one heavenly body by the intervention of another. An eclipse of the moon is the passage of the moon into the shadow of the earth. It is evident that this can only happen at full moon, and then only when the moon is nearly in the plane of the ecliptic, *i. e.* in the plane of the earth's orbit. These eclipses occur often, and are beautiful phenomena; but the edge of the shadow of the earth is not defined with sufficient sharpness to make lunar eclipses of much value to the progress of astronomy. Solar eclipses are caused by the earth's passing into the shadow of the moon, and of course occur only at new moon, and when the moon is nearly in the plane of the ecliptic. As the moon is much smaller than the sun, its shadow runs rapidly to a point, and never covers more than a small portion of the earth; hence the phenomenon of a total eclipse is very rarely seen. But as the cone of the moon's shadow is surrounded by a larger inverted cone of penumbra, *i. e.* of space in which the moon intercepts a part of the light, the opportunities of seeing a partial eclipse of the sun are much more frequent. The instant of entering the penumbra is sharply defined by an apparent indentation in the limb of the sun, and that of entering the shadow by the total disappearance of the sun. It sometimes happens that the moon is too far from the earth to allow her shadow to reach us, in which case persons in the centre of the penumbra see a ring of the sun surrounding the moon; this is called an annular eclipse (Lat. *annulus*, a ring). It is evident that solar eclipses afford the means of testing our calculations of the moon's motions, and of determining the longitude of places on the earth. The beginning and ending of the partial, of the total, and of the annular phases, and the distance apart of the ends of the indentation in the sun's limb, all may be calculated and observed with great accuracy, and the observations are of great use in correcting the assumed data of the calculation of the moon's motions, and the longitude of the places of observation. Total eclipses also afford opportunities for many interesting observations on physical phenomena, and on the emotions of the animal tribes; the most singular optical effect being the occasional issuing of rose-colored flames from the sun during the total phase. Eclipses of the sun by Venus and Mercury are called transits; they occasion an inappreciable diminution of light, are rare occurrences, and are of much astronomical utility. Eclipses of stars and planets by the moon are called occultations, and possess a value similar to that of solar eclipses. The eclipses in Jupiter's system are of 4 kinds: the satellites pass into the shadow of Jupiter, or may cast their shadow upon his face; they may pass between us and their primary, or may pass behind him. The last named eclipses were at one time the most important means of determining longitude at sea, as the eclipse gave the Greenwich time for direct comparison with the time at the ship. Solar eclipses and occultations, being of great use in determining longitudes, are calculated beforehand so accurately as to prepare the observer to be on the watch at the right

moment, which can be ascertained by means of an instrument invented by Thomas Hill of Waltham, Mass., which marks out on a chart of the sky the moon's apparent motions as seen from any part of the earth's surface.

ECLIPTIC (from eclipse, being the region of lunar and solar eclipses), the great circle in the heavens, in the circumference of which the sun appears to move during the annual revolution of the earth. This great circle makes an angle of about 23° 28′ with the equinoctial or celestial equator (the great circle equidistant from the poles), which is called the obliquity of the ecliptic, and is evidently equivalent to the angle which the axis of the earth makes with a line perpendicular to the plane of its orbit. The points where the equator cuts the ecliptic are called equinoxes, because when the sun is there the days and nights are equal in all parts of the globe. The ecliptic is divided into 12 equal parts called signs: Aries ♈, Taurus ♉, Gemini ♊, Cancer ♋, Leo ♌, Virgo ♍, Libra ♎, Scorpio ♏, Sagittarius ♐, Capricornus ♑, Aquarius ♒, Pisces ♓. These signs formerly coincided with the constellations of the same names, which now occupy places about one sign to the east, so that the constellation Aries is in the sign Taurus, &c. The first point of ♈ is the vernal equinox, or point at which the sun ascends about March 20 to the northern side of the equator; the autumnal equinox is the first point of ♎, where the sun descends south of the equator. The point at which the sun is furthest north, about June 20, is the summer solstice or solstitial point; this is the first point of ♋; while the winter solstice is the first point of ♑, reached by the sun about Dec. 20. The obliquity of the ecliptic suffers a diminution of about 48″ in a century, but the limits of this diminution are said to be fixed. The equinoxes also move on the ecliptic in the direction opposite to the sun's apparent motion, at the rate of about 50.22″ a year, which is called the precession of the equinoxes. The obliquity of the ecliptic also suffers a monthly annual variation, called nutation, arising from the action of the sun and moon upon the protuberant regions of the earth's equator, which makes the direction of the earth's axis slightly oscillatory. The effect of nutation is to cause the pole of the heavens to move in a minute oval about its mean position. That the obliquity of the ecliptic has not materially changed since the creation is shown by the fact in geography first pointed out by Peirce, that the principal coast lines and mountain chains either coincide with, or are perpendicular to, the line separating light and darkness when the sun is at the solstices. The whole of the present faunas and floras of the world are also adapted in their constitution to the present obliquity of the ecliptic and average course of the seasons. For it is evident that a perceptible change in the obliquity of the ecliptic would produce a change in the average temperatures of summer and winter, which would drive plants further north or further south according to their ability to endure sun and frost.

ECLOGUE, a pastoral poem. The names eclogue and idyl, both of Greek derivation, are given indifferently to short poems commemorating the events of rural life. The distinction which has been made, that idyl belongs to pieces in which the poet himself relates the event, and eclogue to pieces in which he conceals himself and introduces shepherds as actors, is not strictly observed.

ECUADOR, or Equador, a republic of South America, lying between lat. 1° 35′ N. and 5° 50′ S., and between long. 68° 20′ and 81° 12′ W. Its name is derived from its position under the equator. It is bounded N. by New Granada; E. by New Granada, Brazil, and Peru; S. by Peru; W. by the Pacific. The boundary lines between Ecuador and New Granada, Brazil, and Peru have never been definitely settled, the Ecuadorians claiming territory extending S. of the Amazon or Marañon, over which Peru asserts jurisdiction, and a tract lying between the Putumayo river and the cordillera of Caqueta, which is also claimed by New Granada. As however the territory thus disputed is as yet only inhabited by Indian tribes, its present value is comparatively small. The area of a country whose boundaries are so unsettled cannot be definitely ascertained. It is probaby not far from 250,000 sq. m.—The Pacific coast has many indentations, few of which, however, form good harbors. The principal gulfs are those of Guayaquil, at the mouth of the Guayaquil river, and that of Ancon de Sardinas, between the rivers Mira and Santiago. There are also 3 considerable bays, that of Caracas, S. of Cape Pasado; that of Mompiche, S. of Cape San Francisco; and that of Pailon, which is rather what the Scotch call a frith than a proper bay. The principal harbors are Guayaquil and Manta. The bays and gulfs are studded with a considerable number of islets, a few of them inhabited, and all adding by their rich tropical vegetation to the beauty of the scenery.—Ecuador is decidedly a mountainous country; the Andes extend over the greatest part of its territory, spreading out in elevated plateaus called *paramos* by the inhabitants, and rising in lofty peaks from these elevated plains. There are 3 principal cordilleras, or ranges of mountains, into which the Andes are divided, as they enter Ecuador from the north: the easternmost, which retains the name of Andes, and which as a whole maintains the greatest elevation; the western cordillera, or range, connected with the first by a broad plateau, having an elevation of from 10,000 to 16,000 feet above the level of the sea, and from either border of which shoot up the lofty peaks which stand like sentinels along the elevated plain; and, still nearer to the coast, a lower range extending in lines parallel or nearly so to the Pacific shore, beginning near the New Granadian line, in a knot or group of mountains which unites the 3 ranges, and losing itself in the salt marshes near the mouth of the Esmeraldas. The inhabitants of

the mountainous districts have given the name of knot (*nudo*), or group, and also of *paramo* (cold, bleak desert), to these elevated plateaus, many of which, though maintaining nearly the same mean elevation, are any thing but level. Of these there are 8 principal ones, beside many of less note. They are, beginning at the north, the *nudos* of Huaca, Cajas, Tiopullo, Pomachaca, Assuay, Portete, Acayana, and Savanilla. The general direction of the great mountain chains is S. S. W., but from each side of these spread out spurs and ramifications, which render most of the territory of the republic a labyrinth of mountains. Twenty-two of the mountains of Ecuador rise above the limit of perpetual snow, and 25 more rise above 10,000 feet. Of these a majority are volcanoes, some constantly active, others occasionally so; some pouring out lava and scoriæ, others vomiting upon the valleys below rivers of hot and sulphurous waters, or masses of semi-liquid mud. The following table is given by Villavicencio of the names and height of those which rise above the snow line, from the very latest measurements, which, as will be seen, differ slightly from the generally received figures:

Eastern range.	Feet.	Western range.	Feet.
Cayambi	19,813	Chimborazo	21,371
Antisana	19,301	Ilinisa	17,649
Cotopaxi	19,162	Casalagua	16,864
Llanganate	18,639	Cotacachi	16,650
Altar	17,626	Pichincha	16,213
Sincholagua	17,473	Corazon	16,169
Sangai	17,284	Atacasho	16,169
Sara-urcu	17,276	Chiles	15,952
Tunguragua	16,514	Carahuirazo	15,916
Collanes (range)	17,281	Yana-urco	15,913
Assuay	15,749	Quilindaña	15,913

—The rivers of Ecuador are of two classes: those which discharge their waters into the Pacific, and have a short and precipitous course; and those which, rising in the Andes, descend their eastern slope, and unite with the Amazon or some of its large branches, forming a part of the great fluvial system of the Amazonian basin. Many of these are navigable for a considerable distance within the republic. The principal rivers discharging into the Pacific are the Mira, the Onzota or Ostiones, the Esmeraldas, the Daule, the Baba, the Yaron, the Salado, and the Tumbez, which forms a small part of the southern boundary. Of these, the Esmeraldas is the most considerable. This river rises in the vicinity of Cotopaxi, near the sources of the Napo and the Pastaza, and, after a long but circuitous course, discharges its waters into the Pacific. The lower third of the river is navigable. The Mira, the Daule, and the Tumbez are all rivers of considerable importance. The Amazon, or Marañon, forms a large part of the S. boundary, or adopting the Ecuadorian location of the Peruvian frontier, traverses the S. region of the republic, from which its principal affluents are the Putumayo, the Loreto, the Ambyacu, the Napo, the Pequena, the Chambira, the Pastaza, the Morona, and the Santiago or Paute. The Putumayo forms the N. E. boundary of the republic, unless we include the district of Mainas as belonging to it. It is one of the most important affluents of the upper Amazon, and is navigable for the greater part of its length. The Napo is the largest river wholly within the territory of the republic. It rises on the eastern slope of Cotopaxi, and has a length of a little more than 800 m., and a breadth where it joins the Amazon of 3,300 feet. It is navigable for steamboats about 550 m. The Pequena, or Tigre, is about 400 m. in length, and is navigable for 230 m. The Pastaza, like the Napo and the Esmeraldas, rises on the slopes of Cotopaxi. It is about 700 m. in length, and is navigable for 350 m. by steamboats, and 80 more for smaller vessels. The Morona is a smaller river, but is navigable for a considerable distance from its junction with the Amazon. The Santiago, or Paute, has its source in the lake of Quinuas, in the western branch of the Andes, in the province of Cuenca. Its length is about 660 m., of which about 400 is navigable for steamboats and 120 more for smaller vessels.—The climate of Ecuador varies with the elevation of the surface. Although lying directly under the equator, many portions of it enjoy a mild and delightful temperature, a perpetual spring or autumn. The sea-coast is low, hot, and sickly, but as we proceed toward the interior, we find the valleys lying between the spurs or ranges of mountains possessing a warm but not hot climate, and producing abundantly all the fruits of tropical and many of those of temperate regions; the *mesetas* or *paramos*, the elevated plains and table-lands connecting the cordilleras, are cooler in proportion to their elevation, some of them, at the height of 9,000 or 10,000 feet, like the valley of Quito, enjoying the most equable temperature perhaps on the globe, and producing fruits and flowers of all climes. The mean temperature of these plains varies from 56° to 62° F. Others, again, with an elevation of 12,000 or 14,000 feet, are cold and dreary; the surface, too barren and frigid for the growth of trees, is covered with a species of heath, and has a mean temperature of 38° to 40° F. The *mesas*, or high plains on the slopes of the elevated peaks, are intensely cold, and many of them covered most of the year with snow. There are but two seasons in the Ecuadorian climate: the winter, or rainy season, commences in December, and ends in May; the other, called summer, or the windy season, begins in June and terminates in November. The former is a season not of perpetual rain, but of frequent fertilizing showers. The period of the winter solstice is usually one of clear skies and delightful temperature, and is known as the "little summer." During the summer, rain seldom falls, but high winds prevail; at the period of the autumnal equinox there is usually some rain, and this is called by the inhabitants the "little winter." On the coast the seasons are nearly reversed; during the months from June to November the sky is very generally overcast, and a drizzling rain or mist very prevalent, while from December to May the skies are usually clear. In the vast forests which line the banks

of the Amazon and its tributaries, the rainy season is prolonged, owing probably to the influence of the forests in producing precipitation of the clouds from the summits of the Andes, which would otherwise pass over and water the more arid plains beyond.—In the article Andes the general geological structure of that mighty chain is fully discussed; we need only say in regard to the special geology of Ecuador, that the volcanoes, and indeed almost the entire mountain chains, are granite, a few of them, however, giving evidence of alluvial or diluvial deposits subsequent to their upheaval. The coasts, unlike those further south, are generally sloping, and give evidence of being the result of the more recent deposit of the detritus of the Andes. The minerals found in the Andes, either in their native state or in some of their combinations as ores, are gold, silver, iron, mercury, lead, tin, zinc, copper, antimony, manganese, sulphur, and salt. All of these are in sufficient quantities to be profitably mined. The precious metals are mostly found in the departments of Quito and Assuay, though some gold is washed from the sands of the rivers in Guayaquil. The province of Oriente is said to be particularly rich in gold and silver, but it is mostly inhabited by Indians, who habitually conceal from Europeans or other foreigners any mines or placers of which they may be cognizant. The mines of Ecuador, from a variety of causes, have not been profitably worked of late years; but under a more permanent and settled government, there is reason to hope that their great wealth may be developed. The republic does not seem to be rich in precious stones. Rubies are found, and very beautiful rock crystals. At the time of its discovery, emeralds were very abundant among the inhabitants, and were said to be obtained in the river Esmeraldas, which was thus named in consequence; but recent research renders it somewhat doubtful whether they were ever found there in very great numbers. The other principal mineral products of the republic are marble of very superior quality, alabaster, choice flints, and asphaltum.—The carnivora of Ecuador are the jaguar, the ounce, the panther, the puma, the tiger cat, and the wolf. The other wild quadrupeds are the tapir, several species of wild boar, the deer, hare, rabbit, squirrel (several species), armadillo, guanaco, vicuña, the ant-eater, one or two species of antelope, and monkeys in infinite variety, from the great Brazilian monkey down to the little *chichico* which will hide itself in your hand. The horse and ox in this, as in other South American states, roam the plains in a wild state. The cattle of the country are generally black. The domestic animals are the horse, cow, llama, ass, mule, dog, cat, &c. On the affluents of the Amazon appear the sea cow, porpoise, and dolphin. The reptiles are the large white lizard, the cayman or alligator, a great variety of small lizards, the great boa constrictor, the rattlesnake, coral snake, horse snake, striped, tiger-spotted, and other snakes, &c.; tortoises large and small, and, on the Galapagos islands, the great marine turtle, often weighing several hundred pounds. Ecuador is the paradise of birds. Many of them are remarkable for the brilliancy of their plumage; among these are the cock of the rocks, the peacock tribe, the wild turkey, and above all a great variety of humming birds, whose plumage has all the brilliancy and hues of a collection of precious gems. Others again make the woods vocal with their songs; among these are many species peculiar to the Andes, such as the lord of the woods, the cacique, the corregidor, and a great variety of thrushes, song sparrows, &c. Others, like the condor, the pelican, gull, kingfisher, heron, &c., are birds of prey. The parrot, paroquet, and macaw tribes are very abundant, and the forests are peopled with doves, pheasants, pigeons, grouse, &c.; and the rivers and marshes at certain seasons of the year furnish abundant food to the wild geese, ducks, teal, widgeons, snipes, and other wading and swimming birds. The eastern and western rivers have in their season an abundance of shad, bream, skate, barbel, blindfish, crawfish, eels, lampreys, &c. On the coast, lobsters, crabs, shrimps, oysters, clams, and mussels are found in great quantities. Insects are extremely numerous, and some of them very annoying; the mosquito, ant, spider, scorpion, and centipede are the pests of the lowlands. The coleoptera are remarkable for their size and the metallic splendor of their wing cases. The Hercules beetle is the most magnificent of his tribe, and the giant cantharides glitters in jewelled splendor; the firefly is not solely indebted to his phosphorescent powers for his beauty; and many other of the insect tribes shine in green and gold. The butterflies, like those of Brazil, exhibit on their wings almost every possible variety of form and color. Among the other insects, the cochinilla, which produces the cochineal of commerce, abounds in the valleys. On the coast are found the shellfish which produces the Tyrian purple, coral of great beauty, sponge, the pearl oyster, and snails of remarkable size.—The country is capable of producing the fruits, flowers, and shrubs of every region, from the torrid to the frozen zone. The lowlands along the coast yield in profusion tropical fruits and vegetation; as we rise higher, we find the products of more temperate climes; at the height of 9,000 or 10,000 feet we enter a grain district, which continues for the more hardy grains up to the height of nearly 13,000 feet. Above this the flora and grasses are decidedly Alpine in their character; and when we reach the lofty plains, where only occasional patches are free from the eternal snows, there is nothing but a few mosses and heaths to show that vegetable life is not wholly extinct. Medical science finds in these mountain slopes many of its choicest remedies. Here grow in abundance the cinchona tree, which yields the Peruvian bark and the quinine of commerce, sarsaparilla, ipecacuanha, balsam of tolu, vanilla, canella, copaiba, gentian, valerian, the purging cassia (*cassia fistula*), the croton tig-

