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THE ENCYCLOPÆDIA BRITANNICA

A DICTIONARY OF ARTS, SCIENCES, LITERATURE AND GENERAL INFORMATION

ELEVENTH EDITION

VOLUME VII SLICE IX

Dagupan to David

Articles in This Slice

DAGUPAN, a town and the most important commercial centre of the province of Pangasinán, Luzon, Philippine Islands, on a branch of the Agno river near its entrance into the Gulf of Lingayen, 120 m. by rail N.N.W. of Manila. Pop. (1903), 20,357. It is served by the Manila & Dagupan railway. Dagupan has a healthy climate. It is the chief point of exportation for a very rich province, which produces sugar, indigo, Indian corn, copra, and especially rice. There are several rice mills here. Salt is an important export, being manufactured in salt water swamps and marshes throughout the province of Pangasinán (whose name, from *asin*, "salt," means "the place where salt is produced"). In these, marshes grows the nipa palm, from which a liquor is distilled—there are a number of small distilleries here. Dagupan has a small shipyard in which sailing vessels and steam launches are constructed. The principal language is Pangasinán.

DAHABEAH (also spelt dahabīya, dahabīyeh, dahabeeyah, &c.), an Arabic word (variously derived from *dahab*, gold, and *dahab*, one of the forms of the verb to go) for a native passenger boat used on the Nile. The typical form is that of a barge-like house-boat provided with sails, resembling the painted galleys represented on the tombs of the Pharaohs. Similar state barges were used by the Mahommedan rulers of Egypt, and from the circumstance that these vessels were ornamented with gilding is attributed the usual derivation of the name from gold. Before the introduction of steamers dahabeahs were generally used by travellers ascending the Nile, and they are still the favourite means of travelling for the leisured and wealthy classes. The modern dahabeah is often made of iron, draws about 2 ft. of water, and is provided with one very large and one small sail. According to size it provides accommodation for from two to a dozen passengers. Steam dahabeahs are also built to meet the requirements of tourists.

DAHL, HANS (1840-), Norwegian painter, was born at Hardanger. After being in the Swedish army he studied art at Karlsruhe and at Düsseldorf, being a notable painter of landscape and *genre*. His work has considerable humour, but his colouring is hard and rather crude. In 1889 he settled in Berlin. His pictures are very popular in Norway.

DAHL, JOHANN CHRISTIAN (1778-1857), Norwegian landscape painter, was born in Bergen. He formed his style without much tuition, remaining at Bergen till he was twenty-four, when he left for the better field of Copenhagen, and ultimately settled in Dresden in 1818. He is usually included in the German school, although he was thus close on forty years of age when he finally took up his abode in Dresden, where he was quickly received into the Academy and became professor. German landscape-painting was not greatly advanced at that time, and Dahl contributed to improve it. He continued to reside in Dresden, though he travelled into Tirol and in Italy, painting many pictures, one of his best being that of the "Outbreak of Vesuvius, 1820." He was fond of extraordinary effects, as seen in his "Winter at Munich," and his "Dresden by Moonlight;" also the "Haven of Copenhagen," and the "Schloss of Friedrichsburg," under the same condition. At Dresden may be seen many of his works, notably a large picture called "Norway," and a "Storm at Sea." He was received into several academic bodies, and had the orders of Wasa and St Olaf sent him by the king of Norway and Sweden.

DAHL, MICHAEL (1656-1743), Swedish portrait painter, was born at Stockholm. He received his first professional education from Ernst Klocke, who had a respectable position in that northern town, which, however, Dahl left in his twenty-second year. His first destination was England, where he did not long remain, but crossed over to Paris, and made his way at last to Rome, there taking up his abode for a considerable time, painting the portraits of Queen Christina and other celebrities. In 1688 he returned to England, and became for some years a dangerous rival to Kneller. He died in London. His portraits still exist in many houses, but his name is not always preserved with them. Nagler (*Künstler-Lexicon*) says those at Hampton Court and at Petworth contest the palm with those of the better known and vastly more employed painter.

DAHL (or **DALE**), **VLADIMIR IVANOVICH** (1802-1872), Russian author and philologist, was born of Scandinavian parentage in 1802, and received his education at the naval cadets' institution at St Petersburg. He joined the Black Sea fleet in 1819; but at a later date he entered the military service, and was thus engaged in the Polish campaign of 1831, and in the expedition against Khiva. He was afterwards appointed to a medical post in one of the government hospitals at St Petersburg, and was ultimately transferred to a situation in the civil service. The latter years of his life were spent at Moscow, and he died there on November 3 (October 22), 1872. Under the name of Kossack Lugansky he obtained considerable fame by his stories of Russian life:—*The Dream and the Waking*, *A Story of Misery*, *Happiness, and Truth*, *The Door-Keeper* (Dvernik), *The Officer's Valet* (Denshchik). His greatest work, however, was a *Dictionary of the Living Russian Tongue* (Tolkovyi Slovar Zhivago Velikorusskago Yasika), which appeared in four volumes between 1861 and 1866, and is of the most essential service to the student of the popular literature and folk-lore of Russia. It was based on the results of his own investigations throughout the various provinces of Russia,—investigations which had furnished him with no fewer than 4000 popular tales and upwards of 30,000 proverbs. Among his other publications may be mentioned *Bemerkungen zu Zimmermann's Entwurf des Kriegstheaters Russlands gegen Khiwa*, published in German at Orenburg, and a *Handbook of Botany* (Moscow, 1849).

A collected edition of his works appeared at St Petersburg in 8 volumes, 1860-1861.

DAHLBERG (Dahlbergh), **ERIK JOHANSEN, COUNT** (1625-1703), Swedish soldier and engineer, was born at Stockholm. His early studies took the direction of the science of fortification, and as an engineer officer he saw service in the latter years of the Thirty Years' War, and in Poland. As adjutant-general and engineer adviser to Charles X. (Gustavus), he had a great share in the famous crossing of the frozen Belts, and at the sieges of Copenhagen and Kronborg he directed the engineers. In spite of these distinguished services, Dahlberg remained an obscure lieutenant-colonel for many years. His patriotism, however, proved superior to the tempting offers Charles II. of England made to induce him to enter the British service, though, in that age of professional soldiering, there was nothing in the offer that a man of honour could not accept. At last his talents were recognized, and in 1676 he became director-general of fortifications. In the wars of the next twenty-five years Dahlberg again rendered distinguished service, alike in attack (as at Helsingborg in 1677, and Dünamünde in 1700) and defence (as in the two sieges of Riga in 1700): and his work in repairing the fortresses of his own country, not less important, earned for him the title of the "Vauban of Sweden." He was also the founder of the Swedish engineer corps. He retired as field-marshal in 1702, and died the following year.

Erik Dahlberg was responsible for the fine collection of drawings called *Suecia antiqua et hodierna* (Stockholm, 1660-1716; 2nd edition, 1856; 3rd edition, 1864-1865), and assisted Pufendorf in his *Histoire de Charles X Gustave*. He wrote a memoir of his life (to be found in Svenska Bibliotek, 1757) and an account of the campaigns of Charles X. (ed. Lundblad, Stockholm, 1823).

DAHLGREN, JOHN ADOLF (1809-1870), admiral in the U.S. navy, was the son of the Swedish consul at Philadelphia, Pennsylvania, and was born in that city on the 13th of November 1809. He entered the United States navy in 1826, and saw some service in the Civil War in command of the South Atlantic blockading squadron. But he was chiefly notable as a scientific officer. His knowledge of mathematics caused him to be employed on the coast survey in 1834. In 1837 his eyesight threatened to fail, he retired in 1838-1842, and in 1847 he was transferred to the ordnance department. In this post he applied himself to the improvement of the guns of the U.S. navy. He was the inventor of the smooth bore gun which bore his name, but was from its shape familiarly known as "the soda water bottle." It was used in the Civil War, and for several years afterwards in the United States navy. Dahlgren's guns were first mounted in a vessel named the "Experiment," which cruised under his command from 1857 till 1859. They were "the first practical application of results obtained by experimental determinations of pressure at different points along the bore, by Colonel Bomford's tests—that is by boring holes in the walls of the gun, through which the pressure acts upon other bodies, such as pistol balls, pistons, &c." (Cf. article by J. M. Brooke in Hamersley's *Naval Encyclopaedia*.) When the Civil War broke out, he was on ordnance duty in the Washington navy yard, and he was one of the three officers who did not resign from confederate sympathies. His rank at the time was commander, and the command could only by held by a captain. President Lincoln insisted on retaining Commander Dahlgren, and he was qualified to keep the post by special act of Congress. He became post-captain in 1862 and rear-admiral in 1863. He commanded the Washington navy yard when he died on the 12th of July 1870.

A memoir of Admiral Dahlgren by his widow was published at Boston in 1882.

(D. H.)

DAHLGREN, KARL FREDRIK (1791-1844), Swedish poet, was born at Stensbruk in Östergötland on the 20th of June 1791. At a time when literary partisanship ran high in Sweden, and the writers divided themselves into "Goths" and "Phosphorists," Dahlgren made himself indispensable to the Phosphorists by his polemical activity. In the mock-heroic poem of *Markalls sömnlösa nätter* (Markall's Sleepless Nights), in which the Phosphorists ridiculed the academician Per Adam Wallmark and others, Dahlgren, who was a genuine humorist, took a prominent part. In 1825 he published *Babels Torn* (The Tower of Babel), a satire, and a comedy, *Argus in Olympen*; and in 1828 two volumes of poems. In 1829 he was appointed to an ecclesiastical post in Stockholm, which he held until his death. In a series of odes and dithyrambic pieces, entitled *Mollbergs Epistlar* (1819, 1820), he strove to emulate the wonderful lyric genius of K. M. Bellman, of whom he was a student and follower. From 1825 to 1827 he edited a critical journal entitled *Kometen* (The Comet), and in company with Almqvist he founded the *Manhemsförbund*, a short-lived society of agricultural socialists. In 1834 he collected his poems in one volume; and in 1837 appeared his last book, *Angbåts-Sånger* (Steamboat Songs). On the 1st of May 1844 he died at Stockholm. Dahlgren is one of the best humorous writers that Sweden has produced; but he was perhaps at his best in realistic and idyllic description. His little poem of *Zephyr and the Girl*, which is to be found in every selection from Swedish poetry, is a good example of his sensuous and ornamented style.

His works were collected and published after his death by A. J. Arwidsson (5 vols., Stockholm, 1847-1852).

DAHLIA, a genus of herbaceous plants of the natural order Compositae, so called after Dr Dahl, a pupil of Linnaeus. The genus contains about nine species indigenous in the high sandy plains of Mexico. The dahlia was first introduced into Britain from Spain in 1789 by the marchioness of Bute. The species was probably *D. variabilis*, whence by far the majority of the forms now common have originated. The flowers, at the time of the first introduction of the plant, were single, with a yellow disk and dull scarlet rays; under cultivation since the beginning of the 19th century in France and England, flowers of numerous brilliant hues have been produced. The flower has been modified also from a flat to a globular shape, and the arrangement of the florets has been rendered quite distinct in the ranunculus and anemone-like kinds. The ordinary natural height of the dahlia is about 7 or 8 ft., but one of the dwarf races grows to only 18 in. With changes in the flower, changes in the shape of the seed have been brought about by cultivation; varieties of the plant have been produced which require more moisture than others; and the period of flowering has been made considerably earlier. In 1808 dahlias were described as flowering from September to November, but some of the dwarf varieties at present grown are in full blossom in the middle of June.

The large number of varieties may be classed as under the following heads: (1) *Single dahlias*. These have been derived from *D. coccinea*; they have a disk of tubular florets surrounded by the large showy ray florets. (2) *Show dahlias*, large and double with flowers self-coloured or pale-coloured and edged or tipped with a darker colour. (3) *Fancy dahlias*, resembling the show but having the florets striped or tipped with a second tint. (4) *Bouquet* or *Pompon dahlias*, with much smaller double flowers of various colours. (5) *Cactus dahlias*, derived from D. Juarezi, a form which has given rise to a beautiful race with pointed starry flowers. (6) *Paeony-flowered dahlias*, a new but not pretty race, with large floppy heads, broad florets and several disk florets in centre.