lium, which produces the croton oil of commerce, solanum dulcamara, ratania, whose root is the rhatany of the druggists, matico, the palo santo, from which exudes the guaiacum of the shops, the samus cassia, the liquidambar, which furnishes the storax or liquid amber of the shops, the bitter cucumber, the poppy, the guaco, a remedy used with success by the Indians for the bite of the rattlesnake, &c. These are nearly all established articles in the European and American materia medica, recognized as constituents of their pharmacopœias; but there are very many others, highly esteemed in the domestic and medical practice of the republic, which are not known abroad. Among the nutritive plants are the cacao, which produces the chocolate, cocoa, and broma of commerce; coffee, the plantain or banana, yucca, maize, potatoes, rice, sugar cane, the sugar pear, sweet potatoes, barley, wheat, chick peas, beans, vetches, oats, rye, and other cereals; cabbages, cauliflowers, radishes, beets, artichokes, capers, asparagus, &c. Among the fruits, the most common are the pine-apple, the peach, chirimoya, granadilla, orange, mango, medlar, mazuey, sapota, lucma, paso, custard apple, guava, cucumber, papaw, watermelon, strawberry myrtle, mulberry, plum, pumpkin, anacardium or gum tree, mountain apple, and a host of others whose fame is known only in their native region. Ecuador also abounds in fibrous plants; some 12 or 15 are well known, which are adapted to the manufacture of hats, cordage, cloth, paper, &c. There are also some 20 or more woods and plants which furnish dyestuffs. But it is in forest trees, suitable for ship-building, for cabinet work, and for ornament, that Ecuador, like Brazil, surpasses most other countries of the world. Of the trees suitable for ship timber, and superior in this respect to any except the live oak of Florida and the teak of India, there are nearly 20 species; of those which are adapted for the finest and most ornamental cabinet work, nearly as many more; while of trees which are admired on account of their beauty of form or elegance of foliage, there are not less than 40 species. The gums and gum resins which enter so largely into commerce also abound here; several species of the trees which yield the caoutchouc of commerce are natives of Ecuador, as are also the trees producing the shellac and copal gums, eucalyptus, dragon's blood, gamboge, gum lac, and many others. With a much larger proportion of arable land than most countries possess, a soil of great fertility, and a climate which admits the cultivation of almost every thing which can be grown anywhere, agriculture is at a very low ebb in Ecuador. This is attributable, probably, to several causes: the unsettled state of the country, the difficulty of transportation, the want of education and intelligence on the part of the farmer, and the love of ease, induced by the mild and equable climate, and by the certainty that very slight exertion will provide the means of sustaining life comfortably. The implements of agriculture are rude and imperfect, and the idea of rotation of crops, of fertilization by manures, or of any thing like intelligent farming, hardly ever finds its way into the mind of the Ecuadorian farmer. The cereals are not raised in sufficient quantity to admit of their export. Cacao is largely exported, and much is also consumed at home. Tobacco is an important crop, and many of the agriculturists employ a part of the term of their labors in collecting the roots, gums, leaves, &c., of the medicinal and useful plants of the forest for exportation.—Manufactures are confined mainly to the simplest and most inartistic processes. The braiding of the sombreros or Guayaquil hats, from the toquilla, mocora, and other straws and grasses of the country, is perhaps the most important of the manufactures. The making of hammocks from the fibres of the agave and other filamentous plants, of sugar from the cane, of coarse clothes of cotton and vicuña wool, and of the ruder sort of ornaments of gold and silver, and the preparation of some of the fruits for a foreign market, are almost the only other branches of manufacture.—The commerce of Ecuador is of two kinds, viz.: that with New Granada and Peru, which is carried on by land, and mostly by *arrieros* or carriers, who transport the articles on their own shoulders and on the backs of mules; and the foreign commerce, which is transacted mostly by the ships of foreign nations, as the republic has very little shipping. The exports consist principally of silver and silver ore, cacao, sombreros, generally known as Panama or Guayaquil hats, lumber, tobacco, cascarilla, sarsaparilla, agave fibre, tamarinds, caoutchouc, canes, coffee, hammocks, &c. In 1856 the foreign exports by the ports of Guayaquil and Manta were $2,333,141 50, of which $67,562 12 was silver and silver ores. The exports to New Granada, across the frontier, were estimated at $300,000, and to Peru $100,000, making the entire exports $2,733,141 50. The same year the imports were, through the port of Guayaquil, $2,374,439 38; through Manta, $112,267 39; from New Granada (estimated) $40,000, and from Peru (estimated) $100,000; making a total importation of $2,626,706 77. It is doubtful, however, whether much reliance can be placed on the statistics of the border commerce. The trade of Ecuador with the United States has always been small. In 1856 she exported to the United States goods to the amount of $84,804, and imported from this country only $2,066. In 1857 her exports were $15,803, and imports $2,630.—The revenue of the republic in 1856 was $1,372,800, and the expenditure $1,358,498. The debt of the state is divided into 3 classes. The foreign debt, being 21½ per cent. of the debt incurred by the Colombian government, and at its dissolution divided *pro rata* among the states which composed it, amounts to $8,828,160, for which bonds have been issued by the Ecuadorian government; the arrears of interest are consolidated in other bonds, amounting to about $4,800,000. The

Colombian debt amounts to $2,644,368, a part of which is consolidated in 3 per cent. and the remainder in 5 per cent. bonds. The home debt amounts to $4,293,314. The revenues of the state do not afford the means of paying promptly the interest on this heavy debt, and the credit of the republic abroad is not high; nor have the frequent revolutions and civil wars enhanced it.—The actual population of the republic is uncertain. Dr. Villavicencio, taking the census of 1826 as a basis, and assuming that the percentage of excess of births over deaths will be about equal one year with another, makes the population, exclusive of the Indians of Oriente, 1,108,082, and estimates those Indians at 200,000. Other recent writers, on the contrary, estimate the entire population as under 500,000. This is probably an under-estimate, as the first is as certainly an over-estimate. Lastania, the Chilian geographer, in 1851 gave 700,000 as the population, including the district of Mainas, but excluding the Indians of Oriente. Perhaps the estimate given in Colton's "Atlas of the World" is as near the truth as any. This supposes the population, exclusive of the Indians of Oriente, to be 665,000; and allowing for these Indians 135,000, we have a total population of 800,000 in the republic. The following table gives the distribution of this population, together with the chief towns and their population:

Provinces.	Pop. (estimat'd).	Chief towns.	Pop.
Department of Quito:			
Pichincha	92,458	Quito	80,000
Imbabura	78,297	Ibarra	18,000
Leon	133,195	Tacunga	16,000
Chimborazo	118,283	Riobamba	16,000
Esmeraldas	5,513	Esmeraldas	500
Oriente	11,631	Santa Rosa	300
Department of Assuay:			
Cuenca	102,790	Cuenca	25,000
Loja	43,296	Loja	10,000
Department of Guayas:			
Guayaquil	55,627	Guayaquil	22,000
Manabi	23,910	Puerto Viejo.. Manta	uncert'n
Total	665,000		
Add for the Indians of Oriente	135,000		

The inhabitants may be classified according to races as follows:

Whites, descended from Europeans	351,672
Indians, descended from the dominant race at the time of the conquest (Quichuas)	274,440
Indians of the Oriente, estimated	135,000
Negroes	7,831
Mixed races (mulattoes, zamboes, and mestizoes)	31,057
Total	800,000

The Quichua or Quitu Indians are the descendants of the ancient inhabitants of the country, and have made considerable progress in civilization. They are mostly agriculturists, and many of them possess a good degree of skill in the simpler mechanic arts. Most of the pottery and the coarser woollen and cotton goods used in the republic are manufactured by them. The Indians of Oriente are of various tribes, wild, warlike, and impatient of restraint, and have never yet given much attention to agriculture or manufactures.—Roman Catholicism is the established religion of the republic, and the open profession of no other is tolerated; but foreigners are not molested on account of their opinions, though they would not be allowed to establish churches of other faiths, even for their own families. The whites, negroes, and mixed races are generally particular in their attention to the externals of religion; but the Indians, while usually professing a nominal Christianity, are really heathens in their belief and worship. Fetichism, the belief in the good and bad principles or powers, and transmigration of souls, are matters of universal faith and practice among them. The clergy and religious orders, as in most Roman Catholic countries, are numerous. Quito is the seat of an archbishop, and 2 bishops reside at Cuenca and Guayaquil. Of the regular clergy there are 415, of the secular 524, and of the religious sisterhoods 391.—The condition of education is very low. Taking the average of the whole state, there is 1 person in school or college for every 60 inhabitants. About $\frac{1}{10}$ of the whole number, however, are in the colleges, and in one province, that of Oriente, there are no schools. In 1856, according to the report of the minister of public instruction, there were 1 university, 10 colleges and seminaries, and 1 female college, having altogether 1,299 pupils; 260 primary schools for boys, with 9,249 pupils, and 30 for girls, with 2,783 pupils; and 8 special schools of drawing, music, &c., with 80 pupils; total pupils in all schools, 13,411.—The government of Ecuador is republican. Its present constitution was adopted in 1845, and modified by the national assembly of 1852, and by the legislature of 1853. The legislature consists of a senate of 18 members, 6 for each department, and a house of representatives consisting of 30 deputies, 10 for each department. The executive power is vested in the president and vice-president, both of whom are elected by a plurality of votes in the college of electors, which consists of 900 members, 300 from each department. They are elected for a term of 4 years, and are not eligible to reëlection until they have passed one term without office. The salary of the president is $12,000, and of the vice-president $4,000. In case of the death of the president and vice-president during their term of office, the executive power is vested in the last president of the senate, or of the house of representatives. The power of the president is limited by the constitution, in the following particulars: he may not deprive any Ecuadorian of his liberty, nor impose punishment, nor expel a citizen from the territory, nor delay the course of judicial proceedings, nor constrain the freedom of judgment, impede the elections, dissolve congress either directly or indirectly, suspend its sessions, exert his executive power at a greater distance than 30 miles from the capital, nor admit foreigners to high rank in the army, without the previous consent of congress. He has the power of selecting his cabinet, which consists of 3 ministers, viz.: of the interior, of

foreign relations, and of finances, war, and marine; and these, with a judge of the supreme court or the court of appeals, an ecclesiastic of high rank, and the vice-president, constitute the government council. The judiciary consists of a supreme court with 5 judges, elected by congress; 3 superior courts with 3 judges each, appointed by the president; inferior courts for civil suits in each province, and alcaldes or municipal judges in each canton. Slavery is not permitted in the republic, nor are orders of nobility or hereditary titles allowed. Confiscation of property is not permitted, nor can any penalty be inflicted on the family or friends of a culprit. The inviolability of life is guaranteed, even to political offenders; and trial by jury is acknowledged as the right of every offender. The chief towns are Quito, the capital, Guayaquil, the principal seaport (the ancient Tumbez), Cuenca, Riobamba, Tacunga, and Loja.—The early history of Ecuador is involved in some obscurity; from the Indian traditions it would appear that several centuries before the Spanish conquest it was a powerful kingdom, embracing about 50 provinces, and probably of greater extent than at present. The inhabitants were called Quitus or Quichus, and the kingdom Quito. About the 10th century a foreign nation, who had inhabited the sea-coast, ascended the river Esmeraldas, and subdued the Quitus. These people were called Cara, and their kings Carau shyri, or lords of Cara. For nearly 500 years these shyri ruled the kingdom with great ability, adding to their dominions, now by conquest, and now by matrimonial alliances with neighboring chiefs. Their kingdom at length became so powerful as to excite the cupidity of the incas of Peru, who, lords of the most powerful empire of South America, aspired to govern the whole continent. In 1475 Huayna Capac, surnamed the Great, having ascended the throne of the incas, subdued the kingdom of Quito, and, making the city of Quito his capital, governed his vast empire from that city for 38 years. At his death he divided his possessions between his two best beloved sons, Huascar and Atahuallpa. To Huascar he gave the ancient empire of the incas, and to Atahuallpa the kingdom of Quito. As might have been expected, this arrangement, in the course of a few years, caused dissatisfaction; whether the fault lay with Huascar or Atahuallpa is now uncertain, but their discord soon led to civil war, and in its vicissitudes Huascar was defeated and imprisoned in his own capital in 1531. Atahuallpa now ascended the imperial throne, and reigned with great splendor; but his career was short. The Spaniards had already been led to the Pacific coasts of South America by their thirst for gold, and Francisco Pizarro landed at Tumbez, now Guayaquil, in 1532, with the audacious design of conquering a great empire with a force of 250 men. Pressing forward with his little band across the lofty sierras, he at length reached the city of Caxamalca, where Atahuallpa was solacing himself after the fatigues of a journey over his empire, and within two days, by an act of the basest treachery, had made the inca a prisoner, and slaughtered his body guard. Atahuallpa, perceiving the thirst for gold which actuated the Spaniards, offered to fill the room in which he was imprisoned to a certain height with the precious metal, if he might thus purchase his freedom. The Spaniard apparently assented to the proposition, and the gold was nearly all collected when Pizarro seized it, and, after a mock trial, put the inca to death. Huascar had previously been assassinated in prison, as is believed, by order of Atahuallpa, and at the death of the latter his vast dominions fell an easy prey to the invaders. They were erected into a viceroyalty of Spain, and the kingdom of Quito became a presidency of that viceroyalty. For 275 years, the present territory of Ecuador vegetated under Spanish misrule, making little progress either in morals or intelligence, but yielding—which was the principal concern of the mother country—a rich harvest of the precious metals. During a part of this period it was one of the richest and most productive of the colonies of the Spanish crown; but the patience of the Indians, too long tried, at last gave way, and in many of the mining districts they slew the proprietors and destroyed all traces of the mines. It was not until 1809 that the colonists, disgusted with the oppression of the home government, raised the cry of liberty at Quito, and in some 5 or 6 battles made a desperate effort to attain it, but were defeated. In 1820 the effort was repeated at Guayaquil, and this time, under the guidance of Bolivar, with success. In July, 1821, Ecuador, New Granada, and Venezuela were constituted a republic under the name of Colombia, and for 3 years subsequently maintained a series of conflicts with the Spanish forces. The battle of Ayacucho, in December, 1824, finally destroyed the Spanish power in these states. In 1828–'9 Peru attacked the Colombian states with a force of 8,000 men, but was defeated by the Colombian force, which amounted to only half its number. In 1831 Ecuador followed the example of Venezuela, and separating from the Colombian confederacy, became an independent republic. From that period up to 1852 the history of the republic was little else than a series of *pronunciamientos* and attempted revolutions, in the instigation of which Gen. Flores, an ambitious man, at one time president, attained a preëminence. Since 1852 he has ceased to foment difficulties in the republic, and the people have made considerable advance in population, industry, and intelligence. The president of Ecuador is now (April, 1859) Gen. Francisco Robles, who was elected in 1856. The French decimal system in the currency, weights, and measures, was adopted, Dec. 5, 1856, and has been in operation since Oct. 15, 1858. A treaty with Peru and Chili for mutual protection against fillibusters was concluded in the early part of 1857, but the good understanding between Peru and Ecuador has of late been interrupted. Guayaquil was blockaded by the Peruvian

forces, and the blockade was still continued, March 19, 1859, when President Robles removed the seat of government from Quito to Guayaquil. In March, 1859, an association was organized by German merchants in London with a view to direct the emigration from Germany to the republic of Ecuador. The district of Pailon, about 100 m. from Quito, has been selected for the establishment of the first settlement.—See Juan de Velasco, *Histoire du royaume de Quito* (French edition, Paris, 1840); Gaetano Osculati, *Esplorazione delle regioni equatoriali* (Milan, 1850); F. Walpole, "Four Years in the Pacific" (London, 1850); and Manuel Villavicencio, *Geografia de la Republica del Ecuador* (New York, 1858).

EDDA, the name of two collections of ancient poems of the Northmen, or early Scandinavians, from which is chiefly derived our knowledge of Scandinavian mythology. The Eddas, and in some instances the Sagas, were composed originally in Denmark, in Sweden, and doubtless also in Norway, where the language now known as Icelandic was longest preserved in Europe. This was the general language, and its literature is the common property of the North. The first of the Eddas is called the old or poetical, sometimes the Sämundic Edda. The word in Icelandic means ancestress, and the old Edda is the mother of Scandinavian poetry. What has been preserved of it consists of 39 poems, written at a remote and unknown period by anonymous pagan authors, and collected by Sämund Sigfusson, an Icelandic priest, who was born in 1056. He was educated in France and Germany, and after a sojourn in Rome, returned to Iceland, where he devoted himself to study and the education of the young. A copy of his Edda on vellum, the best which is preserved, was found in Iceland by Bishop Brynjúlf Sveinsson, in 1643, and published under the title of *Edda Sämundar hinns Froda* (Copenhagen, 1787–1828, 3 vols.), with an excellent *Lexicon Mythologicum*, by the learned Finn Magnussen, the editor of the last volume; there are also editions by Afzelius in Swedish (Christiania, 1818), by Munch (Christiania, 1847), by Schimmelmann in German (Stettin, 1777), by Studach (Nüremberg, 1829), and by Simrock (Stuttgart, 1851; 2d ed. 1855). The different poems may be classed according to the nature of their subjects, as mystical, didactic, mythological, and historical, containing elements more ancient than the Christian era in the North. The most remarkable in the 1st classification is that which bears the title *Völuspa*, the oracle of the *Vola*, or prophetess. It is a rapid and obscure exposition of the cosmogony of the Scandinavians, from the creation to the destruction of the universe. The *Grougaldur*, or magical song of Groa, is a collection of the terms of magic. The *Solar-ljod*, or song of the sun, was almost entirely added by Sämund, in imitation of pagan poetry. The influence of Christianity, however, is recognized in various allusions to a future state, and to the existence and occupations of the soul after death. Of the 2d class, we find a poem in dramatic form, the *Vafthrudnis-mal*. Odin desires to contend in science with the wisest of the giants, Vafthrudnir. He assumes the form and garb of a wayworn traveller, seeks hospitality of the giant, and proposes the contest, the wager agreed upon being the head of the vanquished disputant. The trial begins with numberless questions on the mysteries of the religion of Odin. The giant soon perceives the wondrous strength of his opponent, as sitting side by side they discuss the marvels of sacred science. "Tell me," says Odin, "the future state of souls; tell me what heroes do in Walhalla?" The giant makes light of questions so simple. He expounds as to a child matters within the every-day compass of Scandinavian learning. At length the pretended traveller makes his final attack. "What words," he asked, "whispered Odin in the ear of his son Baldur, when Baldur lay on the funeral pyre?" The giant grew pale. He knew that Odin alone could know those whispered words. The god stood confessed before him. "My doom, my doom, great Odin," he cried; "let the deed of celestial destiny be done. Let it fall on him who has dared to talk of sacred science with Odin, wisest of gods!" The *Grimnis-mal* describes the 12 homes of the gods, the 12 signs of the zodiac. In the *Alvis-mal*, the dwarf Alvis, one of the genii charged with lighting the torch of the sun, has been betrothed to the daughter of Thor, and comes to claim his bride. The god entertains the spirit during the whole of the night, when at length the unfortunate Alvis, scenting the cool air of morning, is summoned brideless away to the sun. The *Hyndlu-ljod* is an obscure account of the genealogy of some of the northern kings, descendants of gods. The *Hava-mal*, the sublime discourse of Odin, is a collection of allegorical poetry and maxims in verse, ending with a chapter wherein the god explains the mysterious power of the runes against various misfortunes. The poem contains precepts also of commonplace wisdom, such as: "Dwell not too long with one host; he may weary of thee;" "One man may keep a secret, not two;" "That which three men know cannot be a secret." Other precepts in the same collection breathe less virtue than cunning and artifice. Among the poems purely mythological may be cited the *Hymisquida*, or song of Hymer, describing a feast given by a sea god to his brother divinites. The *Rafna-galdur-Odins*, the song of the raven of Odin, describes the gods lamenting the approach of their last day. The historic class of poems in the Edda is more abundant than the others. Reality, however, as in the poems of Homer, is enveloped in the supernatural. They narrate heroic days; and like the song of the *Nibelungen*, record the adventures of heroes who have been, more or less truly, identified with Dietrich, Sigurd, Siegfried, and Attila and his Huns, during their first inroads upon the provinces of Rome.—The prose Edda is ascribed to the celebrated Snorro Stur-

leson, who was born in 1178. It is a collection of the myths of the gods, and of explanations of the types and metres of the pagan poetry. It was gradually formed by the labors of several writers, although it usually bears the name of Snorro Sturleson alone. It was intended for the instruction of the young scalds, or poets, and shows that the old poetry of the Icelanders came to be cultivated as a learned art. The Edda of Snorro, obviously of less value than that of Sämund, is principally worthy of attention, in so far as it completes and aids the comprehension of the other. A complete edition was published in Stockholm in 1818, by Prof. Rask. The work had previously been imperfectly known in the edition of Resenius (Copenhagen, 1665), taken from corrupt manuscript, the text often confounded with the notes of the scalds. The introduction, or *Formali*, is a quaint compendium of Jewish, Christian, Greek, Roman, and Icelandic legend, illustrating the origin and chain of descent of the Scandinavian race from the heroes of Troy. The *Gylfa-ginning* follows, and relates the visit of Gylfe, a Swedish king and magician, to Asgard, in order to observe at its fountain head the spirit of northern wisdom. An English translation of the first part of the prose Edda is contained in "Mallet's Northern Antiquities" (Bishop Percy's translation, new edition, London, 1847). The second part of the prose Edda, called *Bragar-rädar*, represents Bragi, the god of poetry, at a feast given by Ægir, god of the sea, entertaining the celestial company with a narration of their own exploits. The epilogue, or *Eptimarli*, written by Snorro Sturleson or by a contemporary, is an attempted solution of the Edda fables by events of the Trojan war. At the end of the prose Edda we have the *Scalda*, a kind of *ars poetica*, or manual for the use of the young students of the art. We have already remarked that the German song of the *Nibelungen* recounts adventures and heroes of the Scandinavian poems. August Schlegel supposed the German poem to have been written about the year 1207. The Scandinavian poems are known to have been earlier, probably by several centuries.

EDDYSTONE ROCKS, a reef of dangerous rocks in the English channel, 600 or 700 feet in length, and about 9 m. S. W. from the Ramhead. They consist of 3 principal ridges, which are entirely covered at high water. A celebrated lighthouse on one of these rocks was begun in 1757 and finished in 1759. It is between 80 and 90 feet high, and furnished with 16 powerful Argand burners, giving a light of the first magnitude, visible in clear weather for 13 m. The first lighthouse on these rocks was built in 1696, of stone and timber. It was swept away in 1703, and another tower was constructed of wood 5 years afterward. This was destroyed by fire in 1755, and the present edifice was then commenced by the celebrated engineer, John Smeaton. The material employed was Portland stone, encased in granite, partly quarried from the rock itself, into which the foundations were dovetailed. The violence of the swell at the lighthouse renders communication with the shore extremely difficult, even in serene weather, and the sea frequently rises above the light, the strong plate glass of the lantern having been more than once broken by the waves. Three light keepers are employed here, and the house is always supplied with provisions for 3 months, and a stock of 500 gallons of oil.

EDEN (Heb., pleasure, delight), the Scripture name of the place where God placed Adam and Eve before the fall (Gen. ii. 8, 15, &c.). In the Septuagint it is called Paradise, that is, a park or pleasure garden. It was watered by a river which issuing forth branched into four streams, named Pison, Gihon, Hiddekel (or Tigris), and Euphrates. No locality can now be fixed for the garden of Eden, notwithstanding the efforts of learned men devoted to this topic. The geographical indications, as given in the book of Genesis, are too vaguely expressed to enable us to determine with any approach to certainty where it was situated. The most probable opinion seems to be that which assigns for the garden of Eden a place somewhere among the high mountainous regions of Armenia, where the rivers Tigris and Euphrates take their rise. Some writers, however, are of opinion that the garden of Eden is only a figurative expression, not intended to indicate any actual locality on earth.

EDENTATA, a small group of mammals, elevated into an order by Cuvier, and associated together rather by negative than positive characters; these are, a partial or total absence of teeth, the possession of very large claws embracing the ends of the toes, and a general slowness of motion arising from the organization of the limbs. One group consists of strictly vegetable feeders, the *tardigrada* of Illiger, including the sloths (*bradypus*, Linn.); the other group is principally insectivorous, including the ant-eater (*myrmecophaga*, Linn.), the armadillo (*dasypus*, Linn.), the pangolin (*manis*, Linn.), the aardvark (*orycteropus*, Geoff.), and the gigantic fossil *megatherium;* these are described under their respective titles. The term *edentata*, or toothless animals, is not properly applied to any of the group except the ant-eaters and the pangolins. The sloths are fitted for a life among the branches of trees, which they rarely leave, unless in search of fresh food, and then in the slowest and most awkward manner; the ant-eaters dig up their insect food with their powerful claws, and entrap them on their glutinous tongues; the armadillos, with their hard external covering, pursue insects on the ground, dig after vegetables and roots, and eat even decaying carcasses. The skull in the sloth is very short and round, in the armadillo longer and pointed, and in the ant-eater much elongated; in the megatherium there is a return to the short and solid skull of the sloth, and this animal seems in many respects intermediate between the tardigrada and the true edentata. The spine varies in the length and firmness of its

parts, according to the habits of the animal; the neck is long and capable of great rotation in the sloth, the 2 upper dorsals being so modified that they perform the functions of cervicals, with rudimentary ribs; the dorsal portion is very long, and contains more vertebræ than in any other mammalian group, viz.: 16 in the great ant-eater, 14 in the 3-toed and 23 in the 2-toed sloth; the ribs are remarkably broad, overlapping each other near the spine in some of the ant-eaters, giving thus great solidity to the chest and the necessary support for the digging fore limbs; the lumbar vertebræ are broad, with strong spinous, transverse, and articulating processes; the caudal vertebræ are 7 or 8 in the sloths, 40 in the great ant-eater, 45 in the long-tailed pangolin, and at least 18 in the megatherium; the V-shaped bones on the inferior surface are well developed in the true edentata, and in the megatherium; the anterior bone of the sternum is considerably developed in the whole group, especially in the ant-eaters and armadillos. The pelvis in the sloths and the megatherium is wide and capacious, and the ilia very broad; in the true edentates it is elongated, with the acetabulum behind the middle, and the ilia are very long. The anterior extremities in the sloth are remarkable for their length, the cylindrical arm, the separation of the convex bones of the forearm, and the length of the wrist, hand, and claws; the posterior extremities have the femur short, flattened, and strong, and the bones of the leg curved as in the forearm; the fibula forms a curious articulation with the astragalus, allowing great freedom of rotation, and the tuberosity of the os calcis is much elongated. In the true edentates, the anterior limbs are formed for digging, and therefore the scapular arch is well developed, the humerus short and robust, with strongly marked processes for muscular attachments; a clavicle is present in the ant-eaters and armadillos, but absent in the pangolins; the forearm has so large an olecranon that the ulna is nearly or quite twice the length of the radius; the bones are robust, and the hand is remarkable for the unequal size of the fingers, the middle one being in most of them much the largest; the peculiarities of the posterior limbs are less remarkable. There is an animal of Chili, called *chlamyphorus truncatus* by Dr. Harlan, which resembles the mole in its form and subterranean habits, and the strength and shortness of the legs; it comes near the sloths in the form of the teeth, and resembles the armadillo in the general characters of the skeleton; in the sternum and ribs it is like the *monotremata;* it is properly placed among edentata, and by Gray in the armadillo family. Another reason for separating the tardigrades from the edentates is found in the digestive apparatus. In the former the teeth are simple, formed for bruising leaves and stems; the stomach is complicated, divided into numerous compartments by internal folds, somewhat like the stomach of ruminants; the large intestine is readily distinguished by its size from the small, and by their partial separation. In the edentates, the teeth when present are simple, more numerous, and formed for crushing insects; the stomach is far less complicated, and the division into small and large intestine is not well marked. The peculiar subdivision of the arteries of the limbs in the sloths is not required in the active and terrestrial edentates; and the investing armor of the armadillo and the pangolin would be equally unnecessary for the arboreal tardigrades. The *edentata* seem to establish the passage from the *unguiculata* to the *ungulata*, as the nails are greatly developed, and cover in a great degree the ends of the fingers. That which especially characterizes them is the general absence of teeth in the anterior portion of the jaws, the dental apparatus being in most reduced to molars and canines.

EDESSA, the modern Oorfa, an ancient city of northern Mesopotamia, the capital of the province of Osroëne. Tradition ascribes its foundation to Nimrod, and supposes it to be on or near the site of the Ur of the Chaldees mentioned in Scripture (Gen. xi. 28). Under the Seleucidæ it was called Callirhoë, and under Antiochus IV. it took the name of Antiochia. In 137 B. C. it became the capital of an independent kingdom. The name Abgar or Agbar (the mighty) appears as that of its sovereigns, and its manufactories of arms were celebrated. Edessa was sacked by Trajan, by reason of the equivocal conduct of its rulers during the wars of the empire against the Armenians and Parthians. In 216 it was made a Roman military colony by Caracalla, who was murdered there in the following year. It played an important part in the early Christian church, was the residence of St. Ephraim, had famous schools of theology and more than 300 monasteries, and was for many years the principal seat of oriental learning. It was taken by the Arabs shortly after the death of Mohammed, and in the time of the first crusade became a Christian principality under Baldwin I., brother of Godfrey of Bouillon. Baldwin ruled it from 1097 to 1100, purchased Samosata and several other places, and abandoned his fief for the crown of Jerusalem. Baldwin II., cousin of the preceding, reigned from 1100 to 1118, was 5 years captive to the Turks, and was called in his turn to the throne of Jerusalem. Joscelin de Courtenay, the successor of Baldwin, was surnamed the Great by reason of his victories over the Saracens. Joscelin II., who reigned after him, was defeated by the sultan Noureddin, who captured Edessa and exterminated the inhabitants. It was plundered by Tamerlane in 1393, and in 1637 fell into the hands of the Turks, who changed its name to Orfah or Oorfa. The modern town is a large, well built place, with a wall 7 m. in circuit, and 40,000 or 50,000 inhabitants. Its grand mosque is a structure of considerable architectural merit, within which are held several schools for the instruction of young men in religion and law. It derives great commercial importance from its position on the route

between Aleppo and Koordistan.—EDESSA (probably the later name of the ancient *Ægæ;* the modern Vodena or Vodhena), the ancient capital of Macedonia, was situated on the Egnatian way, at the entrance of the pass leading from the mountain provinces into upper Macedonia, and also by another branch into Pelagonia and Lyncestes. The town was the cradle of the Macedonian dynasty, and even after the removal of the seat of government to Pella, in the plains below, Edessa continued to remain the national sanctuary and the burial place of the Macedonian kings. From its commanding position it continued to be of importance under the Roman and Byzantine emperors. Taken by Basil II., the conqueror of Bulgaria, it was strongly fortified under his reign (976–1025), and was called Bodina, whence the modern name. The modern town, which has few remains of antiquity, is situated in European Turkey, about 40 m. from Salonica, on the Vistritza river. The locality is as celebrated for its picturesque scenery in the present day as it was in ancient times.

EDFOO, the Atbo of the ancient Egyptians, and Apollinopolis Magna of the Greeks and Romans, a city of upper Egypt, on the Nile, 50 m. S. of Thebes. It has about 2,000 inhabitants, and manufactories of earthenware. Here are remarkable ruins of two temples partly covered by sand, whose architecture is that of the age of the Ptolemies, after Egyptian art had begun to decline.

EDGAR, an E. co. of Ill., bordering on Ind.; area, about 600 sq. m.; pop. in 1855, 13,920. It is drained by Embarras river and by Brulette and Clear creeks, two affluents of the Wabash. The surface is nearly level, and occupied partly by prairies and tracts of timber. The soil is fertile and suitable for grain and pasturage. Pork and wool are exported in considerable quantities. In 1850 the productions were 1,250,278 bushels of Indian corn, 49,424 of wheat, 138,830 of oats, and 174,828 lbs. of butter. There were 19 churches in the county, 1 newspaper office, and 690 pupils attending public schools. Named in honor of Col. John Edgar, one of the earliest and most distinguished settlers of the state. Capital, Paris.

EDGAR, a king of the Anglo-Saxons, son of King Edmund I., born about 943, succeeded his brother Edwy upon the throne in 959, died in 975. His reign was one of the most fortunate in the ancient history of England. He conquered the Scotch, is said to have reduced a part of Ireland, deterred both the foreign and domestic Danes from making any hostile movement, and improved the internal government of the kingdom. His vigor and foresight placed the country in so good a posture of defence, that the most of his reign is an interval of peace amid the constant wars waged by his predecessors and successors, and he has received from posterity the surname of "the Peaceful." Under the guidance of St. Dunstan he favored and reformed the monasteries, and restored the ecclesiastical discipline, which had been relaxed during the storms of Danish invasion. Yet the manners of Edgar himself were dissolute, and for bearing off a young lady educated in the convent of Wilton, he was ordered by St. Dunstan to abstain from wearing his crown for 7 years. The well-known story transmitted by Malmesbury on the faith of an ancient ballad, of his marriage with his second wife Elfrida, is the subject of an English tragedy by William Mason, and of a French opera by Guillard.

EDGAR ATHELING (that is, Edgar the Noble), an Anglo-Saxon prince, in the second half of the 11th century. The grandson of Edmund Ironside by his exiled son Edward, he was born in Hungary. In 1057 he followed his father to England, after whose sudden death in 1066 he became himself the heir to the crown, being the nearest relative to Edward the Confessor. Yet he was both young and feeble, and presented no claim, while the two resolute leaders Harold and the Norman William fought for the kingdom at Hastings. After that battle he was received at court by William the Conqueror, confirmed in the earldom of Oxford, which had been granted him by Harold, and treated with the greatest kindness. He accompanied the king in his visit to Normandy, but after his return, persuaded by the discontented Northumbrian lords, he took refuge with his followers in Scotland, and sought to lead a rebellion in Northumberland. Failing in this and in other enterprises, he returned to England in 1073, having previously rendered his submission to the king and received pardon. He was afterward engaged in a Scottish war to place a relative upon the throne of that country, and is thought to have gone to the Holy Land in the crusading army of Robert, duke of Normandy. His titles rather than his abilities make him a historic character, and the best result of his career was the introduction of something of the superior cultivation of the south into Scotland. (See ATHELING.)

EDGARTOWN, a post village, township, and seat of justice of Dukes co., Mass., on the E. side of the island of Martha's Vineyard; pop. in 1855, 1,898. The harbor is well sheltered, 4 or 5 fathoms deep, having a lighthouse with a fixed light 50 feet above the sea, erected on a pier 1,000 feet long, at the entrance to the harbor. It has 3 churches, 1 newspaper office, and in 1855 contained 1 manufactory of salt, 1 of oil and candles, 1 sail loft, and 2 boat-building yards. It had 12 vessels with an aggregate burden of 3,863 tons, a capital of $390,000, and 360 hands employed in the whale fishery.

EDGECOMBE, a N. E. co. of North Carolina, watered by Tar river, and by Fishing, Sandy, and Contented creeks; area, about 600 sq. m.; pop. in 1850, 17,189, of whom 8,547 were slaves. The soil is fertile and sandy. The surface is mostly level, and occupied in part by pine forests, from which quantities of turpentine are obtained. The staples are Indian corn and cotton, and the productions in 1850 were 759,373 bushels of Indian corn, 4,046½ tons of hay, and 3,097½ bales of cotton. The county was organ-

ized in 1783, and named in honor of the earl of Mount Edgecombe. Capital, Tarborough.