New varieties are procured from seed, which should be sown in pots or pans towards the end of March, and placed in a hotbed or propagating pit, the young plants being pricked off into pots or boxes, and gradually hardened off for planting out in June; they will flower the same season if the summer is a genial one. The older varieties are propagated by dividing the large tuberous roots, in doing which care must be taken to leave an eye to each portion of tuber, otherwise it will not grow. Rare varieties are sometimes grafted on the roots of others. The best and most general mode of propagation is by cuttings, to obtain which, the old tubers are placed in heat in February, and as the young shoots, which rise freely from them, attain the height of 3 in., they are taken off with a heel, and planted singly in small pots filled with fine sandy soil, and plunged in a moderate heat. They root speedily, and are then transferred to larger pots in light rich soil, and their growth encouraged until the planting-out season arrives, about the middle of June north of the Thames.

Dahlias succeed best in an open situation, and in rich deep loam, but there is scarcely any garden soil in which they will not thrive, if it is manured. For the production of fine show flowers the ground must be deeply trenched, and well manured annually. The branches as well as the blossoms require a considerable but judicious amount of thinning; they also need shading in some cases. The plants should be protected from cold winds, and when watered the whole of the foliage should be wetted. They may stand singly like common border flowers, but have the most imposing appearance when seen in masses arranged according to their height. Florists usually devote a plot of ground to them, and plant them in lines 5 to 10 ft. apart. This is done about the beginning of June, sheltering them if necessary from late frosts by inverted pots or in some other convenient way. Old roots often throw up a multitude of stems, which render thinning necessary. As the plants increase in height, they are furnished with strong stakes, to secure them from high winds. Dahlias flower on till they are interrupted by frost in autumn. The roots are then taken up, dried, and stored in a cellar, or some other place where they may be secure from frost and moisture. Earwigs are very destructive, eating out the young buds and florets. Small flower-pots half filled with dry moss and inverted on stakes placed among the branches, form a useful trap.

DAHLMANN, FRIEDRICH CHRISTOPH (1785-1860), German historian and politician, was born on the 13th of May 1785; he came of an old Hanseatic family of Wismar, which then belonged to Sweden. His father, who was the burgomaster of the town, intended him to study theology, but his bent was towards classical philology, and this he studied from 1802 to 1806 at the universities of Copenhagen and Halle, and again at Copenhagen. After finishing his studies, he translated some of the Greek tragic poets, and the *Clouds* of Aristophanes. But he was also interested in modern literature and philosophy; and the troubles of the times, of which he had personal experience, aroused in him, as in so many of his contemporaries, a strong feeling of German patriotism, though throughout his life he was always proud of his connexion with Scandinavia, and Gustavus Adolphus was his particular hero. In 1809, on the news of the outbreak of war in Austria, Dahlmann, together with the poet Heinrich von Kleist, whom he had met in Dresden, went to Bohemia, and was afterwards with the Imperial army, up till the battle of Aspern, with the somewhat vague object of trying to convert the Austrian war into a German one. This hope was shattered by the defeat of Wagram. He now decided to try his fortunes in Denmark, where he had influential relations. After taking his doctor's degree at Wittenberg (1810) he qualified at Copenhagen in 1811, with an essay on the origins of the ancient theatre, as a lecturer on ancient literature and history, on which he delivered lectures in Latin. His influential friends soon brought him further advancement. As early as 1812 he was summoned to Kiel, as successor to the historian Dietrich Hermann Hegewisch (1746-1812). This appointment was in two respects a decisive moment in his career; on the one hand it made him give his whole attention to a subject for which he was admirably suited, but to which he had so far given only a secondary interest; and on the other hand, it threw him into politics.

In 1815 he obtained, in addition to his professorate, the position of secretary to the perpetual deputation of the estates of Schleswig-Holstein. In this capacity he began, by means of memoirs or of articles in the *Kieler Blätter*, which he founded himself, to appear as an able and zealous champion of the half-forgotten rights of the Elbe duchies, as against Denmark, and of their close connexion with Germany. It was he upon whom the Danes afterwards threw the blame of having invented the Schleswig-Holstein question; certainly his activities form an important link in the chain of events which eventually led to the solution of 1864. So far as this interest affected himself, the chief profit lay in the fact that it deepened his conception of the state, and directed it to more practical ends. Whereas at that time mere speculation dominated both the French Liberalism of the school of Rotteck, and Karl Ludwig von Haller's Romanticist doctrine of the Christian state, Dahlmann took as his premisses the circumstances as he found them, and evolved the new out of the old by a quiet process of development. Moreover, in the inevitable conflict with the Danish crown his upright point of view and his German patriotism were further confirmed. After his transference to Göttingen in 1829 he had the opportunity of working in the same spirit. As confidant of the duke of Cambridge, he was allowed to take a share in framing the Hanoverian constitution of 1833, which remodelled the old aristocratic government in a direction which had become inevitable since the July revolution in Paris; and when in 1837 the new king Ernest Augustus declared the constitution invalid, it was Dahlmann who inspired the famous protest of the seven professors of Göttingen. He was deprived of his position and banished, but he had the satisfaction of knowing that German national feeling received a mighty impulse from his courageous action, while public subscriptions prevented him from material cares.

After he had lived for several years in Leipzig and Jena, King Frederick William IV. appointed him in October 1842 to a professorship at Bonn. The years that followed were those of his highest celebrity. His *Politik* (1835) had already made him

a great name as a writer; he now published his *Dänische Geschichte* (1840-1843), a historical work of the first rank; and this was soon followed by histories of the English and French revolutions, which, though of less scientific value, exercised a decisive influence upon public opinion by their open advocacy of the system of constitutional monarchy. As a teacher too he was much beloved. Though no orator, and in spite of a personality not particularly amiable or winning, he produced a profound impression upon young men by the pregnancy of his expression, a consistent logical method of thought based on Kant and by the manliness of his character. When the revolution of 1848 broke out, the "father of German nationality," as the provisional government at Milan called him, found himself the centre of universal interest. Both Mecklenburg and Prussia offered him in vain the post of envoy to the diet of the confederation. Naturally, too, he was elected to the national assembly at Frankfort, and took a leading part in the constitutional committees appointed first by the diet, then by the parliament. His object was to make Germany as far as possible a united constitutional monarchy, with the exclusion of the whole of Austria, or at least, of its non-German parts. Prussia was to provide the emperor, but at the same time—and in this lay the doctrinaire weakness of the system—was to give up its separate existence, consecrated by history, in the same way as the other states. When, therefore, Frederick William IV., without showing any anxiety to bind himself by the conditions laid down at Frankfort, concluded with Denmark the seven months' truce of Malmö (26th August 1848), Dahlmann proposed that the national parliament should refuse to recognize the truce, with the express intention of clearing up once for all the relations of the parliament with the court of Berlin. The motion was passed by a small majority (September 5th); but the members of Dahlmann's party were just those who voted against it, and it was they who on the 17th of September reversed the previous vote and passed a resolution accepting the truce, after Dahlmann had failed to form a ministry on the basis of the resolution of the 5th, owing to his objection to the Radicals. Dahlmann afterwards described this as the decisive turning-point in the fate of the parliament. He did not, however, at once give up all hope. Though he took but little active part in parliamentary debates, he was very active on commissions and in party conferences, and it was largely owing to him that a German constitution was at last evolved, and that Frederick William IV. was elected hereditary emperor (28th of March 1849). He was accordingly one of the deputation which offered the crown to the king in Berlin. The king's refusal was less of a surprise to him than to most of his colleagues. He counted on being able to compel recognition of the constitution by the moral pressure of the consent of the people. It was only when the attitude of the Radicals made it clear to him that this course would lead to a revolution, that he decided, after a long struggle, to retire from the national parliament (21st May). He was still, however, one of the chief promoters of the well-known conference of the imperial party at Gotha, the proceedings of which were not, however, satisfactory to him; and he took part in the sessions of the first Prussian chamber (1849-1850) and of the parliament of Erfurt (1850). But finally, convinced that for the moment all efforts towards the unity of Germany were unavailing, he retired from political life, though often pressed to stand for election, and again took up his work of teaching at Bonn. His last years were, however, saddened by illness, bereavement and continual friction with his colleagues. His death took place on the 5th of December 1860, following on an apoplectic fit. He was a man whose personality had contributed to the progress of the world, and whose teaching was to continue to exercise a far-reaching influence on the development of German affairs.

His chief works were:—*Quellenkunde der deutschen Geschichte nach der Folge der Begebenheiten geordnet* (1830, 7th edition of Dahlmann-Waitz, *Quellenkunde*, Leipzig, 1906); *Politik, auf den Grund und das Mass der gegebenen Zustände zurückgeführt* (1 vol., 1835); *Geschichte Dänemarks* (3 vols., 1840-1843); *Geschichte der englischen Revolution* (1844); *Geschichte der französischen Revolution* (1845).

See A. Springer, *Friedrich Christoph Dahlmann* (2 vols., 1870-1872); and H. v. Treitschke, *Histor. und polit. Aufsätze*, i. 365 et seq.

(F. Lu.)

DAHLSTJERNA, GUNNO (1661-1709), Swedish poet, whose original surname was Eurelius, was born on the 7th of September 1661 in the parish of Öhr in Dalsland, where his father was rector. He entered the university of Upsala in 1677, and after gaining his degree entered the government office of land-surveying. He was sent in 1681 on professional business to Livonia, then under Swedish rule. A dissertation read at Leipzig in 1687 brought him the offer of a professorial chair in the university, which he refused. Returning to Sweden he executed commissions in land-surveying directed by King Charles XI., and in 1699 he became head of the whole department. In 1702 he was ennobled under the name of Dahlstjerna. He wandered over the whole of the coast of the Baltic, Livonia, Rügen and Pomerania, preparing maps which still exist in the office of public land-surveying in Stockholm. His death, which took place in Pomerania on his forty-eighth birthday, 7th of September 1709, is said to have been hastened by the disastrous news of the battle of Poltava. Dahlstjerna's patriotism was touching in its pathos and intensity, and during his long periods of professional exile he comforted himself by the composition of songs to his beloved Sweden. His genius was most irregular, but at his best he easily surpasses all the Swedish poets of his time. His best-known original work is *Kungaskald* (Stettin, 1697), an elegy on the death of Charles XI. It is written in alexandrines, arranged in *ottava rima*. The poem is pompous and allegorical, but there are passages full of melody and high thoughts. Dahlstjerna was a reformer in language, and it has been well said by Atterbom that in this poem "he treats the Swedish speech just as dictatorially as Charles XI. and Charles XII. treated the Swedish nation." In 1690 was printed at Stettin his paraphrase of the *Pastor Fido* of Guarini. His most popular work is his *Götha kämpavisa om Konungen och Herr Peder* (The Goth's Battle Song, concerning the King and Master Peter; Stockholm, 1701). The King is Charles XII. and Master Peter is the tsar of Russia. This spirited ballad lived almost until our own days on the lips of the people as a folk-song.

The works of Dahlstjerna have been collected by P. Hanselli, in the *Samlade Vitterhetsarbeten af svenska Författare från Stjernhjelm till Dalin* (Upsala, 1856, &c.).

DAHN, JULIUS SOPHUS FELIX (1834-), German historian, jurist and poet, was born on the 9th of February 1834 in Hamburg, where his father, Friedrich Dahn (1811-1889), was a leading actor at the city theatre. His mother, Constance Dahn, née Le Gay, was a noted actress. In 1834 the family moved to Munich, where the parents took leading rôles in the classical German drama, until they retired from the stage: the mother in 1865 and the father in 1878. Felix Dahn studied law and philosophy in Munich and Berlin from 1849 to 1853. His first works were in jurisprudence, *Über die Wirkung der Klagverjährung bei Obligationen* (Munich, 1855), and *Studien zur Geschichte der germanischen Gottesurteile* (Munich, 1857). In 1857 he became docent in German law at Munich university, and in 1862 professor-extraordinary, but in 1863 was called to Würzburg to a full professorship. In 1872 he removed to the university of Königsberg, and in 1888 settled at Breslau, becoming rector of the university in 1895. Meanwhile in addition to many legal works of high standing, he had begun the publication of that long series of histories and historical romances which has made his name a household word

in Germany. The great history of the German migrations, *Die Könige der Germanen*, Bände i.-vi. (Munich and Würzburg, 1861-1870), Bände vii.-xi. (Leipzig, 1894-1908), was a masterly study in constitutional history as well as a literary work of high merit, which carries the narrative down to the dissolution of the Carolingian empire. In his *Urgeschichte der germanischen und romanischen Völker* (Berlin, 1881-1890), Dahn went a step farther back still, but here as in his *Geschichte der deutschen Urzeit* (Gotha, 1883-1888), a wealth of picturesque detail has been worked over and resolved into history with such imaginative insight and critical skill as to make real and present the indistinct beginnings of German society. Together with these larger works Dahn wrote many monographs and studies upon primitive German society. Many of his essays were collected in a series of six volumes entitled *Bausteine* (Berlin, 1879-1884). Not less important than his histories are the historical romances, the best-known of which, *Ein Kampf um Rom*, in four volumes (Leipzig, 1876), which has gone through many later editions, was also the first of the series. Others are *Odhins Trost* (Leipzig, 1880); *Die Kreuzfahrer* (Leipzig, 1884); *Odhins Rache* (Leipzig, 1891); *Julian der Abtrünnige* (Leipzig, 1894), and one of the most popular, *Bis zum Tode getreu* (Leipzig, 1887). The list is too long to be given in full, yet almost all are well-known. Parallel with this great production of learned and imaginative works, Dahn published some twenty small volumes of poetry. The most notable of these are the epics of the early German period. His wife Therese, *née* Freiin von Droste-Hülshoff, was joint-author with him of *Walhall, Germanische Götter und Heldensagen* (Leipzig, 1898).

A collected edition of his works of fiction, both in prose and verse, has reached twenty-one volumes (Leipzig, 1898), and a new edition was published in 1901. Dahn also published four volumes of memoirs, *Erinnerungen* (Leipzig, 1890-1895).

DAHOMEY (Fr. *Dahomé*), a country of West Africa, formerly an independent kingdom, now a French colony. Dahomey is bounded S. by the Gulf of Guinea, E. by Nigeria (British), N. and N.W. by the French possessions on the middle Niger, and W. by the German colony of Togoland. The French colony extends far north of the limits of the ancient kingdom of the same name. With a coast-line of only 75 m. (1° 38′ E. to 2° 46′ 55″ E.), the area of the colony is about 40,000 sq. m., and the population over 1,000,000. As far as 9° N. the width of the colony is no greater than the coast-line. From this point, the colony broadens out both eastward and westward, attaining a maximum width of 200 m. It includes the western part of Borgu (q.v.), and reaches the Niger at a spot a little above Illo. Its greatest length N. to S. is 430 m.

Physical Features.—The littoral, part of the old Slave Coast (see Guinea,), is very low, sandy and obstructed by a bar. Behind the seashore is a line of lagoons, where small steamers can ply; east to west they are those of Porto Novo (or Lake Nokue), Whydah and Grand Popo. The Weme (300 m. long), known in its upper course as the Ofe, the most important river running south, drains the colony from the Bariba country to Porto Novo, entering the lagoon so named. The Zu is a western affluent of the Weme. Farther west is the Kuffu (150 m. long), which, before entering the Whydah lagoon, broadens out into a lake or lagoon called Ahémé, 20 m. long by 5 m. broad. The Makru and Kergigoto, each of which has various affluents, flow north-east to the Niger, which in the part of its course forming the north-east frontier of the colony is only navigable for small vessels and that with great difficulty (see Niger).

For some 50 m. inland the country is flat, and, after the first mile or two of sandy waste is passed, covered with dense vegetation. At this distance (50 m.) from the coast is a great swamp known as the Lama Marsh. It extends east to west some 25 m. and north to south 6 to 9 m. North of the swamp the land rises by regular stages to about 1650 ft., the high plateau falling again to the basin of the Niger. In the north-west a range of hills known as the Atacora forms a watershed between the basins of the Weme, the Niger and the Volta. A large part of the interior consists of undulating country, rather barren, with occasional patches of forest. The forests contain the baobab, the coco-nut palm and the oil palm. The fauna resembles that of other parts of the West Coast, but the larger wild animals, such as the elephant and hippopotamus, are rare. The lion is found in the regions bordering the Niger. Some kinds of antelopes are common; the buffalo has disappeared.

Climate.—The climate of the coast regions is very hot and moist. Four seasons are well marked: the harmattan or long dry season, from the 1st December to the 15th March; the season of the great rains, from the 15th March to the 15th July; the short dry season, from the 15th July to the 15th September; and the “little rains,” from the 15th September to the 1st December. Near the sea the average temperature is about 80° F. The harmattan prevails for several days in succession, and alternates with winds from the south and south-west. During its continuance the thermometer falls about 10°, there is not the slightest moisture in the atmosphere, vegetation dries up or droops, the skin parches and peels, and all woodwork is liable to warp and crack with a loud report. Tornadoes occur occasionally. During nine months of the year the climate is tempered by a sea-breeze, which is felt as far inland as Abomey (60 m.). It generally begins in the morning, and in the summer it often increases to a stiff gale at sundown. In the interior there are but two seasons: the dry season (November to May) and the rainy season (June to October). The rains are more scanty and diminish considerably in the northern regions.

Inhabitants.—The inhabitants of the coast region are of pure negro stock. The Dahomeyans (Dahomi), who inhabit the central part of the colony, form one of eighteen closely-allied clans occupying the country between the Volta and Porto Novo, and from their common tongue known as the Ewe-speaking tribes. In their own tongue Dahomeyans are called Fon or Fawin. They are tall and well-formed, proud, reserved in demeanour, polite in their intercourse with strangers, war-like and keen traders. The Mina, who occupy the district of the Popos, are noted for their skill as surf-men, which has gained for them the title of the Krumen of Dahomey. Porto Novo is inhabited by a tribe called Nago, which has an admixture of Yoruba blood and speaks a Yoruba dialect. The Nago are a peaceful tribe and even keener traders than the Dahomi. In Whydah and other coast towns are many mulattos, speaking Portuguese and bearing high-sounding Portuguese names. In the north the inhabitants—Mahi, Bariba, Gurmai,—are also of Negro stock, but scarcely so civilized as the coast tribes. Settled among them are communities of Fula and Hausas. There are many converts to Islam in the northern districts, but the Mahi and Dahomeyans proper are nearly all fetish worshippers.

Chief Towns.—The chief port and the seat of government is Kotonu, the starting-point of a railway to the Niger. An iron pier, which extends well beyond the surf, affords facilities for shipping. Kotonu was originally a small village which served as the seaport of Porto Novo and was burnt to the ground in 1890. It has consequently the advantage of being a town laid out by Europeans on a definite plan. Situated on the beach between the sea and the lagoon of Porto Novo, the soil consists of heavy sand. Good hard roads have been made. Owing to an almost continuous, cool, westerly sea-breeze, Kotonu is, in comparison with the other coast towns, decidedly healthy for white men. Porto Novo (pop. about 50,000), the former French headquarters and chief business centre, is on the northern side of the lagoon of the same name and 20 m. north-east of Kotonu by water. The town has had many names, and that by which it is known to Europeans was given by the Portuguese in the 17th century. It contains numerous churches and mosques, public buildings and merchants’ residences. Whydah, 23 m. west of Kotonu, is an old and formerly thickly-populated town. Its population is now about 15,000. It is built on the north bank of the coast lagoon about 2 m. from the sea. There is no harbour at the beach, and landing is effected in boats made expressly to pass through the surf, here particularly heavy. Whydah, during the period of the slave-trade, was divided into five quarters: the English, French, Portuguese, Brazilian and native. The three first quarters once had

formidable forts, of which the French fort alone survives. In consequence of the thousands of orange and citron trees which adorn it, Whydah is called “the garden of Dahomey.” West of Whydah, on the coast and near the frontier of Togoland, is the trading town of Grand Popo. Inland in Dahomey proper are Abomey (q.v.), the ancient capital, Allada, Kana (formerly the country residence and burial-place of the kings of Dahomey) and Dogba. In the hinterland are Carnotville (a town of French creation), Nikki and Paraku, Borgu towns, and Garu, on the right bank of the Niger near the British frontier, the terminus of the railway from the coast.

Agriculture and Trade.—The agriculture, trade and commerce of Dahomey proper are essentially different from that of the hinterland (*Haut Dahomé*). The soil of Dahomey proper is naturally fertile and is capable of being highly cultivated. It consists of a rich clay of a deep red colour. Finely-powdered quartz and yellow mica are met with, denoting the deposit of disintegrated granite from the interior. The principal product is palm-oil, which is made in large quantities throughout the country. The district of Toffo is particularly noted for its oil-palm orchards. Palm-wine is also made, but the manufacture is discouraged as the process destroys the tree. Next to palm-oil the principal vegetable products are maize, guinea-corn, cassava, yams, sweet potatoes, plantains, coco-nuts, oranges, limes and the African apple, which grows almost wild. The country also produces ground-nuts, kola-nuts, pine-apples, guavas, spices of all kinds, ginger, okros (*Hibiscus*), sugar-cane, onions, tomatoes and papaws. Plantations of rubber trees and vines have been made. Cattle, sheep, goats and fowls are scarce. There is a large fishing industry in the lagoons. Round the villages, and here and there in the forest, clearings are met with, cultivated in places, but agriculture is in a backward condition. In the grassy uplands of the interior cattle and horses thrive, and cotton of a fairly good quality is grown by the inhabitants for their own use. The prosperity of the country depends chiefly on the export of palm-oil and palm-kernels. Copra, kola-nuts, rubber and dried fish are also exported, the fish going to Lagos. The adulteration of the palm-kernels by the natives, which became a serious menace to trade, was partially checked (1900-1903) by measures taken to ensure the inspection of the kernels before shipment. Trade is mainly with Germany and Great Britain, a large proportion of the cargo passing through the British port of Lagos. Only some 25% of the commerce is with France. Cotton goods (chiefly from Great Britain), machinery and metals, alcohol (from Germany) and tobacco are the chief imports. The volume of trade, which had increased from £701,000 in 1898 to £1,230,000 in 1902, declined in 1903 to £826,000 in consequence of the failure of rain, this causing a decrease in the production of palm-oil and kernels. In 1904 the total rose to £873,399. In 1905 the figure was £734,667, and in 1907 £853,051. By the Anglo-French Convention of 1898 the imposition of differential duties on goods of British origin was forbidden for a period of thirty years from that date.

Communications.—The Dahomey railway from Kotonu to the Niger is of metre gauge (3.28 ft.). Work was begun in 1900, and in 1902 the main line was completed to Toffo, a distance of 55 m. Some difficulty was then encountered in crossing the Lama Marsh, but by the end of 1905 the railway had been carried through Abomey to Pauignan, 120 m. from Kotonu. In 1907 the rails had reached Paraku, 150 m. farther north. A branch railway from the main line serves the western part of the colony. It goes via Whydah to Segborué on Lake Ahémé. Besides the railways, tramway lines exist in various parts of Dahomey. One, 28 m. long, runs from Porto Novo through the market-town of Adjara to Sakete, close to the British frontier in the direction of Lagos. This line serves a belt of country rich in oil-palms. Kotonu is a regular port of call for steamers from Europe to the West Coast, and there is also regular steamship communication along the lagoons between Porto Novo and Lagos. There is a steamboat service between Porto Novo and Kotonu. A telegraph line connects Kotonu with Abomey, the Niger and Senegal.

Administration.—The colony is administered by a lieutenant-governor, assisted by a council composed of official and unofficial members. The colony is divided into territories annexed, territories protected, and “territories of political action,” but for administrative purposes the division is into “circles” or provinces. Over each circle is an administrator with extensive powers. Except in the annexed territories the native states are maintained under French supervision, and native laws and customs, as far as possible, retained. Natives, however, may place themselves under the jurisdiction of the French law. Such natives are known as “Assimilés.” In general the administrative system is the same as that for all the colonies of French West Africa (q.v.). The chief source of revenue is the customs, while the capitation tax contributes most to the local budget.