EDGEFIELD, a W. district of South Carolina, separated from Georgia by the Savannah river, and bounded N. by the Saluda; area, 1,540 sq. m.; pop. in 1850, 39,262, of whom 22,725 were slaves. It has a fertile soil and a moderately hilly surface, occupied by extensive plantations of Indian corn, oats, and cotton, and by large grazing districts. In 1850 the productions were 25,880 bales of cotton, 1,155,489 bushels of Indian corn, 62,810 of wheat, 285,926 of oats, and 166,757 of sweet potatoes. Numbers of cattle and swine are also raised. In 1850 there were 52 churches in the district, 2 newspaper offices, and 921 pupils attending public schools. Water power is abundant, and there are numerous mills and factories. The Savannah river is navigable for steamboats to the S. part of the district, and by small boats a still greater distance. Capital, Edgefield Court House.

EDGEHILL, a high ridge in the co. of Warwick, England, noted as the scene of the first battle between Charles I. and the parliamentary forces, in 1642. On the side of the hill is cut the colossal figure of a horse, whence a valley below has been named the Vale of Red Horse.

EDGEWORTH, Richard Lovell, a British inventor and author, born in Bath, England, in 1744, died in Edgeworthtown, Ireland, June 13, 1817. Of an ancient Irish family, he was educated at Trinity college, Dublin, and was afterward sent to Oxford. Before he was 20 years of age, he ran off with a young lady of Oxford, was married, and entered upon a life of gayety and fashion near Reading, in Berkshire, where his daughter Maria, afterward distinguished as an authoress, was born. From his boyhood he had been accustomed to make mechanical contrivances and philosophical experiments, and now in his eagerness for early racing news he constructed the first telegraph in England over a distance of 16 miles. He made several other inventions, all of which he abandoned before perfecting them, and which therefore led to no other result than gaining for him from the society of arts a silver medal in 1768, and a gold medal the next year. His favorite scheme at this time was to construct a locomotive which should carry with itself a short railway, upon which it should at the same time always run. He entered upon his patrimony in Ireland in 1782, and determined to devote himself particularly to the improvement of his estate, and the education of his children. He attempted to educate his eldest son on the plan which Rousseau had developed in his *Émile*. He put him into loose jacket and trousers, with naked arms and legs, and allowed him to run wild and do what he pleased. The young savage grew up to all the virtues except those which are needed in a civilized state. He hated books, hated every sort of government, hated to do any thing useful, but finally went to sea. Mr. Edgeworth was an enthusiastic member of the Irish volunteers, one of the earliest advocates of reform in parliament, and a member of the last Irish house of commons. He was involved in the troubles of the rebellion in 1798, and obliged to retreat with his family from his house, which however was saved from pillage on account of the esteem in which he was held personally. He was 4 times married, one of his wives having been Miss Honora Sneyd, the betrothed of Major André; his children were educated entirely at home under his own care. He wrote slowly and coldly, thought with logical precision, explained clearly, but yet could not express with his pen the passionate ardor with which he undertook any subject, and which he showed in his conversation. He preferred therefore to write in partnership with his daughter Maria, and in this way an "Essay on Practical Education" and an "Essay on Irish Bulls" were produced. He himself wrote several essays on railroads, telegraphs, carriages, and poetry. He took great interest in the literary pursuits of his daughter, who was accustomed to read to him her first rough plans and receive suggestions from him; and he also carefully revised her works and gave them his sanction before they were printed.—Maria, an English novelist, daughter of the preceding, born in Berkshire, Jan. 1, 1767, died in Edgeworthtown, Ireland, May 21, 1849. She was 15 years of age when her father succeeded to the family estate in Ireland, where under his direction she pursued her studies, formed habits of sharp observation, and developed that cheerfulness which made her always beloved in society, and that hope and confidence which are requisite to a full exertion of the mental powers. Early indicating her taste for literary pursuits, she seems never to have wished to be married; and as it had been the delight of her father to assist in developing her talent, she in return loved to remain by the family hearth, gratifying his earnest but less gifted mind by her literary successes, and repaying in his old age those attentions which she had received in youth. The series of her novels began with "Castle Rackrent," in 1801, and continued without interruption till 1817, during which period there appeared from her pen "Belinda," "Popular Tales," "Leonora," "Tales of Fashionable Life," "Patronage," "Harrington," and "Ormond." These works were remarkable for their humane sympathies, their moral tendencies, and their utter disregard of the materials out of which it was then the fashion to construct romances. The public was surprised by novels which contained neither ruinous towers, terrible subterranean cells, nor mysterious veils, and in which the characters were neither peers nor foundlings. The aim of Miss Edgeworth, like that of Joanna Baillie in her dramas, was to make each novel an elucidation of one particular passion or vice. Thus in her tales of fashionable life, Lord Glenthorn is a striking embodiment of ennui, Almeria is a heartless, wretched lady of mere fashion, Vivian illustrates the perplexities of a feeble will, Emilie de Coulanges

shows the passions and manners of a fashionable French lady, and the fine story of the "Absentee" exposes the folly and mortifications of those Irish families of fortune who leave their native country seats to be scorned in frivolous though brilliant society in London. On the death of her father in 1817 her career of authorship was for a time interrupted. She did not resume her works of fiction till she had expressed her affection for him by completing the memoir which he had begun of his own life, and she also completed and published, under the titles of "Rosamond" and "Harriet and Lucy," some stories for juvenile readers which had been begun by him 50 years before. Among the most ardent admirers of her novels was Sir Walter Scott, who avows that it was her humorous, tender, and admirable delineations of Irish character which prompted him to attempt similar portraitures of his own country. In 1823 she spent a fortnight with Scott at Abbotsford, by whom the visit was subsequently returned at Edgeworthtown. She did not reappear as a novelist till 1834, when her exquisite story of "Helen" was published; and her career of authorship terminated with the child's story of "Orlandino," which appeared in 1847. With the exception of a trip to the continent and a short residence at Clifton, she passed the latter years of her life at Edgeworthtown, unspoiled by literary fame, loved in the family circle which daily assembled in the library, and admired by all as a pattern of an intellectual and amiable woman. Her novels and miscellaneous pieces were first collected in 14 vols. (London, 1825). New editions appeared in London in 18 vols. in 1832, in 9 vols. in 1848, and again in 1856 in 10 vols. 12mo. They have been often republished in the United States.

EDGEWORTH DE FIRMONT, Henry Allen, the last confessor of King Louis XVI. of France, cousin of the authoress Maria Edgeworth, born in Edgeworthtown, Ireland, in 1745, died in Mitau, Russia, May 22, 1807. His father, an Anglican clergyman who became a convert to Catholicism and went to reside in France, borrowed the name of Firmont from an elevation on his estate. Henry, after having studied under the Jesuits at Toulouse and at the Sorbonne in Paris, was admitted to orders, chosen for confessor to Elizabeth, grand-daughter of Louis XV., and gained general esteem by his virtues and piety. He was selected by Louis XVI., after that monarch's condemnation to death, to render him the consolations of religion. He braved the popular indignation by passing with the king his last days, and ascending the scaffold with him. Just before the fall of the fatal axe, he addressed to him the words: "Son of St. Louis, ascend to heaven." He returned to Ireland in 1796, and was offered a pension which he refused to accept. He afterward accompanied the count of Provence (Louis XVIII.) to Russia, where his death was occasioned by his solicitous attentions to the French prisoners of war. He left a volume of "Memoirs," published in English by C. S. Edgeworth (London, 1815), and in French by Dupont (Paris, 1815). His letters have also been collected and published.

EDICT (Lat. *edico*, to declare), in Roman law, a general order published by the prætor when he entered upon his office, containing the system of rules by which he proposed to administer justice during the year of his office; also an annual proclamation made by the ædiles. In actual practice it was not, however, a new ordinance compiled every year by either the prætor or ædiles, but was substantially the same ordinance reënacted with some occasional modifications. The prætorian edict was revised or recompiled in the reign of Hadrian under the name of *edictum perpetuum*, after which it remained unaltered. The same term was applied to an ordinance or decree enacted by the emperor without the authority of the senate. It has also been used in modern legislation to express a decree of a monarchical government in relation to some specific subject, as the edict of Nantes.

EDINBURGH (Celtic, *Dun-edin*), the metropolis of Scotland, finely situated on a congeries of hills, about 2 m. from its port of Leith, on the S. side of the firth of Forth, 337 m. in a direct line N. N. W. from London, but by railway, *via* Trent valley, 398½; lat. 55° 57′ N.; long. 3° 11′ W.; pop. of the city and suburbs in 1851, 160,302. The city is surrounded on 3 sides, at greater or lesser distances, with a number of hills, forming a picturesque background to the view. High above the city, on the W., towers the castle, on a rock 300 feet high, while to the E. rise the heights of Calton Hill, Arthur's Seat, 822 feet above the sea, and Salisbury Craigs, 547 feet, separated from each other by a deep ravine. The appearance of the city and surrounding landscape is exceedingly picturesque; viewed from whatever point, whether from the ramparts of the castle overlooking the new town, from the crags or Calton Hill, or from the lower parts of the city looking up at the heights, the scene is equally striking. The city proper is 2 m. in length by 2 in breadth, or including Leith and the suburbs, 2¾ by 3½. From its many open spaces, it covers more ground in proportion to its population than most other British cities. Its situation is exposed, but salubrious. Snow seldom lies long. Neither summer heat nor winter cold is excessive, the mean temperature of summer being 57° 2′, of winter 38° 4′; annual fall of rain, 24 inches; proportion of deaths, 1 in 36.45. The streets are paved and lighted, and the city is supplied with water at the rate of 25 gallons daily to each inhabitant. The merchants form an incorporate guild under a charter from Charles II., and there are also 14 incorporated trades. Government is vested in 31 town councillors, a dean of guild elected by the guild, and a convener of trades chosen by the representatives of the incorporated trades. These 33 officers select from their number a lord provost, 4 bailies, and a treasurer. The city became insolvent in 1833,

and its property has since been held by trustees. The revenue of the corporation in 1854 amounted to £24,000. A police force of 327 men is maintained at a cost of £38,746, payable from an assessment of 1*s.* 2*d.* per £ rental. Paupers are supported by an assessment, exclusive of the many munificent charities. In 1853 the number of permanent paupers was 4,599, costing per head £8 10*s.* for adults, and £7 10*s.* for children at nurse, the amount of assessment being £42,062.—Edinburgh has but little commerce or manufacturing industry. There are 28 breweries of strong ale, 16 carriage factories, and several shawl weavers. Glass blowing and lace making are carried on to a small extent. Edinburgh is, however, the seat of an extensive book trade, and second only to London among British cities in printing and publishing, engraving, and all other ancillaries to literature. There are nearly 70 printing offices, with 1,200 employees. The number of periodicals and reviews published in 1858 was 20, and of daily and weekly newspapers 26, 8 of which have been established since 1855. A considerable passenger traffic arises from the number of railways which centre in the city, viz.: the Edinburgh and Glasgow, North British, Caledonian, Grantown, and Dalkeith, together with the Union canal, which connects the firths of Forth and Clyde. There are 10 joint stock banking companies, of which 5 are Edinburgh institutions, and 5 branches. Regular markets are held thrice a week, with cattle and horse fairs in the first week of November, and on the first and second Mondays of April.—The chief judicial authority of Edinburgh is the court of session, which is the supreme civil court of Scotland. It consists of 13 judges, constituting an inner and an outer house; the inner house comprises the "first division," presided over by the lord president and 3 senior puisne judges, and the "second division," under the lord justice clerk and 3 senior puisne judges; the outer house consists of the remaining 5 puisne judges officiating as lords ordinary, each sitting singly. An appeal lies from the decision of a lord ordinary to the inner house, and thence only to the British house of lords. A court of exchequer still nominally exists, but its functions are discharged by 2 judges of the court of session acting as barons of the exchequer. The lord president (as lord justice general), lord justice clerk, and 5 puisne judges of the court of session, also constitute the court of justiciary, having supreme criminal jurisdiction, which sits as occasion requires, with periodical circuit assizes. Lawyers privileged to practise before the supreme courts must belong to the faculty of advocates, which consists of 400 to 500 barristers, or to that of the writers to the signet, comprising 600 to 700 members. An ancient court called the convention of royal burghs meets annually in Edinburgh, the provost presiding; and a commissary court still exists, although its functions are almost merged in the court of session.—Edinburgh is divided into the old and new towns, the former picturesque and dirty, the latter unsurpassed for regularity and elegance. The old town mainly occupies a ridge between the castle on the W. and Holyrood house on the E., and includes on the S. a hollow occupied by an old street known immediately S. of the castle as the West-port, and further to the E. as the Cowgate. N. of the old town, and separating it from the new, was formerly a small body of water called the North loch, which is now drained and occupied by a market place, abattoirs, railway termini, &c. In the old town can be seen the peculiarities of the domestic architecture of former times in the dwelling houses of 5 and 6, and even of 11 stories, including attics, laid out in flats, or separate tenements on the successive floors, with a stone staircase common to all. In the new town the houses are almost universally 3 stories in height, with attic and sunk basement, and of tasteful architecture. The whole city is built of stone. The castle crowns the summit of a precipitous rock. It is a picturesque object, but far from impregnable; it has quarters for 2,000 men. It dates as a place of defence from the 5th century, but its present fortifications are modern. Its curiosities are the crown, sceptre, sword of state, and wand constituting the regalia of Scotland; Mons Meg, a huge cannon, constructed, it is supposed, at Mons, Flanders, in 1496, of bars and hoops; an armory capable of stacking 30,000 muskets, and a lately discovered chapel of the 10th century. A prominent feature of the old town is its principal street, the High street, of historic celebrity, which is one mile long, and in some parts 90 feet wide, and, under the continuous names of Castle Hill, Lawnmarket, High street, and Canongate, occupies the crest of the ridge from the castle to the valley in which lies the palace of Holyrood. On High street is the high church, dedicated to St. Giles, the patron saint of the city, and noticeable for its tower surmounted by an imperial crown in masonry; after the reformation it was divided by interior walls into 4 places of worship, in one of which John Knox officiated; his house still stands in the vicinity. Behind St. Giles is parliament square, containing the old parliament house of Scotland, now used as a court house; also the advocates' and signet libraries. In the old town are also the exchange, the Tron kirk, and Victoria hall, a modern structure in which the general assembly of the Scotch church meets. At the foot of the Canongate is Holyrood house, formerly a residence of the kings. The edifice is of ancient date, but little if any of the present structure is older than the reign of James V. The building is quadrangular in form, with an open court 94 feet square in the centre, but has nothing imposing in its architecture. Within the palace is the chamber of Mary, queen of Scots, in which her bed, though in a decayed state, may still be seen. Charles X. of France, after his flight in 1830, resided for some time in the palace, and Queen Victoria, whose statue adorns it, resides there on her visits to Edinburgh. In the gallery are mythical portraits of 106 Scot-

tish sovereigns. Adjoining the palace are the ruins of an abbey founded in 1128, and the space around the abbey and palace to the distance of 100 yards toward the city, but countryward embracing a circuit of 5 m., including Salisbury Craigs and Arthur's Seat, is a sanctuary in which debtors are privileged from arrest. The Cowgate, once an aristocratic but now a mean street, winds tortuously along the base of the hill, with a fringe of squalid alleys, until it expands into the Grass market, a spacious rectangle, in which is the new corn exchange, facing the spot where the Covenanter martyrs were executed in the latter half of the 17th century. A little S. stands Heriot's hospital, on the site called High Riggs. The heights of the old town are connected with the new by the south and north bridges on the line of Nicholson, a spacious street. The south bridge, and at another place George IV.'s bridge, span the Cowgate high above the roofs of the houses, while the north bridge throws its 3 principal arches across the hollow formerly occupied by North Loch. Nicholson leads into Prince's street at the theatre, a plain structure, and opposite the register house, a square fireproof building for the preservation of records, which has in front a bronze equestrian statue of Wellington. To the right, along Waterloo place, is Calton Hill, 344 feet above sea level, rising with an abrupt face to the E., but the whole covered with verdure except where it is dotted with monuments. Of these the most conspicuous are Nelson's, a tall circular tower; the national monument to the memory of Scotchmen who fell in the Napoleonic wars, which was intended to be a facsimile of the Parthenon, but for lack of funds only 12 columns have been erected; a monument to Prof. Playfair; one to Dugald Stewart, in imitation of the choragic monument of Lysicrates at Athens; and a Corinthian temple, with a statue to Robert Burns. On the hill are also the high school and observatory, and at the base are the massive castellated buildings of the gaol and bridewell, which superseded the old "heart of Mid-Lothian," pulled down in 1817. From Waterloo place Prince's street runs in a direct line, forming a terrace along the edge of the gardens of North Loch, and directly fronting the castle. This is considered one of the finest promenades in Europe. On Prince's street stands the noble Gothic tabernacle erected as a monument to Sir Walter Scott. A little further are the royal institution, on the roof of which is a statue of Queen Victoria, and the national gallery, two classic structures, the 1st Grecian Doric, the 2d Ionic. An immense causeway, called the earthen mound, formed from the debris of excavations, here unites the old and new towns. At the head of the mound is a handsome edifice in the Tudor style, erected for the college of the Free Presbyterian church.—The ground plan of the new town is a regular parallelogram of 3,900 feet by 1,090, Prince's street forming the S. line, George street, 115 feet in width, the middle line, and Queen street the N., with cross streets every 250 yards. George street contains statues of George IV. and of Pitt, and, in St. Andrew's square, a fluted column 153 feet in height with a statue to Lord Melville. Continuous from the new town extends another parallelogram, containing numerous fashionable streets and squares, as Great King street, Moray and Drummond places, &c. South of the old town are the "Meadows," a level park 1¼ m. in circumference; also Bruntsfield links, a sandy plain much used as a field for the national game of golf. Further are the pleasant suburbs of Newington and Morningside, the latter containing the lunatic asylum. Dean bridge spans the water of Leith at a height of 109 feet above the river bed, and connects the new town with the country to the N. Leith, the port of Edinburgh, lies about 2 m. N. of the city, and is approached by a spacious street called Leith walk.—Edinburgh, including Leith, possessed, according to the census of 1851, 123 places of worship, providing accommodation for 81,873 persons, equal to one seat for every two of the population, and classified as follows: Baptist 7, Catholic and Apostolic church 1, Episcopal 10, Established 26, Free 29, Friends 1, Glassites 1, Independent 6, Isolated 8, Jews 1, New Church 1, Original Seceders 1, Primitive 1, Relief Presbyterian 1, Roman Catholic 4, Unitarian 1, United Presbyterian 20, Wesleyan 4. The 15 city churches of the establishment are in charge of the civic corporation, who appoint the 18 ministers and pay them from a tax of 6 per cent. on the city rental. This tax is a source of heartburning to citizens of other denominations, but has been collected for 2 centuries. At present it amounts to about £10,000 net per annum, giving to each minister an average stipend of £568. The 25 ministers of the Free (or opposition) church receive from voluntary sources an average emolument of £289 each. The annual assembly of the churches of Scotland, Established and Free, meet annually in May. Each has a training school for teachers, and seminaries for divinity students.—The university of Edinburgh was founded in 1582, with a charter from James VI. The corporation of the city have the appointments to the greater number of the chairs, the crown having the nomination to the others, excepting 3. There are 32 professorships, divided into the 4 faculties of theology, law, medicine, and arts, with power to confer the usual degrees of Scotch colleges, viz.: D.D., LL.D., M.D., and A.M. An act passed Aug. 2, 1858, gives power to commissioners (appointed by the queen in council) to revise the foundations, or bursaries, to regulate the elections of university officers, to prescribe the course of study and the amount of fees, to report on the expediency of founding a new national university of Scotland, and to make arrangements for converting the present universities into colleges of the said university. Average attendance of students at the university of Edinburgh, 1,500. The winter session commences Nov. 1, and closes at the end of April; the summer ses-