History.—The kingdom of Dahomey, like those of Benin and Ashanti, is an instance of a purely negro and pagan state, endowed with a highly organized government, and possessing a certain amount of indigenous civilization and culture. Its history begins about the commencement of the 17th century. At that period the country now known as Dahomey was included in the extensive kingdom of Allada or Ardrah, of which the capital was the present town of Allada, on the road from Whydah to Abomey. Allada became dismembered on the death of a reigning sovereign, and three separate kingdoms 736
were constituted under his three sons. One state was formed by one brother round the old capital of Allada, and retained the name of Allada or Ardrah; another brother migrated to the east and formed a state known under the name of Porto Novo; while the third brother, Takudonu, travelled northwards, and after some vicissitudes established the kingdom of Dahomey. The word Dahomey means “in Danh’s belly,” and is explained by the following legend which, says Sir Richard Burton, “is known (1864) to everybody in the kingdom.” Takudonu having settled in a town called Uhwawe encroached on the land of a neighbouring chief named Danh (the snake). Takudonu wearied Danh by perpetual demands for land, and the chief one day exclaimed in anger “soon thou wilt build in my belly.” So it came to pass. Takudonu slew Danh and over his grave built himself a palace which was called Dahomey, a name thenceforth adopted by the new king’s followers. About 1724-1728 Dahomey, having become a powerful state, invaded and conquered successively Allada and Whydah. The Whydahs made several attempts to recover their freedom, but without success; while on the other hand the Dahomeyans failed in all their expeditions against Grand Popo, a town founded by refugee Whydahs on a lagoon to the west. It is related that the repulses they met with in that quarter led to the order that no Dahomeyan warrior was to enter a canoe. Porto Novo at the beginning of the 19th century became tributary to Dahomey.

Such was the state of affairs at the accession of King Gezo about the year 1818. This monarch, who reigned forty years, raised the power of Dahomey to its highest pitch, extending greatly the border of his kingdom to the north. He boasted of having first organized the Amazons, a force of women to whom he attributed his successes. The Amazons, however, were state soldiery long before Gezo’s reign, and what that monarch really did was to reorganize and strengthen the force.

In 1851 Gezo attacked Abeokuta in the Yoruba country and the centre of the Egba power, but was beaten back. In the same year the king signed a commercial treaty with France, in which Gezo also undertook to preserve “the integrity of the territory belonging to the French fort” at Whydah. The fort referred to was one built in the 17th century, and in 1842 made over to a French mercantile house. England, Portugal and Brazil also had “forts” at Whydah—all in a ruinous condition and ungarrisoned. But when in 1852 England, to prevent the slave-trade, blockaded the Dahomeyan coast, energetic protests were made by Portugal and France, based on the existence of these “forts.” In 1858 Gezo died. He had greatly reduced the custom of human sacrifice, and left instructions that after his death there was to be no general sacrifice of the palace women.

Gezo was succeeded by his son Gléglé (or Gélélé), whose attacks on neighbouring states, persecution of native Christians, and encouragement of the slave-trade involved him in difficulties with Great Britain and with France. It was, said Earl Russell, foreign secretary, to check “the aggressive spirit of the king of Dahomey” that England in 1861 annexed the island of Lagos. Nevertheless in the following year Gléglé captured Ishagga and in 1864 unsuccessfully attacked Abeokuta, both towns in the Lagos hinterland. In 1863 Commander Wilmot, R.N., and in 1864 Sir Richard Burton (the explorer and orientalist) were sent on missions to the king, but their efforts to induce the Dahomeyans to give up human

sacrifices, slave-trading, &c. met with no success. In 1863, however, a step was taken by France which was the counterpart of the British annexation of Lagos. In that year the kingdom of Porto Novo accepted a French protectorate, and an Anglo-French agreement of 1864 fixed its boundaries. This protectorate was soon afterwards abandoned by Napoleon III., but was re-established in 1882. At this period the rivalry of European powers for possessions in Africa was becoming acute, and German agents appeared on the Dahomeyan coast. However, by an arrangement concluded in 1885, the German protectorate in Guinea was confined to Togo, save for the town of Little Popo at the western end of the lagoon of Grand Popo. In January 1886 Portugal—in virtue of her ancient rights at Whydah—announced that she had assumed a protectorate over the Dahomeyan coast, but she was induced by France to withdraw her protectorate in December 1887. Finally, the last international difficulty in the way of France was removed by the Anglo-French agreement of 1889, whereby Kotonu was surrendered by Great Britain. France claimed rights at Kotonu in virtue of treaties concluded with Gléglé in 1868 and 1878, but the chiefs of the town had placed themselves under the protection of the British at Lagos.

With the arrangements between the European powers the Dahomeyans had little to do, and in 1889, the year in which the Anglo-French agreement was signed, trouble arose between Gléglé and the French. The Dahomeyans were the more confident, as through German and other merchants at Whydah they were well supplied with modern arms and ammunition. Gléglé claimed the right to collect the customs at Kotonu, and to depose the king of Porto Novo, and proceeded to raid the territory of that potentate (his brother). A French mission sent to Abomey failed to come to an agreement with the Dahomeyans, who attributed the misunderstandings to the fact that there was no longer a king in France! Gléglé died on the 28th of December 1889, two days after the French mission had left his capital. He was succeeded by his son Behanzin. A French force was landed at Kotonu, and severe fighting followed in which the Amazons played a conspicuous part. In October 1890 a treaty was signed which secured to France Porto Novo and Kotonu, and to the king of Dahomey an annual pension of £800. It was unlikely that peace on such terms would prove lasting, and Behanzin's slave-raiding expeditions led in 1892 to a new war with France. General A. A. Dodds was placed in command of a strong force of Europeans and Senegalese, and after a sharp campaign during September and October completely defeated the Dahomeyan troops. Behanzin set fire to Abomey (entered by the French troops on the 17th of November) and fled north. Pursued by the enemy, abandoned by his people, he surrendered unconditionally on the 25th of January 1894, and was deported to Martinique, being transferred in 1906 to Algeria, where he died on the 10th of December of the same year.

Thus ended the independent existence of Dahomey. The French divided the kingdom in two—Abomey and Allada—placing on the throne of Abomey a brother of the exiled monarch. Chief among the causes which led to the collapse of the Dahomeyan kingdom was the system which devoted the flower of its womanhood to the profession of arms.

Whydah and the adjacent territory was annexed to France by General Dodds on the 3rd of December 1892, and the rest of Dahomey placed under a French protectorate at the same time. The prince who had been made king of Abomey was found intriguing against the French, and in 1900 was exiled by them to the Congo, and with him disappeared the last vestige of Dahomeyan sovereignty.

Dahomey conquered, the French at once set to work to secure as much of the hinterland as possible. On the north they penetrated to the Niger, on the east they entered Borgu (a country claimed by the Royal Niger Company for Great Britain), on the west they overlapped the territory claimed by Germany as the hinterland of Togo. The struggle with Great Britain and Germany for supremacy in this region forms one of the most interesting chapters in the story of the partition of Africa. In the result France succeeded in securing a junction between Dahomey and her other possessions in West Africa, but failed to secure any part of the Niger navigable from the sea (see Africa: *History*, and Nigeria). A Franco-German convention of 1897 settled the boundary on the west, and the Anglo-French convention of the 14th of June 1898 defined the frontier on the east. In 1899, on the disintegration of the French Sudan, the districts of Fada N'Gurma and Say, lying north of Borgu, were added to Dahomey, but in 1907 they were transferred to Upper Senegal-Niger, with which colony they are closely connected both geographically and ethnographically. From 1894 onward the French devoted great attention to the development of the material resources of the country.

The "Customs."—Reference has already been made to the Dahomey "Customs," which gave the country an infamous notoriety. The "Customs" appear to date from the middle of the 17th century, and were of two kinds: the grand Customs performed on the death of a king; and the minor Customs, held twice a year. The horrors of these saturnalia of bloodshed were attributable not to a love of cruelty but to filial piety. Upon the death of a king human victims were sacrificed at his grave to supply him with wives, attendants, &c. in the spirit world. The grand Customs surpassed the annual rites in splendour and bloodshed. At those held in 1791 during January, February and March, it is stated that no fewer than 500 men, women and children were put to death. The minor Customs were first heard of in Europe in the early years of the 18th century. They formed continuations of the grand Customs, and "periodically supplied the departed monarch with fresh attendants in the shadowy world." The actual slaughter was preluded by dancing, feasting, speechmaking and elaborate ceremonial. The victims, chiefly prisoners of war, were dressed in calico shirts decorated round the neck and down the sleeves with red bindings, and with a crimson patch on the left breast, and wore long white night-caps with spirals of blue ribbon sewn on. Some of them, tied in baskets, were at one stage of the proceedings taken to the top of a high platform, together with an alligator, a cat and a hawk in similar baskets, and paraded on the heads of the Amazons. The king then made a speech explaining that the victims were sent to testify to his greatness in spirit-land, the men and the animals each to their kind. They were then hurled down into the middle of a surging crowd of natives, and butchered. At another stage of the festival human sacrifices were offered at the shrine of the king's ancestors, and the blood was sprinkled on their graves. This was known as *Zan Nyanyana* or "evil night," the king going in procession with his wives and officials and himself executing the doomed. These semi-public massacres formed only a part of the slaughter, for many women, eunuchs and others within the palace were done to death privately. The skulls were used to adorn the palace walls, and the king's sleeping-chamber was paved with the heads of his enemies. The skulls of the conquered kings were turned into royal drinking cups, their conversion to this use being esteemed an honour. Sir Richard Burton insists (*A Mission to Gelele, King of Dahome*) that the horrors of these rites were greatly exaggerated. For instance, the story that the king floated a canoe in a tank of human blood was, he writes, quite untrue. He denies, too, that the victims were tortured, and affirms that on the contrary they were treated humanely, and, in many cases, even acquiesced in their fate. It seems that cannibalism was a sequel of the Customs, the bodies of the slaughtered being roasted and devoured smoking hot. On the death of the king the wives, after the most extravagant demonstrations of grief, broke and destroyed everything within their reach, and attacked and murdered each other, the uproar continuing until order was restored by the new sovereign.

Amazonian Army.—The training of women as soldiers was the most singular Dahomeyan institution. About one-fourth of the whole female population were said to be "married to the fetich," many even before their birth, and the remainder were entirely at the disposal of the king. The most favoured were selected as his own wives or enlisted into the regiments of Amazons, and then the chief men were liberally supplied. Of the female captives the most promising were drafted into the ranks as soldiers, and the rest became Amazonian camp followers and slaves in the royal households. These female levies formed the flower of the Dahomeyan army. They were marshalled in regiments, each with its distinctive uniform and badges, and they took the post of honour in all battles. Their number has been variously stated. Sir R. F. Burton, in 1862, who saw the army marching out of Kana on an expedition, computed the whole force of female troops at 2500, of whom one-third were unarmed or only half-armed. Their weapons were blunderbusses, flint muskets, and bows and arrows. A later writer estimated the number of Amazons at 1000, and the male soldiers at 10,000. The system of warfare was one of

surprise. The army marched out, and, when within a few days' journey of the town to be attacked, silence was enjoined and no fires permitted. The regular highways were avoided, and the advance was by a road specially cut through the bush. The town was surrounded at night, and just before daybreak a rush was made and every soul captured if possible; none were killed except in self-defence, as the first object was to capture, not to kill. The season usually selected for expeditions was from January to March, or immediately after the annual "Customs." The Amazons were carefully trained, and the king was in the habit of holding "autumn manœuvres" for the benefit of foreigners. Many Europeans have witnessed a mimic assault, and agree in ascribing a marvellous power of endurance to the women. Lines of thorny acacia were piled up one behind the other to represent defences, and at a given signal the Amazons, barefooted and without any special protection, charged and disappeared from sight. Presently they emerged within the lines torn and bleeding, but apparently insensible to pain, and the parade closed with a march past, each warrior leading a pretended captive bound with a rope.

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DAILLÉ (DALLAEUS), **JEAN** (1594-1670), French Protestant divine, was born at Châtellerault and educated at Poitiers and Saumur. From 1612 to 1621 he was tutor to two of the grandsons of Philippe de Mornay, seigneur du Plessis Marly. Ordained to the ministry in 1623, he was for some time private chaplain to Du Plessis Mornay, whose memoirs he subsequently wrote. In 1625 Daillé was appointed minister of the church of Saumur, and in 1626 was chosen by the Paris consistory to be minister of the church of Charenton. Of his works, which are principally controversial, the best known is the treatise *Du vrai emploi des Pères* (1631), translated into English by Thomas Smith under the title *A Treatise concerning the right use of the Fathers* (1651). The work attacks those who made the authority of the Fathers conclusive on matters of faith and practice. Daillé contends that the text of the Fathers is often corrupt, and that even when it is correct their reasoning is often illogical. In his *Sermons* on the Philippians and Colossians, Daillé vindicated his claim to rank as a great preacher as well as an able controversialist. He was president of the last national synod held in France, which met at Loudun in 1659 (H. M. Baird, *The Huguenots and the Revocation of the Edict of Nantes*, 1895, i. pp. 412 ff.), when, as in the *Apologie des Synodes d'Alençon et de Charenton* (1655), he defended the universalism of Moses Amyraut. He wrote also *Apologie pour les Églises Réformées* and *La Foy fondée sur les Saintes Écritures*. His life was written by his son Adrien, who retired to Zürich at the revocation of the edict of Nantes.

DAIRY and **DAIRY-FARMING** (from the Mid. Eng. *deieris*, from *dey*, a maid-servant, particularly one about a farm; cf. Norw. *deia*, as in *bu-deia*, a maid in charge of live-stock, and in other compounds; thus "dairy" means that part of the farm buildings where the "dey" works). Milk, either in its natural state, or in the form of butter and cheese, is an article of diet so useful, wholesome and palatable, that dairy management, which includes all that concerns its production and treatment, constitutes a most important branch of husbandry. The physical conditions of the different countries of the world have determined in each case the most suitable animal for dairy purposes. The Laplander obtains his supplies of milk from his rein-deer, the roving Tatar from his mares, and the Bedouin of the desert from his camels. In the temperate regions of the earth many pastoral tribes subsist mainly upon the milk of the sheep. In some rocky regions the goat is invaluable as a milk-yielder; and the buffalo is equally so amid the swamps and jungles of tropical climates. The milking of ewes was once a common practice in Great Britain; but it has fallen into disuse because of its hurtful effects upon the flock. A few milch asses and goats are here and there kept for the benefit of infants or invalids; but with these exceptions the cow is the only animal now used for dairy purposes.

No branch of agriculture underwent greater changes during the closing quarter of the 19th century than dairy-farming; within the period named, indeed, the dairying industry may be said to have been revolutionized. The two great factors in this modification were the introduction about the year 1880 of the centrifugal cream-separator, whereby the old slow system of raising cream in pans was dispensed with, and the invention some ten years later of a quick and easy method of ascertaining the fat content of samples of milk without having to resort to the tedious processes of chemical analysis. About the year 1875 the agriculturists of the United Kingdom, influenced by various economic causes, began to turn their thoughts more intently in the direction of dairy-farming, and to the increased production of milk and cream, butter and cheese. On the 24th of October 1876 was held the first London dairy show, under the auspices of a committee of agriculturists, and it has been followed by a similar show in every subsequent year. The official report of the pioneer show stated that "there was a much larger attendance and a greater amount of enthusiasm in the movement than even the most sanguine of its promoters anticipated." On the day named Professor J. Prince Sheldon read at the show a paper on the dairying industry, and proposed the formation of a society to be called the British Dairy Farmers' Association. This was unanimously agreed to, and thus was founded an organization which has since been closely identified with the development of the dairying industry of the United Kingdom. In its earlier publications the Association was wont to reproduce from *Household Words* the following tribute to the cow:—

> "If civilized people were ever to lapse into the worship of animals, the Cow would certainly be their chief goddess. What a fountain of blessings is the Cow! She is the mother of beef, the source of butter, the original cause of cheese, to say nothing of shoe-horns, hair-combs and upper leather. A gentle, amiable, ever-yielding creature, who has no joy in her family affairs which she does not share with man. We rob her of her children that we may rob her of her milk, and we only care for her when the robbing may be perpetrated."

The association has, directly or indirectly, brought about many valuable reforms and improvements in dairying. Its London shows have provided, year after year, a variety of object-lessons in cheese, in butter and in dairy equipment. In order to demonstrate to producers what is the ideal to aim at, there is nothing more effective than a competitive exhibition of products, and the approach to uniform excellence of character in cheese and butter of whatever kinds is most obvious to those who remember what these products were like at the first two or three dairy shows. Simultaneously there has been a

no less marked advance in the mechanical aids to dairying, including, in particular, the centrifugal cream-separator, the crude germ of which was first brought before the public at the international dairy show held at Hamburg in the spring of 1877. The association in good time set the example, now beneficially followed in many parts of Great Britain, of providing means for technical instruction in the making of cheese and butter, by the establishment of a dairy school in the Vale of Aylesbury, subsequently removing it to new and excellent premises at Reading, where it is known as the British Dairy Institute. The initiation of butter-making contests at the annual dairy shows stimulated the competitive instinct of dairy workers, and afforded the public useful object-lessons; in more recent years milking competitions have been added. Milking trials and butter tests of cows conducted at the dairy shows have afforded results of much practical value. Many of the larger agricultural societies have found it expedient to include in their annual shows a working dairy, wherein butter-making contests are held and public demonstrations are given.

What are regarded as the dairy breeds of cattle is illustrated by the prize schedule of the annual London dairy show, in which sections are provided for cows and heifers of the Shorthorn, Jersey, Guernsey, Red Polled, Ayrshire, Kerry and Dexter breeds (see Cattle). A miscellaneous class is also provided, the entries in which are mostly cross-breds. There are likewise classes for Shorthorn bulls, Jersey bulls, and bulls of any other pure breed, but it is stipulated that all bulls must be of proved descent from dams that have won prizes in the milking trials or butter tests of the British Dairy Farmers' Association or other high-class agricultural society. The importance of securing dairy characters in the sire is thus recognized, and it is notified that, as the object of the bull classes is to encourage the breeding of bulls for dairy purposes, the prizes are to be given solely to animals exhibited in good stock-getting condition.

Milk and Butter Tests

The award of prizes in connexion with milking trials cannot be determined simply by the quantity of milk yielded in a given period, say twenty-four hours. Other matters must obviously be taken into consideration, such as the quality of the milk and the time that has elapsed since the birth cf the last calf. With regard to the former point, for example, it is quite possible for one cow to give more milk than another, but for the milk of the second cow to include the larger quantity of butter-fat. The awards are therefore determined by the total number of points obtained according to the following scheme: —

One point for every ten days since calving (deducting the first forty days), with a maximum of fourteen points.

One point for every pound of milk, taking the average of two days' yield.

Twenty points for every pound of butter-fat produced.

Four points for every pound of "solids other than fat."

Deductions.—Ten points each time the fat is below 3%.

Ten points each time the solids other than fat fall below 8.5%.

Table I.—*Prize Shorthorn and Jersey Cows in the Milking Trials, London Dairy Show, 1900.*

Cow.	Age.	In Milk.	Milk per Day.	Fat.	Other Solids.	Total Points.
	Years.	Days.	lb	%	%	No.
Shorthorns eligible for Herd-Book—						
Heroine III.	6	61	52.4	3.7	8.3	91.5
Musical	7	16	45.2	3.2	9.3	90.8
Lady Rosedale	8	48	47.8	3.5	9.0	88.7
Shorthorns not eligible for Herd-Book—						
Granny	9	33	70.2	3.5	8.9	144.1
Cherry	9	103	55.5	4.0	8.9	127.1
Chance	6	23	60.0	3.6	8.9	124.6
Jerseys—						
Sultane 14th	12	256	41.7	4.9	9.4	112
Queen Bess	7½	136	39.4	4.8	9.0	101
Gloaming IV.	7	156	30.5	6.7	9.5	94.9

This method of award is at present the best that can be devised, but it is possible that, as experience accumulates, some rearrangement of the points may be found to be desirable. Omitting many of the details, Table I. shows some of the results in the case of Shorthorn and Jersey prize cows. The days "in milk" denote in each case the number of days that have elapsed since calving; and if the one day's yield of milk is desired in gallons, it can be obtained approximately[1] by dividing the weight in pounds by 10: thus, the Shorthorn cow Heroine III. gave 52.4 lb, or 5.24 gallons, of milk per day. The table is incidentally of interest as showing how superior as milch kine are the unregistered or non-pedigree Shorthorns—which are typical of the great majority of dairy cows in the United Kingdom—as compared with the pedigree animals entered, or eligible for entry, in Coates's Herd-Book. The evening's milk, it should be added, is nearly always richer in fat than the morning's, but the percentages in the table relate to the entire day's milk.

The milking trials are based upon a chemical test, as it is necessary to determine the percentage of fat and of solids other than fat in each sample of milk. The butter test, on the other hand, is a churn test, as the cream has to be separated from the milk and churned. The following is the scale of points used at the London dairy show in making awards in butter tests:—

One point for every ounce of butter; one point for every completed ten days since calving, deducting the first forty days. Maximum allowance for period of lactation, 12 points.

Fractions of ounces of butter, and incomplete periods of less than ten days, to be worked out in decimals and added to the total points.

In the case of cows obtaining the same number of points, the prize to be awarded to the cow that has been the longest time in milk.

No prize or certificate to be given in the case of:—

(*a*) Cows under five years old failing to obtain 28 points.

(*b*) Cows five years old and over failing to obtain 32 points.

Table II.—*Prize Shorthorn and Jersey Cows in the Butter Tests, London Dairy Show, 1900.*

Cows.	Age.	In Milk.	Milk per Day.	Butter.	Milk to 1 ℔ Butter.	Points for Butter.	Points for Lactation.	Total Points.
	Years.	Days.	℔ oz.	℔ oz.	℔	No.	No.	No.
Shorthorns—								
1st	9	104	55 2	2 5¼	23.67	37.25	6.40	43.65
2nd	9	34	72 7	2 10¾	27.11	42.75	..	42.75
3rd	7	33	58 5	2 7¾	23.47	39.75	..	39.75
Jerseys—								
1st	7	157	29 10	2 2¼	13.83	34.25	11.70	45.95
2nd	4	103	33 10	2 3	15.37	35.00	6.30	41.30
3rd	12	257	40 13	1 12	23.32	28.00	12.00	40.00

The manner in which butter tests are decided will be rendered clear by a study of Table II. It is seen that whilst the much larger Shorthorn cows—having a bigger frame to maintain and consuming more food—gave both more milk and more butter in the day of twenty-four hours, the Jersey milk was much the richer in fat. In the case of the first-prize Jersey the "butter ratio," as it is termed, was excellent, as only 13.83 ℔ of milk were required to yield 1 ℔ of butter; in the case of the second-prize Shorthorn, practically twice this quantity (or 27.11 lb) was needed. Moreover, if the days in milk are taken into account, the difference in favour of the Jersey is seen to be 123 days.