sion (mostly for medical studies) extends from the 1st Monday of May to the end of June. Students are non-resident, and little supervision is exercised over them. To qualify for a degree in arts, attendance and examination are exacted in the classes of Latin, Greek, mathematics, moral and natural philosophy, and rhetoric. Bursaries, or foundations, of an aggregate annual value of £1,172, are participated in by 80 students. A litigation on a legacy left by the late Gen. Reid for the promotion of musical education was concluded in 1855, and a sum amounting to about £62,000 placed at the disposal of the university. The present principal is the Rev. Dr. Lee; secretary, Alexander Smith, the poet. The college building consists of a single quadrangle, having its main front, 356 feet, on South Bridge street. It is of Roman architecture, heavy in design and massive in execution. Within the edifice is the museum, rich in objects of natural history, to which the late Prof. Edward Forbes bequeathed a valuable collection. The number of visitors in 1857 was 75,754, of whom about 4,000 were students. Until recently the library, which contains over 100,000 volumes, was entitled to a copy of every book published in Britain, but the privilege is now abrogated in consideration of an annual grant of £575, beside which it receives £1 from every student who matriculates, £5 from every new professor, and a percentage on the graduation fees in medicine and arts. The other libraries of Edinburgh are: the advocates' library, and that of the writers to the signet, beside 5 public collections. The advocates', which was founded in 1682 by Sir George Mackenzie, contains about 150,000 volumes and 2,000 MSS. The signet library has 70,000 volumes, and both are open to the public under most liberal regulations. The faculties of surgeons and physicians have each extensive libraries, as has also the royal society, incorporated in 1783, for philosophic research. The institutions named have also valuable museums of their respective specialities. The Free church college has 6 professors, with a course of study embracing divinity, church history, oriental languages, exegetical theology, apologetics and pastoral theology, natural science, logic, and metaphysics; session from the 1st Tuesday of November to the beginning of April. The high school is another celebrated educational establishment, dating from the early part of the 16th century. Its curriculum of study occupies 6 years, and embraces Latin, Greek, French, German, geography, history, natural science, with the ordinary branches of a commercial education. Average number of pupils 300 to 400; quarterly fees 7*s.* 6*d.* to £1 5*s.* for each class. The Edinburgh academy is an institution of a similar nature, with a 7 years' course of study, at a scale of fees calculated for the wealthier classes—£7 for the 1st year, increasing to £11 10*s.* the last. The following schools existed in 1854: Established church 20, Free church 22, United Presbyterian 10, Scottish Episcopal 5, Roman Catholic 4, not denominational 31; total 92, beside numerous private institutions, naval and military academy, 2 Dr. Bell's schools, with 600 pupils, Lancasterian, ragged, and industrial schools. The grants to elementary schools (in the whole county) from parliamentary votes, from 1833 to 1857 inclusive, amounted to £41,580.—An admirable peculiarity of the Edinburgh educational system is the number of charitable foundations, called hospitals, which perform the double duty of charity and education. Heriot's hospital, the chief of these, was founded by the bequest of George Heriot, goldsmith to James VI., for the maintenance and education of sons of burgesses unable to maintain them. Thirty boys were admitted into the hospital on its opening in 1659. At present it bestows a thorough education on 180, boarding them for 7 years, and presenting them with £50 when apprenticed. The revenues of the hospital having outgrown its expenditures, 12 free schools have been established, which educate gratuitously 3,000 pupils. Donaldson's hospital is a more recent foundation of a kindred nature, established by the legacy in 1830 of James Donaldson, a printer. It already contains 300 inmates. Both the above-named hospitals have extensive buildings, Heriot's S. and Donaldson's 1 m. W. of the city. In addition to these are the following hospitals, partly for education of youth, and partly for maintenance of poor citizens: Trinity, for aged burgesses, 108 inmates; merchant maiden, 100 girls; trades maiden, 48 girls; George Watson's, 86 boys; orphan, 100 boys and girls; John Watson's, 120 boys and girls; Gillespie's, 200 boys and 40 aged persons; Cauvin's, 26 boys; Stewart's, for boys; Chalmers's, for sick and disabled; Fettes's, for young poor; the royal infirmary, with 400 beds; also 3 poorhouses.—The royal institution building is the property of the board of trustees for manufactures in Scotland. This body was organized in 1727, with power to administer a grant of £2,000 per annum contained in the articles of union between England and Scotland, for the encouragement of manufactures and the fisheries. In 1809 a separate fishery board was organized, and for many years the funds of the board of manufactures have been applied to the encouragement of art, chiefly through the school of design. The seat of this school contains accommodation for the board of British herring fishery; the royal society of Scotland, the most influential of the learned societies, and which publishes its transactions; the society of antiquaries; the royal institution, incorporated for the encouragement of the fine arts; and the school of design, with fine collections of paintings and statuary. The last was established on a humble scale in 1760 as a drawing academy, in which Wilkie and many of the most eminent Scottish artists were educated. Having been enlarged into a general school of design for manufactures, architectural and general ornament, as well as the study of the antique, it has at present about 200 students, including several school teachers. Art is further

represented by the Scotch national gallery of art, the royal Scottish academy, and the royal association for the promotion of the fine arts in Scotland. Antiquities are represented by the society of antiquaries, and agriculture by the highland and agricultural society of Scotland, which has done much for the development of the farming resources of the country. Industry is further encouraged by the establishment of an industrial museum for Scotland, comprising a museum proper, laboratory lectures (attended in 1857 by 20 pupils, beside 40 students of the university class of technology), and a library which was formally organized in 1857. A site for the new museum has been acquired; the cost of the building will be about £40,000, and a vote of £10,000 was proposed to parliament in 1857, which, however, was postponed. Botany is fostered by the botanic garden, which is the only one in Scotland, and is supported by government; astronomy, by the observatory, presided over by the astronomer royal for Scotland, who, beside his ordinary duties, lectures on practical astronomy at the university. The observatory is situated on Calton Hill, and is the property of the government, which grants £100 per annum for its support. Its lat. is 55° 57′ 23.2″ N.; long. 3° 10′ 45″ of space, or 0h. 12m. 43.0s. of time, W. of Greenwich. An act authorizing the government to acquire the theatre royal and adjacent property for the erection of a new general post office was passed in 1858.—Edinburgh is of high antiquity. Its castle rock is said to have been a stronghold of the natives long before their subjugation by the Romans. It was known as *Castelh-Mynyd-Agned*, or the fortress of the hill of Agnes. Subsequently it was called in the Gaelic *Magh-dun*, in the British *Mai-din*, from which in English it came to be styled the Maiden Castle, and by the Latin writers of the middle ages *Castrum Puellarum*. To account for this appellation, a romantic story was invented that the British kings in times of war or trouble sent their daughters to this stronghold. At the beginning of the 7th century, when the Anglo-Saxons were dominant in the south of Scotland, the place began to be called Edwin's burgh, from Edwin the king of Northumbria, who occasionally made it his residence. The Celtic inhabitants turned the English phrase into *Dun-edin*, which is also descriptive of the natural features of the site—the words signifying "the face of a hill." About the middle of the 9th century Edinburgh seems to have been a considerable village, and the possession of its castle was often contested in the wars between the Scots and the Anglo-Saxons. When the Scots regained Lothian in the 11th century, Edinburgh castle began to be frequently occupied as a royal residence. In the reign of David I. the town was reckoned one of the 4 chief places of the kingdom, and in its immediate vicinity this monarch founded the abbey of Holyrood. The canons of the abbey built a suburb westward from their church till it met the town, and the part of the city thus created still retains the name of Canongate. In the 12th century, William the Lion, who made the castle his residence, added largely to the town and constituted it a royal burgh. In 1215 the first parliament of Alexander I. was held there. In June, 1291, the castle, with nearly all the other fortresses of Scotland, was surrendered to Edward I. of England. In 1313 it was stormed at midnight, Feb. 28, by the Scots under Randolph, earl of Moray, who destroyed it. It was retaken and rebuilt by the English under Edward III., who placed there a strong garrison and made it for a time his residence. In 1337 it was unsuccessfully besieged by the Scots under Sir Andrew Moray, and in 1361 was taken by stratagem by Sir William Douglas. During the reign of David II. it was the seat of numerous parliaments, and though not the unquestioned metropolis, was held to be the chief town of Scotland. In 1384 it was visited by Froissart in company with a party of French knights. He calls it the Paris of Scotland, and describes it as consisting of 4,000 houses, so poor that they could not afford the knights due accommodation. After the murder of James I. at Perth in 1437, Edinburgh became decisively the national capital. His son James II. was conveyed thither for security from the murderers of his father, and continued to hold his court there. He was particularly attached to the place, and granted the city a variety of privileges and immunities, favored by which it grew rapidly in wealth and population. James III. bestowed upon it a banner which is called the blue blanket, from its color, and is still preserved as a sort of palladium of the city. In 1508 Chapman and Millar, under a royal charter, introduced the printing press. In 1513 the city was desolated by a plague, and the magistrates and many of the burgesses fell with James IV. in the fatal battle of Flodden. During the minority of James V. Edinburgh was the scene of many tumults between rival factions. In a fight between the Hamiltons and the Douglases 200 men were slain in the streets. This affair is popularly known as "clear the causeway." In 1532 the college of justice was established, and the city thenceforth became the chief seat of law for the whole kingdom. At this time, too, the High street was first paved and lighted. In August, 1534, Norman Gourlay and David Straiton were condemned and executed for Protestantism. In 1544 the earl of Hertford with an English army landed near Leith and set fire to the city, but could not take the castle. To defend it from the English, it was garrisoned by French troops in 1548. In 1556 the preaching of John Knox the reformer caused an outbreak of disturbances, which by the aid of Queen Elizabeth of England finally resulted in the triumph of the Protestants; and the first assembly of the reformed kirk met in the city in 1560, under the sanction of the municipal authorities. In August, 1561, the young and beautiful Mary, queen of Scots, arrived from France. In 1565 she married Darnley at Holyrood, and in Feb. 1567, her husband was blown up with gunpowder while sleeping in the house

of Kirk of Field, where the university now stands. Mary's marriage to Bothwell at Holyrood, on the following May 15, raised such disturbances in Edinburgh that the queen and her new husband fled from the city, June 6, pursued by 800 horsemen. In the civil war that ensued Edinburgh was frequently the scene of battle and suffered severely. In 1581 the erection of the college was begun, and the first professor appointed in 1582. In 1603 the city ceased to be the seat of royalty by the accession of James VI. to the crown of England on the demise of Elizabeth. In 1633 Charles I. visited the city and erected the bishopric of Edinburgh, a measure which gave rise to great disturbances. In Oct. 1643, the solemn league and covenant for the extirpation of prelacy was signed in the High church. The city raised and supported a regiment of 1,200 men to assist the English parliamentarians against Charles. In 1650 the royalist Montrose was executed at the town cross, and 2 months later Charles II. was proclaimed king at the same place. Still 2 months later, and Cromwell, having defeated the Scots at Dunbar, took possession of the city, and subsequently of the castle. From 1663 to 1685, under Charles II., Edinburgh was the scene of the torture and execution of a vast number of Covenanters, martys to their faith. In 1736 occurred the famous Porteous mob. In 1745 Edinburgh was occupied by the forces of the young pretender, Charles Edward, who held it for 5 or 6 weeks, but did not succeed in reducing the castle.

EDINBURGH REVIEW, the oldest of the great British quarterly reviews, the first number of which appeared in Edinburgh in Oct. 1802. It was originated by several young men then resident in the Scottish capital, the most prominent of whom were Sydney Smith, Francis Jeffrey, Henry Brougham, and Francis Horner. "I proposed," says Sydney Smith, "that we should set up a review; this was acceded to with acclamation. I was appointed editor, and remained long enough in Edinburgh to edit the first number." He was succeeded in the editorial office by Jeffrey, who retained it till 1829. The "Edinburgh Review" was successful from the commencement; it reached a circulation of 9,000 copies in 6 years, and of 13,000 in 12 years; and its appearance marks an era in journalism. Such elaborate discussions of the principles of politics and taste, written with so much brilliancy and effect, and containing such intrepid criticisms, had not before been attempted in periodical literature. The organ of whigs, it appeared even more liberal from the tone and temper of its articles than from the measures and principles which it advocated, for it favored a free and full discussion, an open field and fair play to argument and wit. It was thus the medium through which the daring ideas in philosophy and political science, that had been elaborated in the 18th century, were made familiar to the general public. Its high literary character was due not only to the talent and refinement of its contributors, but also to the fact that the articles combined the philosophical treatment of subjects with the critical examination of books. The greatest offences of the review, while under the care of Jeffrey, were in some of the belles-lettres articles, especially those on the poems of Wordsworth, Southey, and Lamb, which were ridiculed severely, flippantly, and, as subsequently admitted by Jeffrey, who wrote the critiques, unjustly. Wordsworth was accustomed to class Robespierre, Bonaparte, and Jeffrey together, as the three most formidable enemies of the human race who had appeared within his remembrance. The last article of Sydney Smith was published in 1827. Sir James Mackintosh had then become an occasional contributor, and Lord Brougham continued to write many political articles. A few years before the withdrawal of Jeffrey he had secured the services of two contributors who maintained the character of the review, Thomas Babington Macaulay and Thomas Carlyle. In 1825 Macaulay, then a student at Cambridge, despatched to the editor without personal acquaintance or introduction his paper on Milton. It was immediately admitted, and from that time till he went to India in 1835 almost every number contained one of his brilliant essays, chiefly on the literature of England. He continued to furnish articles after his return, among which were those on Clive and Hastings, till he began the composition of his history of England. One of his last contributions was his invective against Barrère, "the Anacreon of the guillotine." The articles of Carlyle began in 1827, and continued almost regularly for 6 years. He now atoned for some of the early sins of Jeffrey, who had depreciated Burns, satirized the German literature, "cut up" Goethe, and sneered at Richter. Carlyle furnished a massive panegyric of Burns, and a series of elucidations of the principal German authors. Some of his papers too, as that on the "Signs of the Times," startled the ordinary contributors and supporters of the review by depreciating modern progress, and by regarding the triumphs of machinery as leading only to the subjugation of mind to matter. Upon the resignation of Jeffrey the editorship devolved upon Macvey Napier, known also as an editor of the "Encyclopædia Britannica." He retained the office till near his death in 1847. During this period the whigs came into power, and the review as their organ adopted therefore a tone rather defensive than offensive. It had at first been thought almost an incendiary publication, but a party which deemed it not liberal enough had established the "Westminster Review" in rivalry. Napier was succeeded in the editorship by Prof. Empson, a son-in-law of Lord Jeffrey, who in 1854 was succeeded by Sir G. Cornewall Lewis, who in the following year resigned it into the hands of Henry Reeve. Under its later editors the review has assumed a more serious and scholarly and probably less effective character than belonged to it formerly.

Among the prominent contributors since the disappearance of the original staff, have been Sir William Hamilton on topics of mental philosophy and education, J. R. M'Culloch on political economy and the progress of manufactures, Henry Rogers and W. J. Conybeare on the tractarian and latitudinarian movements in the Anglican church, Sir James Stephen on ecclesiastical history and biography, George Moir, G. H. Lewes, and R. Monckton Milnes. A selection of the best articles that had appeared in the "Edinburgh Review" from the commencement to 1833 was made by Maurice Cross (4 vols., London, 1833). Three indexes have been published: to vols. i.–xx. (1813), vols. xxi.–l. (1832), and vols. l.–lxxx. (1850).

EDINBURGHSHIRE, or MID-LOTHIAN, a maritime co. of Scotland, extending about 36 m. from E. to W., and about 18 m. from N. to S.; area, 397 sq. m.; pop. in 1851, 259,435. Its N. boundary is formed by the firth of Forth, and is studded with important towns and havens. The S. outline is very irregular, being deeply indented by Peeblesshire, from which it is partly separated by a continuation of the Moorfoot range. These hills, the highest of which is nearly 1,900 feet above the sea, occupy an area of nearly 50 sq. m. in the S. E. part of Edinburghshire, but are not entirely unproductive. Many fertile dales lie hidden among them, and a great part of their acclivities is under profitable cultivation. The Pentland hills, which extend from Peeblesshire N. E. into the centre of the county, are bleak and sterile, but afford some fine scenery. The soil, except in the valleys of the Forth and N. and S. Esks, is naturally of inferior quality, and most of the land is used for pasturage, but the farms are skilfully worked. The chief crops are wheat, barley, oats, beans, peas, potatoes, and turnips. Good breeds of sheep and cattle are reared, and milk and butter are sold at the Edinburgh and other markets. The minerals comprise coal, limestone, sandstone, and porphyry. The chief streams are the N. and S. Esks, Gala water, and water of Leith. The county is not extensively engaged in manufactures, though there are various establishments in the chief towns, bleacheries and grist mills on the water courses, and some large paper and gunpowder mills on the N. Esk. Whiskey and the famous Edinburgh ale are the other articles most extensively made. The Union canal and several lines of railway terminating at the capital are the most important channels of inland communication. Principal towns, Edinburgh, Leith, Dalkeith, Musselburgh, and Portobello. The county sends one member to the imperial parliament.