TABLE III.—*Summary of the English Jersey Cattle Society's Butter Tests, Fourteen Years, 1886-1899.*

Cows' Ages.	Cows Tested.	Average Time in Milk.	Average Milk Yield.	Average Butter Yield.	Quantity Milk to 1 ℔ Butter
Years.	No.	Days	℔ oz.	℔ oz.	℔
1 to 2	2	34	15 2	0 13	18.43
2 " 3	57	73	24 15¼	1 5¼	18.74
3 " 4	108	77	29 14¾	1 10	18.42
4 " 5	165	72	32 5½	1 11¼	19.01
5 " 6	188	80	32 15¼	1 12	18.76
6 " 7	189	89	34 7¾	1 13	18.92
7 " 8	139	84	33 11¼	1 13¼	18.40
8 " 9	71	82	33 6½	1 12	19.03
9 " 10	42	92	32 6½	1 11¼	18.95
10 " 11	31	88	35 4	1 14¼	18.60
11 " 12	15	89	37 1	1 13¾	19.96
12 " 13	13	95	34 1¼	1 10½	20.56
13 " 14	3	54	42 1¼	2 1¾	19.85

The butter-yielding capacity of the choicest class of butter cows, the Jerseys, is amply illustrated in the results of the butter tests conducted by the English Jersey Cattle Society over the period of fourteen years 1886 to 1899 inclusive. These tests were carried out year after year at half a dozen different shows, and the results are classified in Table III. according to the age of the animals. The average time in milk is measured by the number of days since calving, and the milk and butter yields are those for the day of twenty-four hours. The last column shows the "butter ratio." This number is lower in the case of the Jerseys than in that of the general run of dairy cows. The average results from the total of 1023 cows of the various ages are:—One day's milk, 32 ℔ 2¼ oz., equal to about 3 gallons or 12 quarts; one day's butter, 1 ℔ 10¾ oz.; butter ratio, 19.13 or about 16 pints of milk to 1 ℔ of butter. Individual yields are sometimes extraordinarily high. Thus at the Tring show in 1899 the three leading Jersey cows gave the following results:—

Cow.	Age.	Live-Weight.	In Milk.	Butter.	Butter Ratio.
	Years.	℔	Days.	℔ oz.	℔
Sundew 4th	8	929	77	3 6¾	15.10
Madeira 5th	7	1060	107	2 15½	16.14
Em	7	864	44	3 4¾	13.32

The eight prize-winning Jerseys on this occasion, with an average weight of 916 ℔ and an average of 117 days in milk, yielded an average of 2 ℔ 9 oz. of butter per cow in the twenty-four hours, the butter ratio working out at 16.69. At the Tring show of 1900 a Shorthorn cow Cherry gave as much as 4 ℔ 4½ oz. of butter in twenty-four hours; she had been in milk 41 days, and her butter ratio worked out at 15.79, which is unusually good for a big cow.

In the six years 1895 to 1900 inclusive 285 cows of the Shorthorn, Jersey, Guernsey and Red Polled breeds were subjected to butter tests at the London dairy show, and the general results are summarized in Table IV.

Although cows in the showyard may perhaps be somewhat upset by their unusual surroundings, and thus not yield so well as at home, yet the average results of these butter-test trials over a number of years are borne out by the private trials that have taken place in various herds. The trials have, moreover, brought into prominence the peculiarities of different breeds, such as: (*a*) that the Shorthorns, Red Polls and Kerries, being cattle whose milk contains small fat globules, are better for milk than the Jerseys and Guernseys, whose milk is richer, containing larger-sized fat globules, and is therefore more profitable for converting into butter; (*b*) that the weights of the animals, and consequently the proportionate food, must be taken into account in estimating the cost of the dairy produce; (*c*) that the influence of the stage reached in the period of lactation is much more marked in some breeds than in others.

TABLE IV.—*Average Butter Yields and Butter Ratios at the London Dairy Show, Six Years, 1895-1900.*

Breed.	No. of Cows.	In Milk.	Butter.	Milk to 1 ℔ Butter.
		Days.	℔ oz.	℔
Shorthorn	106	50	1 11	28.81
Jersey	126	99	1 10¼	19.15
Guernsey	23	72	1 9½	21.86
Red Polled	30	60	1 4¾	30.29

An instructive example of the milk-yielding capacity of Jersey cows is afforded in the carefully kept records of Lord Rothschild's herd at Tring Park, Herts. Overleaf are given the figures for four years, the gallons being calculated at the rate of 10 lb of milk to the gallon.

In 1897, 30 cows averaged			6396 ℔, or		640 gallons per cow.		
In 1898, 29	”	”	6209	”	621	”	”
In 1899, 37	”	”	6430	”	643	”	”
In 1900, 39	”	”	6136	”	614	”	”

The average over the four years works out at about 630 gallons per cow per annum.

Cows of larger type will give more milk than the Jerseys, but it is less rich in fat. The milk record for the year 1900 of the herd of Red Polled cattle belonging to Mr Garrett Taylor, Whitlingham, Norfolk, affords a good example. The cows in the herd, which had before 1900 produced one or more calves, and in 1900 added another to the list, being in full profit the greater part of the year, numbered 82. Their total yield was 521,950 ℔ of milk, or an average of 6365 ℔—equivalent to about 636 gallons—per cow. In 1899 the average yield of 96 cows was 6283 ℔ or 628 gallons; in 1898 the average yield of 75 cows was 6473 ℔ or 647 gallons. Of cows which dropped a first calf in the autumn of 1899, one of them—Lemon—milked continuously for 462 days, yielding a total of 7166 ℔ of milk, being still in milk when the herd year closed on the 27th of December. Similar cases were those of Nora, which gave 9066 ℔ of milk in 455 days; Doris, 8138 ℔ in 462 days; Brisk, 9248 ℔ in 469 days; Della, 8806 ℔ in 434 days, drying 28 days before the year ended; and Lottie, 6327 ℔ in 394 days, also drying 28 days before the year ended; these were all cows with their first calf. Eight cows in the herd gave milk on every day of the 52 weeks, and 30 others had their milk recorded on 300 days or more. Three heifers which produced a first calf before the 11th of April 1900, averaged in the year 4569 ℔ of milk, or about 456 gallons. In 1900 three cows, Eyke Jessie, Kathleen and Doss, each gave over 10,000 ℔, or 1000 gallons of milk; four cows gave from 9000 ℔ to 10,000 ℔, two from 8000 ℔ to 9000 ℔, 17 from 7000 ℔ to 8000 ℔, 19 from 6000 ℔ to 7000 ℔, 30 from 5000 ℔ to 6000 ℔, and 16 from 4000 ℔ to 5000 ℔. The practice, long followed at Whitlingham, of developing the milk-yielding habit by milking a young cow so long as she gives even a small quantity of milk daily, is well supported by the figures denoting the results.

Though milking trials and butter tests are not usually available to the ordinary dairy farmer in the management of his herd, it is, on the other hand, a simple matter for him to keep what is known as a milk register. By a milk register is meant a record of the quantity of milk yielded by a cow. In other words, it is a quantitative estimation of the milk the cow gives. It affords no information as to the quality of the milk or as to its butter-yielding or cheese-yielding capacity. Nevertheless, by its aid the milk-producing capacity of a cow can be ascertained exactly, and her character in this respect can be expressed by means of figures about which there need be no equivocation. A greater or less degree of exactness can be secured, according to the greater or less frequency with which the register is taken. Even a weekly register would give a fair idea as to the milk yields of a cow, and would be extremely valuable as compared with no register at all.

The practice of taking the milk register, as followed in a well-known dairy, may be briefly described. The cows are always milked in the stalls, and during summer they are brought in twice a day for this purpose. After each cow is milked, the pail containing the whole of her milk is hung on a spring balance suspended in a convenient position, and from the gross weight indicated there is deducted the already known weight of the pail.[2] The difference, which represents the weight of milk, is recorded in a book suitably ruled. This book when open presents a view of one week’s records. In the left-hand column are the names of the cows; on the right of this are fourteen columns, two of which receive the morning and evening record of each cow. In a final column on the right appears the week’s total yield for each cow; and space is also allowed for any remarks. Fractions of a pound are not entered, but 18 ℔ 12 oz. would be recorded as 19 ℔, whereas 21 ℔ 5 oz. would appear as 21 ℔, so that a fraction of over half a pound is considered as a whole pound, and a fraction of under half a pound is ignored. By dividing the pounds by 10 the yield in gallons is readily ascertained.

Every dairy farmer has some idea, as to each of his cows, whether she is a good, a bad or an indifferent milker, but such knowledge is at best only vague. By the simple means indicated the character of each cow as a milk-producer is slowly but surely recorded in a manner which is at once exact and definite. Such a record is particularly valuable to the farmer, in that it shows to him the relative milk-yielding capacities of his cows, and thus enables him gradually to weed out the naturally poor milkers and replace them by better ones. It also guides him in regulating the supply of food according to the yield of milk. The register will, in fact, indicate unerringly which are the best milk-yielding cows in the dairy, and which therefore are, with the milking capacity in view, the best to breed from.

The simplicity and inexpensiveness of the milk register must not be overlooked. These are features which should commend it especially to the notice of small dairy farmers, for with a moderate number of cows it is particularly easy to introduce the register. But even with a large dairy it will be found that, as soon as the system has got fairly established, the additional time and trouble involved will sink into insignificance when compared with the benefits which accrue.

The importance of ascertaining not only the quantity, but also the quality of milk is aptly illustrated in the case of two cows at the Tring show, 1900. The one cow gave in 24 hours 4½ gallons of milk, which at 7d. per gallon would work out at about 2s. 7d.; she made 2 ℔ 12 oz. of butter, which at 1s. 4d. per ℔ would bring in 3s. 8d.; consequently by selling the milk the owner lost about 1s. 1d. per day. The second cow gave 5⅓ gallons of milk, which would work out at 3s. 1d.; she made 1 ℔ 12 oz. of butter, which would only be worth 2s. 4d., so that by converting the milk into butter the owner lost 9d. per day.

The colour of milk is to some extent an indication of its quality—the deeper the colour the better the quality. The colour depends upon the size of the fat globules, a deep yellowish colour indicating large globules of fat. When the globules are of large size the milk will churn more readily, and the butter is better both in quality and in colour.

The following fifty dairy rules relating to the milking and general management of cows, and to the care of milk and dairy utensils, were drawn up on behalf of, and published by, the United States department of agriculture at Washington. They are given here with a few merely verbal alterations:—

The Owner and his Helpers

1. Read current dairy literature and keep posted on new ideas.
2. Observe and enforce the utmost cleanliness about the cattle, their attendants, the cow-house, the dairy and all utensils.
3. A person suffering from any disease, or who has been exposed to a contagious disease, must remain away from the cows and the milk.

The Cow-House

4. Keep dairy cattle in a shed or building by themselves. It is preferable to have no cellar below and no storage loft above.
5. Cow-houses should be well ventilated, lighted and drained; should have tight floors and walls, and be plainly constructed.
6. Never use musty or dirty litter.
7. Allow no strong-smelling material in the cow-house for any length of time. Store the manure under cover outside the cow-house, and remove it to a distance as often as practicable.

8. Whitewash the cow-house once or twice a year; use gypsum in the manure gutters daily.

9. Use no dry, dusty feed just previous to milking; if fodder is dusty, sprinkle it before it is fed.

10. Clean and thoroughly air the cow-house before milking; in hot weather sprinkle the floor.

11. Keep the cow-house and dairy room in good condition, and then insist that the dairy, factory or place where the milk goes be kept equally well.

The Cows

12. Have the herd examined at least twice a year by a skilled veterinarian.

13. Promptly remove from the herd any animal suspected of being in bad health, and reject her milk. Never add an animal to the herd until it is ascertained to be free from disease, especially tuberculosis.

14. Do not move cows faster than a comfortable walk while on the way to the place of milking or feeding.

15. Never allow the cows to be excited by hard driving, abuse, loud talking or unnecessary disturbance; do not expose them to cold or storms.

16. Do not change the feed suddenly.

17. Feed liberally, and use only fresh, palatable feed-stuffs; in no case should decomposed or mouldy material be used.

18. Provide water in abundance, easy of access, and always pure; fresh, but not too cold.

19. Salt should always be accessible to the cows.

20. Do not allow any strong-flavoured food, like garlic, cabbages and turnips, to be eaten, except immediately after milking.

21. Clean the entire skin of the cow daily. If hair in the region of the udder is not easily kept clean, it should be clipped.

22. Do not use the milk within twenty days before calving, nor for three to five days afterwards.

Milking

23. The milker should be clean in all respects; he should not use tobacco while milking; he should wash and dry his hands just before milking.

24. The milker should wear a clean outer garment, used only when milking and kept in a clean place at other times.

25. Brush the udder and surrounding parts just before milking and wipe them with a clean damp cloth or sponge.

26. Milk quietly, quickly, cleanly and thoroughly. Cows do not like unnecessary noise or delay. Commence milking at exactly the same hour every morning and evening, and milk the cows in the same order.

27. Throw away (but not on the floor—better in the gutter) the first two or three streams from each teat; this milk is very watery and of little value, but it may injure the rest.

28. If in any milking a part of the milk is bloody or stringy or unnatural in appearance, the whole should be rejected.

29. Milk with dry hands; never let the hands come in contact with the milk.

30. Do not allow dogs, cats or loafers to be around at milking time.

31. If any accident occurs by which a pail, full or partly full, of milk becomes dirty, do not try to remedy this by straining, but reject all this milk and rinse the pail.

32. Weigh and record the milk given by each cow, and take a sample morning and night, at least once a week, for testing by the fat test.

Care of Milk

33. Remove the milk of every cow at once from the cow-house to a clean dry room, where the air is pure and sweet. Do not allow cans to remain in the cow-house while they are being filled with milk.

34. Strain the milk through a metal gauze and a flannel cloth or layer of cotton as soon as it is drawn.

35. Cool the milk as soon as strained—to 45° F. if the milk is for shipment, or to 60° if for home use or delivery to a factory.

36. Never close a can containing warm milk.

37. If the cover is left off the can, a piece of cloth or mosquito netting should be used to keep out insects.

38. If milk is stored, it should be kept in tanks of fresh cold water (renewed as often as the temperature increases to any material extent), in a clean, dry, cold room. Unless it is desired to remove cream, it should be stirred with a tin stirrer often enough to prevent the forming of a thick cream layer.

39. Keep the night milk under shelter so that rain cannot get into the cans. In warm weather keep it in a tank of fresh cold water.

40. Never mix fresh warm milk with that which has been cooled.

41. Do not allow the milk to freeze.

42. In no circumstances should anything be added to milk to prevent its souring. Cleanliness and cold are the only preventives needed.

43. All milk should be in good condition when delivered at a creamery or a cheesery. This may make it necessary to deliver twice a day during the hottest weather.

44. When cans are hauled far they should be full, and carried in a spring waggon.

45. In hot weather cover the cans, when moved in a waggon, with a clean wet blanket or canvas.

The Utensils

46. Milk utensils for farm use should be made of metal and have all joints smoothly soldered. Never allow them to become rusty or rough inside.

47. Do not haul waste products back to the farm in the cans used for delivering milk. When this is unavoidable, insist that the skim milk or whey tank be kept clean.

48. Cans used for the return of skim milk or whey should be emptied, scalded and cleaned as soon as they arrive at the

farm.

49. Clean all dairy utensils by first thoroughly rinsing them in warm water; next clean inside and out with a brush and hot water in which a cleaning material is dissolved; then rinse and, lastly, sterilize by boiling water or steam. Use pure water only.

50. After cleaning, keep utensils inverted in pure air, and sun if possible, until wanted for use.

Food and Milk Production

In their comprehensive paper relating to the feeding of animals published in 1895, Lawes and Gilbert discussed amongst other questions that of milk production, and directed attention to the great difference in the demands made on the food—on the one hand for the production of meat (that is, of animal increase), and on the other for the production of milk. Not only, however, do cows of different breeds yield different quantities of milk, and milk of characteristically different composition, but individual animals of the same breed have very different milk-yielding capacity; and whatever the capacity of a cow may be, she has a maximum yield at one period of her lactation, which is followed by a gradual decline. Hence, in comparing the amounts of constituents stored up in the fattening increase of an ox with the amounts of the same constituents removed in the milk of a cow, it is necessary to assume a wide range of difference in the yield of milk. Accordingly, Table V. shows the amounts of nitrogenous substance, of fat, of non-nitrogenous substance not fat, of mineral matter, and of total solid matter, carried off in the weekly yield of milk of a cow, on the alternative assumptions of a production of 4, 6, 8, 10, 12, 14, 16, 18 or 20 quarts per head per day. For comparison, there are given at the foot of the table the amounts of nitrogenous substance, of fat, of mineral matter, and of total solid matter, in the weekly increase in live-weight of a fattening ox of an average weight of 1000 lb—on the assumption of a weekly increase, first, of 10 lb, and, secondly, of 15 lb. The estimates of the amounts of constituents in the milk are based on the assumption that it will contain 12.5% of total solids—consisting of 3.65 albuminoids, 3.50 butter-fat, 4.60 sugar and 0.75 of mineral matter. The estimates of the constituents in the fattening increase of oxen are founded on determinations made at Rothamsted.

Table V.—*Comparison of the Constituents of Food carried off in Milk, and in the Fattening Increase of Oxen.*

[1 Gallon = 10.33 lb]	Nitrogenous Substance.	Fat.	Non-Nitrogenous Substance not Fat (Sugar).	Mineral Matter.	Total Solid Matter.
In Milk per Week.					
If:—	lb	lb	lb	lb	lb
4 quarts per head per day	2.64	2.53	3.33	0.54	9.04
6 ” ” ”	3.96	3.80	4.99	0.81	13.56
8 ” ” ”	5.28	5.06	6.66	1.08	18.08
10 ” ” ”	6.60	6.33	8.32	1.35	22.60
12 ” ” ”	7.92	7.59	9.99	1.62	27.12
14 ” ” ”	9.24	8.86	11.65	1.89	31.64
16 ” ” ”	10.56	10.12	13.32	2.16	36.16
18 ” ” ”	11.88	11.39	14.98	2.43	40.68
20 ” ” ”	13.20	12.65	16.65	2.70	45.20
In Increase in Live-Weight per Week.—Oxen.					
If 10 lb increase	0.75	6.35	..	0.15	7.25
If 15 lb increase	1.13	9.53	..	0.22	10.88

With regard to the very wide range of yield of milk per head per day which the figures in the following table assume, it may be remarked that it is by no means impossible that the same animal might yield the largest amount, namely, 20 quarts, or 5 gallons, per day near the beginning, and only 4 quarts, or 1 gallon, or even less, towards the end of her period of lactation. At the same time, an entire herd of, for example, Shorthorns or Ayrshires, of fairly average quality, well fed, and including animals at various periods of lactation, should not yield an average of less than 8 quarts, or 2 gallons, and would seldom exceed 10 quarts, or 2½ gallons, per head per day the year round.

For the sake of illustration, an average yield of milk of 10 quarts, equal 2½ gallons, or between 25 and 26 lb per head per day, may be assumed, and the amount of constituents in the weekly yield at this rate may be compared with that in the weekly increase of the fattening ox at the higher rate assumed in the table, namely, 15 lb per 1000 lb live-weight, or 1.5% per week. It is seen that whilst of the nitrogenous substance of the food the amount stored up in the fattening increase of an ox would be only 1.13 lb, the amount carried off as such in the milk would be 6.6 lb, or nearly six times as much. Of mineral matter, again, whilst the fattening increase would only require about 0.22 lb, the milk would Carry off 1.35 lb, or again about six times as much. Of fat, however, whilst the fattening increase would contain 9.53 lb, the milk would contain only 6.33 lb, or only about two-thirds as much. On the other hand, whilst the fattening increase contains no other non-nitrogenous substance than fat, the milk would carry off 8.32 lb in the form of milk-sugar. This amount of milk-sugar, reckoned as fat, would correspond approximately to the difference between the fat in the milk and that in the fattening increase.

It is evident, then, that the drain upon the food is very much greater for the production of milk than for that of meat. This is especially the case in the important item of nitrogenous substance; and if, as is frequently assumed, the butter-fat of the milk is at any rate largely derived from the nitrogenous substance of the food, so far as it is so at least about two parts of such substance would be required to produce one of fat. On such an assumption, therefore, the drain upon the nitrogenous substance of the food would be very much greater than that indicated in the table as existing as nitrogenous substance in the milk. To this point further reference will be made presently.

Table VI.—*Constituents consumed per 1000 lb Live-Weight per Day, for Sustenance and for Milk-Production. The Rothamsted Herd of 30 Cows, Spring 1884.*

	Total Dry Substance.	Digestible.		
		Nitrogenous Substance.	Non-Nitrogenous Substance (as Starch).	Total Nitrogenous and Non-Nitrogenous Substance.
	lb	lb	lb	lb
3.1 lb Cotton cake	2.76	1.07	1.50	2.57

2.7 lb Bran	2.33	0.33	1.09	1.42
2.8 lb Hay-chaff	2.34	0.15	1.18	1.33
5.6 lb Oat-straw-chaff	4.64	0.08	2.21	2.29
62.8 lb Mangel	7.85	1.01	5.73	6.74
Total	19.92	2.64*	11.71*	14.35
Required for sustenance		0.57	7.40	7.97
Available for milk		2.07	4.31	6.38
In 23.3 lb milk		0.85	3.02	3.87
Excess in food		1.22	1.29	2.51
Per 1000 lb Live-Weight.				
	lb	lb	lb	lb
Wolff	24	2.5	12.5**	15.4

* Albuminoid ratio, 1-4.4.

** Exclusive of 0.4 fat; albuminoid ratio, 1-5.4.

Attention may next be directed to the amounts of food, and of certain of its constituents, consumed for the production of a given amount of milk. This point is illustrated in Table VI., which shows the constituents consumed per 1000 lb live-weight per day in the case of the Rothamsted herd of 30 cows in the spring of 1884. On the left hand are shown the actual amounts of the different foods consumed per 1000 lb live-weight per day; and in the respective columns are recorded—first the amounts of total dry substance which the foods contained, and then the amounts of digestible nitrogenous, digestible non-nitrogenous (reckoned as starch), and digestible total organic substance which the different foods would supply; these being calculated according to Lawes and Gilbert's own estimates of the percentage composition of the foods, and to Wolff's estimates of the proportion of the several constituents which would be digestible.

The first column shows that the amount of total dry substance of food actually consumed by the herd, per 1000 lb live-weight per day, was scarcely 20 lb whilst Wolff's[3] estimated requirement, as stated at the foot of the table, is 24 lb. But his ration would doubtless consist to a greater extent of hay and straw-chaff, containing a larger proportion of indigestible and effete woody fibre. The figures show, indeed that the Rothamsted ration supplied, though nearly the same, even a somewhat less amount of total digestible constituents than Wolff's.

Of digestible nitrogen substance the food supplied 2.64 lb per day, whilst the amount estimated to be required for sustenance merely is 0.57 lb; leaving, therefore, 2.07 lb available for milk production. The 23.3 lb of milk yielded per 1000 lb live-weight per day would, however, contain only 0.85 lb; and there would thus remain an apparent excess of 1.22 lb of digestible nitrogenous substance in the food supplied. But against the amount of 2.64 lb actually consumed, Wolff's estimate of the amount required for sustenance and for milk-production is 2.5 lb, or but little less than the amount actually consumed at Rothamsted. On the assumption that the expenditure of nitrogenous substance in the production of milk is only in the formation of the nitrogenous substances of the milk, there would appear to have been a considerable excess given in the food. But Wolff's estimate assumes no excess of supply, and that the whole is utilized; the fact being that he supposes the butter-fat of the milk to have been derived largely, if not wholly, from the albuminoids of the food.

It has been shown that although it is possible that some of the fat of a fattening animal may be produced from the albuminoids of the food, certainly the greater part of it, if not the whole, is derived from the carbohydrates. But the physiological conditions of the production of milk are so different from those for the production of fattening increase, that it is not admissible to judge of the sources of the fat of the one from what may be established in regard to the other. It has been assumed, however, by those who maintain that the fat of the fattening animal is formed from albuminoids, that the fat of milk must be formed in the same way. Disallowing the legitimacy of such a deduction, there do, nevertheless, seem to be reasons for supposing that the fat of milk may, at any rate in large proportion, be derived from albuminoids.