EDISTO, a river of South Carolina, formed by the union of the N. and S. Edisto, the former of which rises in the W. part of Lexington district, and the latter in Edgefield. They unite a few miles W. of Branchville, whence the course of the main stream is S. E. and S. It enters the Atlantic by 2 channels, between which lies Edisto island, about 20 m. S. W. from Charleston. It is navigable 100 m. from the sea.

EDMONDS, JOHN WORTH, an American jurist, more generally known for his advocacy of what is called "Spiritualism," born March 13, 1799, in Hudson, N. Y. He was graduated at Union college in 1816, was admitted to the bar in 1819, and in 1820 commenced the practice of his profession in his native city. In 1831 he was a member of the lower branch of the legislature of New York, and for the 4 years ensuing of the senate and court of errors. Retiring from the legislature in 1836, he spent most of the following two years on special missions from the federal government among the Indians on the frontiers. In 1837 he resumed the practice of the law in the city of New York. In 1843 he became one of the inspectors of the state's prisons, and for two years labored to introduce a reform in prison discipline, by substituting for corporal coercion the system of kindness. The effort was successful, and receiving the sanction of the legislature, inaugurated a new feature in the penitentiary system of the state. In 1845 he was appointed one of the circuit judges of the state of New York. In 1847 he was elevated to the bench of the supreme court, and in 1852 became a member of the court of appeals. At the close of 1853 he retired from the bench, and has since been engaged in the practice of his profession in New York. Early in 1851 he began to investigate the subject of alleged intercourse with the spirits of the departed, and in the summer of 1853 made a public avowal of his belief. The faith he teaches denies the ordinarily received doctrine of the divinity of Christ and his atonement for our sins, and inculcates the ideas that man can and does hold personal communion with the spirits of the deceased, and through it can learn what is the life into which we are ushered after death; that man is the creature of progression, from his birth through eternity; that such progress is the ultimate destiny of all; that it must in all be alike in love, in knowledge, and in purity, for it is also the destiny of each through eternity to be a ministering servant of the Most High in executing the laws of creation; that each may retard or hasten his own progression, but cannot prevent it, and that his immediate future for good or ill is of his own fabrication, for he passes into the next stage of existence precisely what he is in this life, with all his attributes and propensities as he has cultivated or perverted them here. In elucidation of these principles, Judge Edmonds has published several works, the most elaborate of which is entitled "Spiritualism" (2 vols. 8vo., New York, 1853).

EDMONDSON, a central co. of Ky., drained by Green river and Bear creek; area, 225 sq. m.; pop. in 1850, 4,088, of whom 325 were slaves. The surface is hilly or moderately uneven; the soil is fertile and suitable for grass and grain. In 1850 the productions were 193,095 bushels of Indian corn, 4,322 of wheat, 34,455 of oats, 86,980 lbs. of tobacco, 7,940 of wool, and 12,891 of flax. There were 5 church-

es, and 210 pupils attending public schools. Anthracite coal is abundant, and a considerable portion of the county is occupied by beds of cavernous limestone. The famous Mammoth cave is situated here. This county was organized in 1825, and named in honor of Capt. John Edmondson, who fell at the battle of Raisin river. Capital, Brownsville.

EDMUND I., a king of the Anglo-Saxons, son of King Edward the Elder, and successor of Athelstan, born about 923, ascended the throne in 940, died in 946. The restless Northumbrians immediately after his accession invaded Mercia, but the young king by a rapid march overawed them and forced them to submit, and to embrace Christianity. He had, however, hardly left the country when they again asserted their independence. Edmund next conquered the Britons of Cumbria or Cumberland, and conferred that territory on Malcolm, king of Scotland, on condition that he should do homage for it, and protect the north from all future incursions of the Danes. As Edmund was celebrating a festival in Gloucestershire, he perceived Leolf, a noted outlaw whom he had sentenced to banishment, enter the hall and insolently seat himself at the royal table. Inflamed by passion, he turned to seize the ruffian, when the latter stabbed him fatally in the breast.

EDMUND II., surnamed Ironside, a king of the Anglo-Saxons, son and successor of Ethelred II., born in 989, ascended the throne in 1016, died in the same year. Even before his accession he was recognized as the champion of the English cause against the Danes under Canute, but his abilities and hardy valor were unable to prevent the subjugation of the kingdom. Canute was proclaimed at Southampton at the same time that Edmund was recognized by the burgesses of London, and the latter city was immediately besieged by the Danish forces. Edmund, obliged to flee from his capital, raised an army in Wessex, and at Sceastoan in Gloucestershire gave battle to Canute, who was assisted by many disaffected English nobles and prelates under Edric. The battle raged for 2 days, and fortune seemed to have declared for Edmund, when a stratagem of Edric made the victory undecided. He again met his enemies at Brentford and at Otford, but by the perfidy of Edric sustained a decisive discomfiture at Assington. This nobleman, having insinuated himself into the favor of the English monarch, fled with his division at the very onset. The resources of Edmund were not exhausted; he was prepared to meet Canute with a new army, when both the Danish and English troops, wearied of the strife, obliged their kings to come to a compromise, and to divide the kingdom between them by treaty. Mercia and Northumbria were the portion of Canute, and the southern parts were left to Edmund, who is believed to have been murdered at Oxford, thus making way for the accession of Canute.

EDRED, a king of the Anglo-Saxons, son of Edward the Elder, successor of Edmund I., ascended the throne in 946, died Nov. 23, 955. The childhood of the 2 sons of Edmund rendering them incompetent to succeed him, Edred in an assembly of the prelates and thanes was chosen king, and consecrated, in the style of his charters, to the "government of the Anglo-Saxons, Northumbrians, pagans, and Britons." Though afflicted with a lingering disease, he marched into Northumbria and quelled the turbulent Danes. In this reign St. Dunstan rose to power, and important ecclesiastical and monastic reforms were undertaken.

EDRISI, an Arabian geographer, supposed to be the person mentioned by historians of his nation under the name of Abou Abdallah Mohammed ben Mohammed ben Abdallah ben Edris, who was a descendant of the Mussulman Edriside princes who reigned at Fez before the Fatimites, born in Ceuta in 1099, died in Sicily about 1164. He studied at Cordova, where he distinguished himself for his knowledge of cosmography, geography, philosophy, medicine, and even astrology, and for his skill as a poet. After visiting Constantinople, Asia Minor, Egypt, Morocco, Andalusia, France, and England, he repaired to Sicily, whither he was invited by King Roger II., a friend of learned men. He made for that prince a terrestrial globe of silver, upon which he inscribed in Arabic characters all that he knew of the various countries of the earth. To explain the globe, he composed a treatise on geography. The globe is lost, but a complete manuscript of the geography was discovered in the imperial library at Paris in 1829, of which a French translation by Jaubert appeared in 1836. Several portions and abridgments of the work had however been published many years before. Edrisi divides the earth into 7 climates or zones, each of which is again divided into 11 regions; and in his descriptions he adheres strictly to his scheme without considering whether his divisions resemble those which have been traced by natural features or society. His work represents the state of geographical knowledge among the Arabs in the 12th century, and although it contains nearly as many errors as there are in Strabo, it was yet the source from which the western geographers derived their notions prior to the Portuguese discoveries in the 15th century.

EDUCATION (Lat. *educo*, to draw out), the development of the faculties or germs of power in man, and the training of them into harmonious action in obedience to the laws of reason and morality. In a general sense, it embraces the universal means by which Providence is guiding the human race to its final destiny; or it includes the countless natural and social circumstances under the indirect tuition of which individuals pass from the cradle through the career of life; but it more usually and specially designates the instruction and care which parents and masters bestow upon the young to direct their physical, intellectual, æsthetic, and moral development. According to Plato, a good education consists in giving to the body and the

soul all the perfection of which they are susceptible; according to Rousseau, in making the primitive instincts and dispositions the constant guides of character and action; and according to Kant, there is within every man a divine ideal, the type after which he was created, the germs of a perfect person, and it is the office of education to favor and direct the growth of these germs. Yet education not only aims at the development and culture of the child as an individual, but is also the means by which every rising generation is put in possession of all the attainments of preceding generations, and becomes capable of increasing and improving this inheritance. It thus secures the regular progress of society, and has for its end to fashion childhood to an order of things and of ideas which it is designed to establish or perpetuate. Thus, according to Aristotle, "the most effective way of preserving a state is to bring up the citizens in the spirit of the government; to fashion, and as it were to cast them in the mould of the constitution." "The task of the instructor," says Herbart, "consists in transmitting and interpreting to the new generation the experience of the race." Education therefore has reference to the economy of society; it constitutes the apprenticeship of those who are afterward to take a place in the order of a civilized community; and, as universal knowledge and skill are impossible, it varies for the different states and classes of men, like the different pursuits of life.—In the earliest ages, the entire education and culture of the people were in the hands of priests, who were the first founders of institutions, the first savants, statesmen, judges, physicians, astronomers, and architects; and science has been separated from religion, and teaching has been a distinct profession, only in the most highly civilized communities. Even in these, learning and schools have often been to a greater or less extent, more or less directly, under the patronage and care of religious bodies, since religion has been esteemed by all nations the highest interest of society.—At a very ancient era, though less remote than they themselves pretend, the Chinese possessed a high degree of culture. The Chinese sage, Confucius (born 551 B. C.), was the restorer and not the founder of their civilization, and expressly disclaimed writing any thing which had not long been recognized in the legislation and science of his ancestors. The principles established by him and by Mencius (nearly 2 centuries later) still prevail in Chinese pedagogy. The course of instruction begins in the family, where the boys are taught to enumerate objects, to count to the number of 10,000, and to reverence their parents and ancestors by a minute ceremonial. At the age of 5 or 6 years they are sent to school. On entering the hall, the pupil makes obeisance first to the holy Confucius and then to his master. A lesson learned in grammar, history, ethics, mathematics, or astronomy, according to the proficiency of the student, is followed by the morning repast; after which the day is spent in copying, learning by heart, and reciting select passages of literature. Before departure at night a part of the pupils relate some of the events of ancient history, which are explained by the master; others unite in singing an ancient ode, which is sometimes accompanied by a symbolic dance. They leave the hall with the same obeisances with which they enter it, and on reaching home reverentially salute the domestic spirits, and their ancestors, parents, and relatives. For the sons of the nobles a higher course of instruction is provided in universities under the surveillance of the state. One of these exists in most of the large cities, and the most advanced of them is the imperial college in Pekin. Candidates for admission into the last are required to pass a strict examination, and the graduates from it are at once appointed to public office. In no other country, with perhaps the exception of Prussia, is a learned education the means of official promotion so much as in China. The education of girls is neglected, but the daughters of the wealthy are generally taught to read, write, sing, and sometimes to make verses.—Historians usually account the inhabitants of India the most highly educated of the ancient nations of the East. Yet Hindoo learning and science have always been almost exclusively in the hands of the caste of Brahmins, who only are allowed to explain the Vedas or sacred books to the two castes next in rank. The fourth and much the most numerous caste of Soodras, or laborers, are excluded from all privileges of education, and forbidden even to listen to the reading of the sacred books. The elementary schools are now held in the open air, and the instruction ordinarily begins with writing. The boys, sitting naked on the ground, write in the sand, or on palm leaves, a series of moral sentences from the ancient writings. These are also committed to memory. The Vedas are taught separately in the schools of the Brahmins, and embrace not only the higher doctrines of mythology, but also of mathematics, astrology, and philosophy. Hindoo masters especially inculcate the rules of politeness, the art of elegant conversation, the countenance which ought to be assumed according to occasions, and innumerable minute practices of etiquette and duplicity. The education of women, to whom the laws of Manu ascribe a mingled character of malice and deceit, is totally neglected, and it is a disgrace for them to know how to read. Only the courtesans learn to read, sing, and dance. Schools have been established by the British government, and also by the natives, in which there are generally two departments, in one of which the English language, sciences, and literature are taught, and in the other the Sanscrit, Persian, or Arabic languages and literature.—The early culture of the Egyptians was such, that the Greeks derived from them their first lessons in science and philosophy. In Egypt, too, the Israelites obtained the knowledge which enabled them to measure and "divide the land." Learning and political power were chiefly in the hands of the

priests, among whom the greater part of the lands were distributed. Public education existed only in the castes of priests and warriors, until it became more general after the rise of the Persian and Greek dominion. While the mass of the people were trained to the mechanical arts, a few only were instructed in the mathematical sciences, and in the doctrines of morality and divinity. An esoteric culture was reserved to the priests themselves, whose principal schools were at Thebes, Memphis, and Heliopolis. The allusions of the Greeks, and the inscriptions on the monuments, prove an early knowledge of geometry, astronomy, mensuration, and surveying in Egypt, and from the time of Thales the wisest of the Greeks went to study in that country. Iamblichus says that Pythagoras derived thence his information upon different sciences, and that he complied with the minutest regulations of the priests, in order to overcome their repugnance to imparting their theories. Plato, it is said, was a disciple of them, and states that "when Solon inquired of them about ancient matters he perceived that neither he nor any one of the Greeks had any knowledge of very remote antiquity." It was not unusual for female children of the priestly families to acquire an education, but the populace in general were trained only to follow in the occupation of their parents and kinsmen. At a later period a part of Egypt came within the circle of Greek civilization, and the schools of Alexandria and other cities of the delta became as renowned as those of Thebes and other more southern cities had formerly been. The two Alexandrian libraries, one of which was destroyed under Theodosius the Great, and the other by command of the caliph Omar I. (A. D. 642), were the most remarkable monuments of ancient learning.—The culture of the ancient Persians was the exclusive care of the magi, a priestly caste of Median origin, who were the savants of the empire, the legislators, judges, interpreters of dreams, astrologers, and highest functionaries at court. They ruled the Persians for ages by the force of intellect alone. To them were intrusted the preservation and establishment of the doctrines and laws of Zoroaster. There was no general system of national education, but the instruction was simple for the people, learned and religious for the magi, and military and political for the warriors. The faults of children were not regarded as sins till the age of 8 years, when they were first taught to say their prayers. The intellectual culture was but trifling except to those who were to inherit the learning of the magi, but the moral education inculcated the civil virtues and strict habits of truth and justice, while in physical training the Persians surpassed all other eastern nations. Their fundamental maxim was to combine a meagre fare with violent gymnastic exercises. According to Herodotus, "their sons were carefully instructed from their 5th to their 20th year in 3 things alone, to ride, to draw the bow, and to speak the truth." The *Cyropædia* of Xenophon is a romantic picture of the Persian mode of education. It presents the whole population divided into 4 classes according to age, and meeting at appointed times in the 4 divisions of the public edifices, which were far removed from the market places. The boys till the age of 17 years were taught to know and to practise justice, and to entertain right sentiments toward the divinity, their country, their parents, and their friends. They lodged at home, took their slight meals under the care of their masters, learned to handle the bow and javelin, and were prompted to admire and imitate those aged men who were noted for exemplary virtues. From the age of 17 to 27 years they passed their nights in the public edifice, that the purity of their morals might be strictly guarded, learned the arts of war, were accustomed to rise early, to bear cold and heat, to walk, to run, and to follow the chase. During the 25 following years they were accounted ripe men, and obeyed their superiors in war. Above the age of 52 they were reckoned among old men, renounced martial service, and administered justice in public and private affairs. Such an education and career was legally open to every citizen, but only the wealthier classes could avail themselves of the public schools, since it was necessary not only to dispense with the labor of their children, but also to pay their expenses.—The theocratic constitution of the Hebrew nation, and the foundation of its politics and ethics on religion, produced a mental cultivation as manifested in its literature very unlike that found among any other oriental people. The schools of the prophets are the only schools which are mentioned, but children were generally instructed by their parents in the law of Moses and the history of the nation. The obedience of children to the commands of their parents is a frequent injunction in the Scriptures. Girls were taught to sing, to play upon musical instruments, and to dance on solemn occasions; and many female poets and learned women figure in the history of the ancient Jews. After the exile the rabbins established schools to which children were sent from their 5th or 6th year, and in which, beside the teaching of the Scriptures, the commentaries and traditions, the Mishna and Gemara, were taught and committed to memory. The instruction was oral, no student ever taking notes, and the Mishna had long been transmitted from master to pupil before it was committed to writing. The most celebrated of the early rabbinical schools were those of Jamnia (long under the direction of Gamaliel, and at which Saint Paul studied), Tiberias, Alexandria, Babylon, and Jerusalem. During the greater part of the middle ages Jewish astronomers, physicians, poets, and philosophers were scattered through Spain, Italy, and France, and the cities of northern Africa and western Asia. Their greatest schools flourished in Egypt, Fez, Andalusia, and Languedoc.—Of the methods of Greek education, a connected account may be formed from the numerous scat-

tered allusions in classical literature. At the age of 6 years boys passed from the exclusive care of their mothers, who educated them till then along with the girls. Lullabies, cradles, baubles, rattles, dolls, miniature go-carts, and images of warriors and mythological scenes, are mentioned among the resources of the nursery. The children were terrified into good behavior by stories of bugbears and bogies, or by castigation, which was far from uncommon, and was administered usually with the slipper or sandal. The nurses and attendants used to tell tales for their amusement, consisting chiefly of the legendary exploits of the gods and demigods. Plato and Plutarch treat particularly of the moral influence of this story-telling, and urged that the nurses should be restricted in their selection of subjects. At about their 8th year the boys were intrusted to the care of a pedagogue, who accompanied them to school, carried their books, and kept them constantly under surveillance. He was a slave, but often intelligent and of polished manners. The schools were under the supervision, but not the patronage, of the state, and the fees received from pupils constituted the schoolmaster's income. Instruction began in the early morning, and was in 3 branches: the letters (comprehending reading, writing, and arithmetic), music (including also literature and art), and gymnastic exercises. Plato recommended that arithmetic be taught as an amusement, and that the abstract ideas of number be presented in as concrete a form as possible by the use of apples and the like. Having learned to read, the boy was made familiar with the works of the poets, and required to commit to memory long select passages. The poems of Homer, especially, were thought to contain by precept and example every thing calculated to awaken in youth a national spirit, and to impress the noblest virtues. The lyre was the favorite musical instrument at Athens, and instruction in playing upon it was a regular part of education. The flute was at one time popular, but its use was abandoned, according to Aristotle, because it distorted the face. Attendance at school was continued till the 16th or 18th year, after which those who wished became disciples of teachers of a higher order, the philosophers, rhetoricians, and sophists. From that age they began more to frequent the gymnasia for athletic exercises, the benches of which were often occupied by sophists conversing with their pupils and surrounded by a crowd of listeners. For girls there were neither educational institutions nor private teachers. Their whole instruction was derived from their mothers and nurses, and till marriage they were excluded from the society and conversation of the opposite sex. Hence, there were no scientific or learned ladies, with the exception of the *hetæræ*, and of these the Milesian Aspasia was perhaps the only one that was respected. Grecian education received its first strong impressions from the institutions of Lycurgus and Solon, and from the influence of the school of Pythagoras. That the child was the property, not of his parents, but of the state, was the central idea of the educational system established by Lycurgus in Sparta. All personal interests must yield to those of the nation. Every Spartan child, with the exception of the heir presumptive to the throne, was subjected to a severe military and public discipline, which consisted largely in gymnastic training, to the neglect of intellectual culture. They were not taught to read, but to speak with a precision which is yet proverbial. Truthfulness and masterly self-command were moral results which were well combined with physical endurance. Females were educated nearly the same as males, and the two sexes often strove together in gymnastic contests. Thus was formed a hardy and warlike nation, destitute and heedless alike of refined feelings, æsthetic tastes, and scientific knowledge. It was in obedience to the principles of the code of Solon that Athens became the centre and mother of liberal culture. Though education, like religion, was recognized as a part of the political constitution, yet the state left it to parental interests and affection to educate the young, ordaining only certain general rules, chiefly in behalf of morality. Thus every citizen, under a severe penalty, was required to teach his son to read and to swim; he was also to fit him for some occupation, otherwise the son would not be obliged to support him in his old age. Intellectual and æsthetic culture were always prominent in Athenian education, and gymnastic training was encouraged as much in the interest of physical beauty as of physical strength. In the time of Pericles the writers, statesmen, artists, and the populace united in appreciating the fine arts; every coin was stamped with a beautiful symbol, the poorest clay vessels were gracefully outlined, and the finest Athenian specimens of architecture and sculpture appealed to common sentiments of patriotism, religion, and taste. Pythagoras was the first of the Greek philosophers who founded a school or sect that survived him for centuries. He settled as a teacher in Magna Græcia, or southern Italy, after having travelled and studied in Egypt. He admitted into his society only those whose physiognomy pleased him, who obeyed their parents, were devoid of vanity, and had the art of keeping silence and listening. The disciple was first admitted only to the exoteric class, where he learned but a part of his master's dogmas. There he remained at least 8 years, during the last 5 of which he accustomed himself principally to silence. He was finally received into the esoteric class, where he was initiated into all the sciences, especially mathematics, upon which Pythagoras set the highest value. The basis of his system seems to have been the harmony of the universe, and our conceptions of order and of music; and it practically inculcated respect for women, simplicity in attire, severe honesty, devotion to ideas of beauty and virtue, and the blending of all the elements of character so that they should tend to a single

end. Socrates, Plato, and Aristotle subsequently developed the Greek theories in the higher departments of education, their speculations on the subject forming a part of their philosophical and political systems.—The Hellenic methods of education were in most respects copied by the Romans, who, however, at first laid greater stress on vigorous corporeal exercises and the nurture of the sentiment of patriotism. The ancient title of the schoolmaster was master of the games (*ludimagister*), and instruction was entirely independent of the state till near the time of the emperors. Numerous religious ceremonies preceded, accompanied, and followed the birth of a child, who during the republic was educated in the family successively under the care of his mother, his father, and a pedagogue or learned slave. After his 15th year, the noble young Roman assumed the *toga virilis*, and from that time for more than a year applied himself to gymnastic exercises designed to prepare him for war. He was afterward admitted to the society of public men to learn the art of statesmanship. After the Greek influence became predominant in Roman culture, a Greek rather than a Roman was preferred for pedagogue, and the institution of public schools, to which boys were sent at the age of 7 years, made the advantages of education more general. Under the empire the Greek literature was taught to the sons of the wealthy as carefully as the Latin, and the education was completed by rhetoricians, who in the time of Quintilian often received a salary from the public treasury. Athens, where there was an academy with 10 professors, was much frequented by the young Romans, and a school of high repute was founded in Constantinople by Constantine and reorganized by Theodosius the Younger. Girls were often carefully educated during the later period of the empire; and from about the close of the republic there appear to have been schools designed for them exclusively, where they were rarely visited by their fathers. Antoninus Pius (A. D. 138–161) was the first Roman monarch who established a school for orphans. The principal original sources for the history of education among the Romans are the writings of Cicero, Seneca, Pliny the Younger, and especially the *Institutiones Oratoriæ* of Quintilian.—At the time when the last vestiges of Roman supremacy were disappearing in the West, the genius of Mohammed raised an obscure people in a corner of Asia to sudden greatness. In the 7th century the Arabians overran Syria, Persia, Egypt, and the whole north-west of Africa, and in the next, Spain also. Though they had no native literature but poetry, and no science but a fanciful astronomy inherited from shepherds, and though they were at first as destructive to western learning as to Christianity, they yet soon discovered the value of the writings of the Greeks, especially of those on medicine, mathematics, and natural philosophy. Hippocrates and Galen, Euclid and Ptolemy, Aristotle and Theophrastus were translated into Arabic, and voluminously commented on; and in the 10th century, the darkest period of Christian literature, the Arabs had flourishing schools of learning from Bagdad to Cordova. Of their 17 universities, that of Cordova enjoyed the highest reputation, and is said to have possessed a library of 600,000 volumes. Grammar, the art of versifying, history, geography, astronomy and astrology, chemistry and alchemy, mathematics, and medicine were all studied, and in the last two departments the Arabians made important improvements on their Greek masters. An elementary school was attached to every mosque, in which reading and writing were taught, the pupils at the same time learning many poems by heart. At first, the sons of wealthy Arabs on reaching their 20th year were accustomed to go on a literary journey, visiting the most eminent savants who gave public lectures; but after the foundation of universities by the caliphs in the largest cities, these became the resort of those who desired a learned education. They were chiefly occupied with theology, jurisprudence, and speculative philosophy; and for the natural sciences there were special schools, while medicine was taught in hospitals. The professors and students dwelt in the same edifice, and usually there was but one eminent scholar connected as teacher with each university. In Spain the Saracens had their most brilliant career, covering the plains, the valleys, and the hillsides with palaces and costly dwellings in the light and graceful style of Moorish architecture, making poetry and the fine arts as well as scholarship flourish at the Moorish courts, and giving rich endowments to schools and universities, the advantages of which were open both to Christians and Moslems, and to the female sex as well as the male. Gerbert, afterward Pope Sylvester II., studied under the Spanish Arabs, and passing thence to France and Germany, is said to have revived in those countries arithmetic, music, and geometry, which had become unknown. Sharon Turner gives a list of Spanish-Arabian women who were noted for their erudition or their skill in poetry, oratory, philosophy, jurisprudence, or music.—The early Christians, unable to found separate schools for the education of their children, either instructed them at home or sent them to pagan schools. The names of Anthusa, Nonna, and Monica, the mothers and teachers of Chrysostom, Gregory Nazianzen, and Augustine, are memorials of the care with which Christian parents sought the intellectual and religious culture of their sons. The daughters also shared in the domestic lessons. Yet those who desired a learned education resorted to schools taught by pagans, the most flourishing of which in the 2d century was that of Alexandria, where a multitude of pagans, Jews, and Christians prosecuted their studies together. By the side of this ancient institution soon arose the Christian school of the catechists, said to have been founded by Pantænus in 181, in which Christian the-

ology assumed a regular and scientific form. It was designed especially to qualify young men to become preachers, but its course of study embraced mathematics, logic, rhetoric, physics, metaphysics, and ethics, as well as theology, and it continued in existence till near the 5th century. Its most eminent master was Origen, who, being exiled in 231 from Alexandria, soon after established a similar school in Cæsarea, in which St. Basil was educated. The school of Antioch produced Chrysostom and Theodore of Mopsuestia; and that of Edessa, called the Athens of Syria, and which was long the principal seat of oriental learning, attracted students from great distances, and is memorable especially for its part against St. Cyril in the Nestorian controversy. In all the Christian schools the Bible gradually became the principal text book, and the sciences were pursued only in their theological bearings. In the West there were till the 5th century pagan schools in the largest cities, as Carthage, Rome, Milan, Treves, Marseilles, and Lyons; and owing to the fewness of the Christian institutions, it was common for distinguished doctors of the church to assemble around them the young men who purposed entering the priesthood, and to instruct them by their conversation rather than by regular lessons. Early in the 5th century learning found a refuge in the monasteries which had been introduced in the East for purposes of solitude and contemplation, but in the West for quiet and union amid the disorders of society—as a centre and asylum for persons who wished to live, to discuss, and to exercise themselves together. The abbey founded at Tours by St. Martin, that of St. Victor founded by Cassianus at Marseilles, and that of Lerins founded by St. Honoratus and St. Caprais in one of the isles of Hyères, were philosophical schools of Christianity, in which the great questions of free will, predestination, grace, and original sin were warmly agitated, and in the last two of which the Pelagian opinions for half a century found their greatest nourishment and support. In the 6th and 7th centuries the schools were of 3 classes, the parochial, the cathedral or episcopal, and the cloistral or conventual. The first were in the house and under the care of a priest, were designed mainly to produce readers in the church, and the instruction in them rarely extended beyond the constant repetition of passages of Scripture; the second were of a higher grade, and usually under the direction of a bishop, were designed for the education of priests, though young noblemen were also received as pupils, and the canticles and formulas in use in religious worship were the chief subjects of study; the third received children who were devoted either to a religious or secular life, and taught them to read, to copy manuscripts, and to understand Latin. The cloistral schools were very numerous and for both sexes, most of those for females being under the discipline of St. Benedict. In the convent of Arles nearly 200 nuns were occupied in copying religious books, or sometimes the works of the ancients. The Irish monasteries at this time surpassed all others in maintaining the traditions of learning. The course of 7 sciences or liberal arts, divided into the trivium (grammar, dialectics, and rhetoric) and the quadrivium (arithmetic, geometry, astronomy, and music), was introduced in the 6th century, and defined in two jargon hexameters:

Gramm. loquitur; Dia. vera docet; Rhet. verba colorat; Mus. canit; Ar. numerat; Geo. ponderat; Ast. colit astra.

Yet learning was for the most part of a fantastic character and put to frivolous uses, and excepting the writings of Boëthius, the last utterance of classical culture, the principal productions and text books of the time were the arid compilations of Isidorus of Seville, Capella, and Cassiodorus. The 7th century, says Hallam, was the nadir of the human mind in Europe, and its movement in advance began with Charlemagne before the close of the next. This monarch invited to his court Alcuin from the cloisters of York, Clement from Ireland, and Theodulf from Germany, and reëstablished the palatial school, in which the sons of some of the nobility were educated with his own children, and which accompanied him wherever he went. It was called the palatine academy, and the members of it took names borrowed from sacred or profane history; thus Charlemagne was called David, Alcuin Horace, Angilbert Homer, and Gisla Lucia. In this school, and afterward in those of Tours and Fulda, the course of instruction embraced all the learning of the age. He also founded schools in every bishopric and monastery, in which reading, singing, computation, grammar, and the learning of psalms by heart were the exercises; and he instituted two schools at Soissons and Metz solely for instruction in church music, under the care of Italian masters. In two capitularies addressed by him to the religious preachers under his government, and to the abbé Bangulf, the head of a religious order, he insisted on a higher education for the priesthood, and the multiplication of correct copies of the Scriptures and of the Latin classics; and he bestowed fortune and honors on those monasteries and monks that excelled in the art of producing correct and beautiful copies. The study of Greek was partially revived, and it was made a condition of the endowment of the school at Osnabrück that there should always be clerks there skilled in that language. The emperor made an unsuccessful effort for the culture of the German language, causing a collection of the German popular songs to be made; yet his design was not seconded by the clergy, who esteemed German a barbarous tongue and relic of paganism which ought to be extirpated rather than cultivated. Less than a century after Charlemagne, King Alfred revived letters and schools in England, which had been almost extinguished by the Danish invasions, rich libraries having disappeared in the pillage of churches and convents. At his accession Wessex could not boast a single person able to translate a Latin book. He invited to his court

the most celebrated scholars, among whom were Plegmund, Werfrith, Ethelstan, Werwulf, Asser of St. David's, Grimbald of St. Omer, John Scotus Erigena, and John of Old Saxony, who left the monastery of Corbie for that of Ethelingey; he made translations with his own hand into Anglo-Saxon from Bede, Boëthius, and Orosius; established schools in different parts of his kingdom; and ordained that the children of every free man whose circumstances would allow it should acquire the arts of reading and writing, and that those designed for civil or ecclesiastical offices should be instructed in the Latin language. Yet his efforts in behalf of learning were as unfruitful after his death as those of Charlemagne had been in France, and were succeeded by the mental torpor of the 10th century, in which, it has been remarked, no heresies appeared. Yet Germany at that time possessed many learned and virtuous churchmen. In the school of Paderborn not only the 7 liberal arts were taught, but also Homer and Virgil were read, and the arts of painting and versifying practised; and in that of Fulda, the pupils of Hrabanus Maurus, himself the most accomplished pupil of Alcuin, gave instruction with zeal and care to noble youth. But as learning was chiefly contained in a dead language in all the countries of Europe, it hardly reached the mass of the people; the art of writing was so rare among laymen that it was called the clerical art; paper was excessively dear, and ink was so scarce even two centuries later that Petrarch only after great difficulty succeeded in finding some in Liège.—The rise of the scholastic philosophy and of the troubadour poetry, the institution of universities, and the return to a profound study of the Greek and Latin classics, were the literary steps during and after the 11th century which preceded the revival of learning in the 14th and 15th centuries. Intercourse with the flourishing Arabian academies of Spain should also be mentioned, since many scholars, following the example of Gerbert, studied in them, and imported the sciences thence into France and England. It was through the Arabic mind that western philosophers first became acquainted with the complete works of Aristotle, and learned to prefer his dialectics to those of Augustine; and some suppose that the literary culture of Provence proceeded from contact with Arabic poets beyond the Pyrénées. Knighthood demanded a moral and physical rather than intellectual culture. The sons of gentlemen who were trained to this profession were brought up in the castles of great lords, instructed in exercises of strength and activity and in the management of arms, accustomed to obedience and a courteous demeanor to their lord and lady, and trained to enthusiastic and romantic views of valor, honor, love, and munificence. Many of the noblest knights could neither read nor write. The Provençal literature and society, founded on the principles and customs of chivalry, were a remarkable example of culture without learning. It is surprising how little knowledge the troubadour poems presuppose; there is scarcely an allusion to history or mythology; and no references to foreign manners, or reminiscences of the sciences which had been taught in schools, are mingled with the simple effusions of sentiment. The fantastic solemnities styled courts of love and floral games, the serious discussion of ridiculous questions of metaphysical gallantry, the elaborately frivolous directions concerning the manners of either sex, are illustrations of a society without intellectual development, but highly and peculiarly disciplined in respect of the sentiments. From the 12th and 13th centuries, the era of the schoolmen, date 23 universities, including those of Paris, Montpellier, Oxford, Cambridge, Bologna, Salerno, Padua, Rome, Salamanca, and Lisbon. That of Bologna was especially famous for its revival of the civil law, and drew lawyers and students in large numbers to Lombardy from remote parts of Europe. Paris was unrivalled in the department of theology, and Montpellier in that of medicine. Roscellin and William of Champeaux were the first scholastic teachers who enjoyed brilliant success; and Abelard, the disciple of them both, attracted students by thousands to his lectures in Paris, fascinated the intellect of Christendom by a dialectic method, and awakened mankind to a sympathy with intellectual excellence. Though he was involved in a controversy with Saint Bernard, and though some of his opinions were condemned by an ecclesiastical council, and he was therefore ordered to be confined in a cloister, yet his scholars followed him to his hermitage in the wilderness, and enlarged his little oratory to a cosmopolitan and studious monastery called the Paraclete. One of his pupils was Peter Lombard, the author of the "Book of Sentences," which obtained the highest authority. The ingenious subtleties of scholasticism were promoted by the schools of the mendicant orders, and the two greatest masters of the method, the champions of distinct systems, were the Dominican Thomas Aquinas and the Franciscan Duns Scotus. The most determined opponents of the scholastics were the mystics, the promoters of piety rather than learning, the principal representatives of whom were St. Bernard of Clairvaux, Thomas à Kempis, Tauler, and in his later years Gerson. The university students, notwithstanding the enthusiasm and attainments of some of them, were often subjects of satire. It was complained that they frequented eating and dancing houses, and strolled through the streets by night shouting and singing; that they went from university to university, not to increase their knowledge, but to be able to boast that they had studied at Paris, Bologna, or Pavia; and that they surrounded themselves with large libraries and paraded doctors' caps in order to win admiration for learning which they did not possess. The minor schools were said often to be badly conducted; the master was not sufficiently under the surveillance of

the bishop, and might be one of the numerous secular ecclesiastics, *scholastici*, *scholares vagantes*, *bacchantes*, or *goliardi*, who traversed Europe as adventurers, becoming curates, teachers, or sorcerers, according to occasion, foretelling eclipses, selling calendars and false relics, and defrauding the people in manifold ways. It was not uncommon for children to imitate the older students, passing from school to school in groups, begging, stealing, and singing before houses. Yet the rod played a prominent part in schools, and a vignette found in most of the mediæval classical books represents a master holding it in hand. A festival of the rod was one of the holidays, when the boys and girls went together to the nearest forest for a bundle of birchen twigs, and returned singing a chant relative to the use which the master would make of them. During the period preceding the revival of learning female education declined. Only a few schools were maintained in the large cities for the instruction of girls in reading, and the inmates of convents were taught hardly more than to repeat their prayers and to practise embroidery and other needlework. A writer of the 13th century defines the proper education of woman as "knowing how to pray to God, to love man, to knit, and to sew." From the time when the ill-fated Heloise taught the sciences and the Greek and Latin classics to her nuns, till the latter part of the 15th century, western Europe furnishes no female name renowned for learning except that of Christina of Pisa.—When the Byzantine empire approached its fall, the Greek scholars who had there preserved some acquaintance with ancient learning took refuge in Italy, where the love of letters had been already awakened by the genius of Dante, Petrarch, and Boccaccio, and where industrious scholars under the patronage of princes were devoting their lives to the recovery of manuscripts and the revival of philology. Among those who at this period of the renaissance specially distinguished themselves as teachers, the most eminent was Victorino Rambaldoni (born in 1378), who conducted schools successively at Padua, Venice, and Mantua, attracting pupils from France, Germany, and Greece, but admitting only those of distinguished talents. He wrote nothing, but his sagacity and success in forming the character of students and in producing a harmonious and complete development made his name famous for centuries as an instructor. The right study of the classics he believed to be amply sufficient for all the purposes of education. Among Italian writers on education in the 15th century were Vergeri, Poggio Bracciolini, Vegi, and Æneas Sylvius, afterward Pope Pius II. From Italy the more profound study of classical authors passed to the other countries of Europe, and a contest was long maintained between the scholastic and the anti-scholastic studies; between the Aristotelians, who included the most learned ecclesiastics, and the Platonists, to whom were attached most of the cultivators of polite literature. Agricola in Germany, Valla in Italy, and above all Ramus in France, wrote against scholasticism. It was assailed by the reformers and defended by the Jesuits, and is still in honor in some of the Spanish universities. Purbach, Regiomontanus, and Nicholas Casanus were the first to promote the study of the higher mathematics. Nicholas de Clemengis and Gregorius Tifernas revived the classical taste in France, Vitelli and Coilet in England, Lebrixa in Spain, and Reuchlin in Germany. The pious "Brethren of the Common Life," whose first school was founded by Gerard de Groot at Deventer in 1340, also exerted a wide influence. Their schools were extended throughout the Netherlands and Germany, were distinguished alike for piety and solid acquirements, and attracted students even from Italy. From them proceeded Thomas à Kempis, and many who were afterward celebrated as reformers. In 1483 a severe and almost barbarous discipline was ordained in the college of Montaigu, combining labor, fasting, and pitiless punishments. Yet among the students who in a few years proceeded from this school were Erasmus, Loyola, and Calvin. Erasmus, with polished jests admirable for their *esprit* and learning, seemed to revive the ancient Attic wit, and exerted a refreshing influence on letters. The golden age of the literature of Belgium was that of Albert and Isabella in the first quarter of the 17th century, in which the triumph of the renaissance was completed. The university of Louvain was the centre of a wide intellectual culture, and the *alma mater* of many celebrities. Its European reputation increased till in 1570 it had 8,000 students.—Education and the doctrines concerning it played an important part in the movements of the Protestant reformers, and also in the reaction in favor of the papacy under the Jesuits. The revival of intellectual culture among the people was associated in the mind of Luther with religious reform, and in 1528 with the aid of Melanchthon he drew up the plan of studies which was followed in the Protestant common schools of Germany till the close of the century. The first class learned to read, to repeat from memory a few distichs, to write, and to sing, and began the study of Latin. The second class studied Latin, grammar, and music for an hour daily, read and interpreted the fables of Æsop, the *pædologia* of Mosellanus, and the colloquies of Erasmus, and committed to memory parts of Terence and Plautus, and some of the psalms and other portions of Scripture. A Latin and a German sentence were repeated to the students on their departure at night, which they were to know by heart on the following day. The third class advanced to the Latin poets, and to exercises in dialectics and rhetoric, and were required to speak in Latin, and to write an exercise in that language weekly. Luther also assailed the Aristotelianism and scholastic methods which prevailed in the universities, and recommended the establishment of libraries in every town. Education was in like manner encouraged by Zwin-

gli and Calvin, the latter of whom caused the erection of a splendid edifice for the gymnasium of Geneva, to which 8 distinguished professors of Hebrew, Greek, philosophy, and theology were invited. About this time the gymnasium of Strasbourg under Johann Sturm became the most flourishing of the age, and in 1578 it had more than 1,000 students, 300 of whom were of noble or princely birth. Its best influence was in improving the taste, for Sturm taught the classical languages for their own merits, and not as auxiliaries to theology. He therefore banished from the school all writings in barbarous Latin, and urged children from the age of 7 years to speak with each other and their professors in choice Ciceronian phrases. He made them commit to memory select passages from the classics as they were translated to them, before the details of grammar had been mastered. Sturm was the friend and correspondent of Roger Ascham of England, one of the most learned men of the age, and the author of a treatise on the "Schoolmaster." The school of Trotzendorf, at Goldberg, was distinguished for the organization of its discipline, the forms of which were borrowed from the old Roman republic. He was the perpetual dictator, and beneath him were a censor, 2 consuls, and a senate of the 12 most advanced pupils. Every grave question was discussed before this senate, and was decided by it. The ancient crowns were revived for prizes, the best orator being rewarded in the manner of a victor at the Olympic games. Bugenhagen at Hamburg, Spalatin at Altenburg, Neander at Nordhausen, and Heyden at Nuremberg, were also among the most successful Protestant teachers of this period.—The Protestants having awakened a zeal for learning, the Jesuits determined to avail themselves of this zeal in the interest of the Catholic church, and to combat the reformation with its own weapon. They cultivated to the highest possible degree all departments of science, and employed the authority of learning in favor of the pontifical power. The principle of their method was to train the memory, the imagination, and the reasoning faculty, but to check all discursive mental habits. Latin and logic furnished most of the exercises by which the sentiments and tenets of Catholicism were instilled into the minds of youth. Of the classical Latin authors only Cicero and Virgil were used, the other Latin text books being mediæval writers. Greek was taught only from the works of Chrysostom and other Christian fathers. Philosophy formed a part of the higher course, and was taught from Aristotle as interpreted by Aquinas. The polished and pleasing exterior of masters and students, the kindness apparent in the treatment of young persons, the tender care bestowed upon sick pupils, the pompous occasional celebrations, and the theatrical performances which were often made a school exercise, all contributed to the extraordinary success of the Jesuits as teachers. From Cologne, Ingolstadt, and Vienna, they spread between 1550 and 1560 throughout Germany. Opposed in France by the Sorbonne, the university, and the parliaments, they did not establish their first school in Paris till 1665, but in 1750 they had won from the ancient Benedictines their pedagogic laurels, and possessed in France 669 schools, which were attended by the children of the princes and nobles. Yet the education of females was much less cared for by them than by their opponents the Jansenists. The girls belonging to the upper classes connected with the society were educated religiously rather than learnedly in the numerous houses of the sisters of St. Ursula, or by the nuns of St. Angelica or St. Elizabeth.—Between the latter part of the 17th and the close of the 18th century, 4 distinct theories and methods of the pedagogic art arose, which are usually named the pietistic school, the humanistic school, the philanthropic school, and the eclectic school. Jansenius in France, the Wesleys in England, and especially Spener and Francke in Germany, were the first representatives of the pietistic tendency. The writings of Fénélon, the author of "Telemachus" and of a treatise on the education of girls, which still remains a standard work in France, exerted perhaps a similar influence. Spener was the teacher of Francke, who established a school at Halle for children of both sexes, and another for teachers, on the principle that religious and moral instruction should be made more prominent than intellectual acquirements, that the end of education should be a living knowledge of God and of pure Christianity. It was succeeded by similar schools in many other cities, and one of its early graduates was Count Zinzendorf. In Greek the New Testament was the only text book. Hebrew was one of the studies of the regular course, and a change of heart was declared essential to successful scholarship. Among the collaborators of Francke were Rambach, Freyer, Hoffmann, Büsching, and Steinmetz. The humanistic school maintained the principle that the ancient languages and literature, especially the Greek and Latin (which were termed the humanities), should be the foundation of education, and should be exclusively studied till the pupil went to the university. Among the more eminent humanists were Cellarius, Gesner, Ernesti, Morus, Reiske, Hermann, Schaefer, Schneider, Heyne, Wolf, Voss, Creuzer, Bockh, and Jacobs, many of whom prepared admirable editions of the classics and works on classical archæology; and their principles have been most nearly followed in the schools of Saxony and the Netherlands, in the seminary of St. Thomas in Leipsic, and in the gymnasium of Strasbourg. New ideas upon education were developed by Comenius, Locke, and Jean Jacques Rousseau. Some of the educational works of Comenius were translated into several languages, and his *Orbis Pictus* long remained a popular household book, and the model of picture books. His aim was to make education more simple and conformable to nature, to have more regard for diversities of character, to teach nothing which could not be

understood by the pupil, and to render the process of learning easy and agreeable. Locke applied to education the principles of the Baconian philosophy by which a scientific realism was substituted for the old logical verbalism, and things rather than books made the sources of knowledge, and urged the union of a due regard to positive and practical science with the culture of the intellect through the medium of language. The *Émile* of Rousseau contains a system of education founded on the ideas but not the experience of its author, and presents an ideal and joyous view of domestic culture most strongly in contrast with the circumstances of his own life. The early education of the child is, according to him, of the greatest importance, and the charge of it can properly belong only to the mother and the father. In the long procession of things to be learned, nothing appears till the student is prepared to grasp it without difficulty, and the attainments in knowledge come almost unconsciously by a series of easy steps. The child, too, should be educated not for a trade or profession, but for the common and absolute state of man; should not therefore subject himself to any thraldom of habit, but be independent of every thing about him, and master of himself. Shielded from the corruptions of society and the trammels of conventionalism, and left open to the influences of nature and of conscience, the character should perfect itself intellectually, socially, and morally. Parents were allured to study a system which seemed to remove all trouble, labor, and care from the concerns of life. Education was to become an amusement, and man a reasonable creature, without annoyance, without perverted inclinations, without even a futile effort. To realize the theories of Rousseau was the task of Basedow, and he succeeded in effecting great changes in the nature of education in Germany. He announced an immense institution to be founded at Dessau, and to be called the *Philanthropinum*, in which the child was to remain till he was a man and a citizen. The *Elementarwerk*, in which he exhibited his plan, received subscriptions from princes, magistrates, ministers of state, and the most distinguished learned men of Germany and Switzerland, all entertaining an exaggerated enthusiasm for the new human culture, in which nature was to take the place of discipline. An ideal was conceived in striking contrast with the reigning severity of masters, primness of pupils, perruques and swords of little boys, and hoop petticoats of little girls. The *Philanthropinum* was established in 1774, under the care of Basedow and Wolke, but declined after a momentary splendor. It was continued with better success by Simon and Schweighäuser, and similar institutions were founded at various places in Germany, only one of which, at Schnepfenthal in Gotha, still continues. Under the name of eclectics are classed those who were the disciples of no exclusive school, but from truly philanthropic motives sought to instruct classes hitherto neglected. Such was the origin of the efforts for the instruction of deaf mutes by Heinicke, Braidwood, the abbé de l'Épée, and Sicard; the instruction of the blind by Valentin Haüy, Klein, and Lenné; the institution of Sunday schools by Robert Raikes, Oberlin, and others; the organization of reformatories by Odescalchi and Tata Giovanni in Rome, and by the philanthropic society in London; and many of the special schools of commerce, agriculture, mines, the arts of design, and other departments.—In Germany since the latter part of the last century the principles of education have been actively discussed, the most prominent writers on the subject being Sulzer, Miller, Weisse, Ehlers, Büsch, Feder, Resewitz, Gurlitt, Funk, Roetger, Heusinger, Niemeyer, Schwartz, and Bencke. But the man who for the last hundred years has exerted the greatest influence on education is the Swiss Pestalozzi. According to the principles developed by him in various writings, education must begin early, under the discipline of home and the direction of parental wisdom and power. It must proceed according to the laws of nature, slowly and uninterruptedly, the teacher exciting the child to activity and rendering him but a limited amount of assistance. Individuality must be held sacred, and carefully studied and encouraged. Verbal teaching is futile unless it be implanted on previous mental experiences and verified by the senses. A development by merely mental operations, which the Socratic method favors, is vain and harmful, for the child can only utter a judgment concerning an object when he has examined it experimentally, and learned precisely to distinguish its qualities and attributes by words. Form, number, and language are the elements of knowledge, the principles by which the mind must be developed; and a thorough acquaintance with them in the various departments of learning constitutes an education. Therefore mental arithmetic, geometry, and the arts of drawing and modelling objects of beauty, are as important exercises as the study of languages. The school should be a place of liveliness and activity, and the scholar should have opportunity to exercise and reveal his power. The system of Pestalozzi has been adopted in the Prussian schools with slight modifications, and has exerted a greater influence than any other on teachers in England, America, and the north of Europe. His system was modified by Fellenberg in his institution at Hofwyl, by Jacotot in the university of Louvain, and by Felbiger, bishop of Sagan, in the schools which he organized. There were combined at Hofwyl an agricultural institute, theoretical and practical, a rural school for the poor, a superior school for the sons of the nobility, an intermediate school for those of the middle classes, and a normal school for the instruction of the teachers of the canton. The system of Fellenberg varied from that of Pestalozzi only by communicating more practical and positive knowledge. The method of Jacotot, which has

been generally adopted in Belgium, gives greater exercise to the faculty of memory; he required his pupils to recite by heart all their lessons, whether in the languages or the sciences. The method of Sagan, so named from the see of its author, is a combination of the methods of Basedow and Pestalozzi, was propagated in Bohemia by command of Maria Theresa, and was in vogue throughout Austria till 1842. It regarded education only from a utilitarian point of view, and aimed to amuse the scholar while instructing him, and to make the lessons as clear as possible, passing to the unknown from the known. It rapidly traversed numerous branches of study. Joseph Lancaster (died in 1839), a member of the society of Friends in England, was the founder of the monitorial system, by which the most intelligent pupils in a school were required to teach their fellows what they had learned in advance of them. This plan doubtless developed the intellect of the monitor, and was at one time adopted in many schools in large towns in England and America, but has been abandoned from the fact that the incomplete and confused knowledge of the premature teachers often made their instructions rather akin to error than to truth.—Germany, with most of the other continental countries, England, and the United States present three different methods of administering the national elementary education. The Prussian educational system is purely governmental, emanating solely from a minister of instruction immediately dependent on the crown. The universities, the gymnasia, and the primary schools are all under laws and regulations which proceed respectively from the crown, from the provincial government, and from the communes. Every child in the kingdom is obliged under pains and penalties to attend school at least from the age of 7 to that of 14, and the result is that the Prussian people are efficiently educated throughout the entire community, and that the universities send forth a large body of highly educated men. Yet with their vast and powerful machinery for popular instruction, the Prussians have not taken a leading part in civilization, and the reason is stated by Horace Mann to be, that when the children once leave school they have few opportunities of applying the knowledge or exercising the faculties which have been acquired and developed there. The national education of all the German states closely resembles that of Prussia. The universities, colleges, and primary schools of France (the latter of which were organized in 1833 under the administration of Guizot, from reports on the German system of popular education made by Cousin), are in like manner established and directed by governmental authority. Permission is however given to any teacher under certain conditions to open a private school; and denominational schools may be registered on the government list of educational institutions. But in England no schools (except those connected with pauper, naval, military, and penal establishments) are initiated by the civil government, or to any considerable extent managed by it. The education of the people is under the care of the established church and of the other religious organizations, and the government comes to their aid by bestowing grants on certain conditions when its assistance is required. The system is entirely different in the United States, where, though the state governments take the initiative, they only go so far as to ordain that schools of a certain character must exist among a given population. All the questions concerning the buildings, teachers, and methods of instruction are determined by the people in their capacity of free citizens. The government provides for education, but makes the people its agent in accomplishing the provision. Consequently, there is much diversity in the educational condition of different parts of the country, the school system being generally most complete in the most compactly settled states, especially those of New England. The efforts of Henry Barnard, Horace Mann, David P. Page, Alonzo Potter, Barnas Sears, and others, during the last 20 years, have been influential in introducing large and well-directed measures and plans for the improvement of public education in America.—Among the most valuable treatises on the subject are: Schwarz, *Erziehungslehre* (Leipsic, 1829); Cramer, *Geschichte der Erziehung und des Unterrichts in welthistorischer Entwickelung* (Leipsic, 1832–'38); Von Raumer, *Geschichte der Pädagogik seit dem Wiederaufblühen classischer Studien* (Stuttgart, 1843–'52); Fritz, *Esquisse d'un système complet d'instruction et d'éducation* (Strasbourg, 1841–'43); Théry, *Histoire de l'éducation en France* (Paris, 1858); educational reports of the Canadian school system, and of the superintendents and boards of education of the different states of the American Union; Henry Barnard, "National Education in Europe" (Hartford, 1854), "Journal of Education" (6 vols., Hartford, 1856–'59), also educational tracts, and reports on the public schools of Connecticut and Rhode Island; and Horace Mann, "Annual Reports of the Massachusetts Board of Education" (Boston, 1837–'48), and "Lectures on Education" (Boston, 1855).—The educational systems and statistics of different states and countries are given under their respective titles. See also COLLEGE, COMMON SCHOOLS, NORMAL SCHOOLS, SCHOOLS, UNIVERSITY.

END OF VOLUME SIXTH.

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