Thus, as compared with fattening increase, which may in a sense be said to be little more than an accumulation of reserve material from excess of food, milk is a special product, of a special gland, for a special normal exigency of the animal. Further, whilst common experience shows that the herbivorous animal becomes the more fat the more, within certain limits, its food is rich in carbohydrates, it points to the conclusion that both the yield of milk and its richness in butter are more connected with a liberal supply of the nitrogenous constituents in the food. Obviously, so far as this is the case, it may be only that thereby more active change in the system, and therefore greater activity of the special function, is maintained. The evidence at command is, at any rate, not inconsistent with the supposition that a good deal of the fat of milk may have its source in the breaking up of albuminoids, but direct evidence on the point is still wanting; and supposing such breaking up to take place in the gland, the question arises—What becomes of the by-products? Assuming, however, that such change does take place, the amount of nitrogenous substance supplied to the Rothamsted cows would be less in excess of the direct requirement for milk-production than the figures in the table would indicate, if, indeed, in excess at all.

The figures in the column of Table VI. relating to the estimated amount of digestible non-nitrogenous substance reckoned as starch show that the quantity actually consumed was 11.71 lb, whilst the amount estimated by Wolff to be required was 12.5 lb, besides 0.4 lb of fat. The figures further show that, deducting 7.4 lb for sustenance from the quantity actually consumed, there would remain 4.31 lb available for milk-production, whilst only about 3.02 lb would be required supposing that both the fat of the milk and the sugar had been derived from the carbohydrates of the food; and, according to this calculation, there would still be an excess in the daily food of 1.29 lb. It is to be borne in mind, however, that estimates of the requirement for mere sustenance are mainly founded on the results of experiments in which the animals are allowed only such a limited amount of food as will maintain them without either loss or gain when at rest. But physiological considerations point to the conclusion that the expenditure, independently of loss or gain, will be the greater the more liberal the ration, and hence it is probable that the real excess, if any, over that required for sustenance and milk-production would be less than that indicated in the table, which is calculated on the assumption of a fixed requirement for sustenance for a given live-weight of the animal. Supposing that there really was any material excess of either the nitrogenous or the non-nitrogenous constituents supplied over the requirement for sustenance and milk-production, the question arises—Whether, or to what extent, it conduced to increase in live-weight of the animals, or whether it was in part, or wholly, voided, and so wasted.

Table VII.—Percentage Composition of Milk each Month of the Year; also Average Yield of Milk, and of Constituents, per Head per Day each Month, according to Rothamsted Dairy Records.

	Average Composition of Milk each Month, 1884. (Dr Vieth—14,235 analyses.)				Rothamsted Diary.			
					Average Yield of Milk per Head per Day, 6 Years.	Estimated Quantity of Constituents in Milk per Head per Day each Month.		
	Specific Gravity.	Butter-Fat.	Solids not Fat.	Total Solids.		Butter-Fat.	Solids not Fat.	Total Solids.
		%	%	%	lb	lb	lb	lb

January	1.0325	3.55	9.34	12.89	20.31*	0.72	1.90	2.62
February	1.0325	3.53	9.24	12.77	22.81	0.80	2.11	2.91
March	1.0323	3.50	9.22	12.72	24.19	0.85	2.23	3.08
April	1.0323	3.43	9.22	12.65	26.50	0.91	2.44	3.35
May	1.0324	3.34	9.30	12.64	31.31	1.05	2.91	3.96
June	1.0323	3.31	9.19	12.50	30.81	1.02	2.83	3.85
July	1.0319	3.47	9.13	12.60	28.00	0.97	2.56	3.53
August	1.0318	3.87	9.08	12.95	25.00	0.97	2.27	3.24
September	1.0321	4.11	9.17	13.28	22.94	0.94	2.11	3.05
October	1.0324	4.26	9.27	13.53	21.00	0.89	1.95	2.84
November	1.0324	4.36	9.29	13.65	19.19	0.84	1.78	2.62
December	1.0326	4.10	9.29	13.39	19.31	0.79	1.79	2.58
Mean	1.0323	3.74	9.22	12.96	24.28	0.90	2.24	3.14

* Average over five years only, as the records did not commence until February 1884.

As regards the influence of the period of the year, with its characteristic changes of food, on the quantity and composition of the milk, the first column of the second division of Table VII. shows the average yield of milk per head per day of the Rothamsted herd, averaging about 42 cows, almost exclusively Shorthorns, in each month of the year, over six years, 1884 to 1889 inclusive; and the succeeding columns show that amounts of butter-fat, of solids not fat, and of total solids in the average yield per head per day in each month of the year, calculated, not according to direct analytical determinations made at Rothamsted, but according to the results of more than 14,000 analyses made, under the superintendence of Dr Vieth, in the laboratory of the Aylesbury Dairy Company in 1884;[4] the samples analysed representing the milk from a great many different farms in each month.

It should be stated that the Rothamsted cows had cake throughout the year; at first 4 lb per head per day, but afterwards graduated according to the yield of milk, on the basis of 4 lb for a yield of 28 lb of milk, the result being that then the amount given averaged more per head per day during the grazing period, but less earlier and later in the year. Bran, hay and straw-chaff, and roots (generally mangel), were also given when the animals were not turned out to grass. The general plan was, therefore, to give cake alone in addition when the cows were turned out to grass, but some other dry food, and roots, when entirely in the shed during the winter and early spring months.

Referring to the column showing the average yield of milk per head per day each month over the six years, it will be seen that during the six months January, February, September, October, November and December the average yield was sometimes below 20 lb and on the average only about 21 lb of milk per head per day; whilst over the other six months it averaged 27.63 lb, and over May and June more than 31 lb per head per day. That is to say, the quantity of milk yielded was considerably greater during the grazing period than when the animals had more dry food, and roots instead of grass.

Next, referring to the particulars of composition, according to Dr Vieth's results, which may well be considered as typical for the different periods of the year, it is seen that the specific gravity of the milk was only average, or lower than average, during the grazing period, but rather higher in the earlier and later months of the year. The percentage of total solids was rather lower than the average at the beginning of the year, lowest during the chief grazing months, but considerably higher in the later months of the year, when the animals were kept in the shed and received more dry food. The percentage of butter-fat follows very closely that of the total solids, being the lowest during the best grazing months, but considerably higher than the average during the last four or five months of the year, when more dry food was given. The percentage of solids not fat was considerably the lowest during the later months of the grazing period, but average, or higher than average, during the earlier and later months of the year. It may be observed that, according to the average percentages given in the table, a gallon of milk will contain more of both total solids and of butter-fat in the later months of the year; that is, when there is less grass and more dry food given.

Turning to the last three columns of the table, it is seen that although, as has been shown, the percentage of the several constituents in the milk is lower during the grazing months, the actual amounts contained in the quantity of milk yielded per head are distinctly greater during those months. Thus, the amount of butter-fat yielded *per head per day* is above the average of the year from April to September inclusive; the amounts of solids not fat are over average from April to August inclusive; and the amounts of total solids yielded are average, or over average, from April to August inclusive.

From the foregoing results it is evident that the quantity of milk yielded per head is very much the greater during the grazing months of the year, but that the percentage composition of the milk is lower during that period of higher yield, and considerably higher during the months of more exclusively dry-food feeding. Nevertheless, owing to the much greater quantity of milk yielded during the grazing months, the actual quantity of constituents yielded per Cow is greater during those months than during the months of higher percentage composition but lower yield of milk per head. It may be added that a careful consideration of the number of newly-calved cows brought into the herd each month shows that the results as above stated were perfectly distinct, independently of any influence of the period of lactation of the different individuals of the herd.

The few results which have been brought forward in relation to *milk-production* are admittedly quite insufficient adequately to illustrate the influence of variation in the quantity and composition of the food on the quantity and composition of the milk yielded. Indeed, owing to the intrinsic difficulties of experimenting on such a subject, involving so many elements of variation, any results obtained have to be interpreted with much care and reservation. Nevertheless, it may be taken as clearly indicated that, within certain limits, high feeding, and especially high nitrogenous feeding, does increase both the yield and the richness of the milk.[5] But it is evident that when high feeding is pushed beyond a comparatively limited range, the tendency is to increase the weight of the animal—that is, to favour the development of the individual, rather than to enhance the activity of the functions connected with the reproductive system. This is, of course, a disadvantage when the object is to maintain the milk-yielding condition of the animal; but when a cow is to be fattened off it will be otherwise.

It has been stated that, early in the period of six years in which the Rothamsted results that have been quoted were obtained, the amount of oil-cake given was graduated according to the yield of milk of each individual cow; as it seemed unreasonable that an animal yielding, say, only 4 quarts per day, should receive, beside the home foods, as much cake as one yielding several times the quantity. The obvious inference is, that any excess of food beyond that required for sustenance and milk-production would tend to increase the weight of the animal, which, according to the circumstances, may or may not be desirable.

It may be observed that direct experiments at Rothamsted confirm the view, arrived at by common experience, that roots, and especially mangel, have a favourable effect on the flow of milk. Further, the Rothamsted experiments have shown that a higher percentage of butter-fat, of other solids, and of total solids, was obtained with mangel than with silage as the succulent food. The yield of milk was, however, in a much greater degree increased by grazing than by any other change in the food; and at Rothamsted the influence of roots comes next in order to that of grass, though far behind it, in this respect. But with grazing, as has been shown, the percentage composition of the milk is considerably reduced; though, owing to the greatly increased quantity yielded, the amount of soil-constituents removed in the milk when cows are grazing may nevertheless be greater per head per day than under any other conditions. Lastly, it has been clearly illustrated how very much greater is the demand upon the food, especially for nitrogenous and for mineral constituents, in

the production of milk than in that of fattening increase.

Manurial Value of Food consumed in the Production of Milk

In any attempt to estimate the average value of the manure derived from the consumption of food for the production of milk, the difficulty arising from the very wide variation in the amount of milk yielded by different cows, or by the same cow at different periods of her lactation, is increased by the inadequate character of information concerning the difference in the amount of the food actually consumed by the animal coincidently with the production of such different amounts of milk. But although information is lacking for correlating, with numerical accuracy, the great difference in milk-yield of individual cows with the coincident differences in consumption to produce it, it may be considered as satisfactorily established that more food is consumed by a herd of cows to produce a fair yield of milk, of say 10 or 12 quarts per head per day, than by an equal live-weight of oxen fed to produce fattening increase. In the cases supposed it may, for practical purposes, be assumed that the cows would consume about one-fourth more food than the oxen. Accordingly, in the Rothamsted estimates of the value of the manure obtained on the consumption of food for the production of milk, it is assumed that one-fourth more will be consumed by 1000 lb. live-weight of cows than by the same weight of oxen; but the estimates of the amounts of the constituents of the food removed in the milk, or remaining for manure, are nevertheless reckoned per ton of each kind of food consumed, as in the case of those relating to feeding for the production of fattening increase. It may be added that the calculations of the amounts of the constituents in the milk are based on the same average composition of milk as is adopted in the construction of Table V. Thus the nitrogen is taken at 0.579 (= 3.65 nitrogenous substance)%, the phosphoric acid at 0.2175%, and the potash at 0.1875% in the milk.

Table VIII. shows in detail the estimate of the amount of nitrogen in one ton of each food, and in the milk produced from its consumption, on the assumption of an average yield of 10 quarts per head per day; also the amount remaining for manure, the amount of ammonia corresponding to the nitrogen, and the value of the ammonia at 4d. per lb. Similar particulars are also given in relation to the phosphoric acid and the potash consumed in the food, removed in the milk, and remaining for manure, &c. This table will serve as a sufficient illustration of the mode of estimating the *total or original* value of the manure, derived from the consumption of the different foods for the production of milk in the case supposed; that is, assuming an average yield of a herd of 10 quarts per head per day.

In Table IX. are given the results of similar detailed calculations of the *total or original* manure-value (as in Table VIII. for 10 quarts), on the alternative assumptions of a yield of 6, 8, 12 or 14 quarts per head per day. For comparison there is also given, in the first column, the estimate of the *total or original* manure-value when the foods are consumed for the production of fattening increase.

So much for the plan and results of the estimations of *total or original* manure-value of the different foods, that is, deducting only the constituents removed in the milk, and reckoning the remainder at the prices at which they can be purchased in artificial manures. With a view to direct application to practice, however, it is necessary to estimate the *unexhausted manure-value* of the different foods, or what may be called their *compensation-value*, after they have been used for a series of years by the outgoing tenant and he has realized a certain portion of the manure-value in his increased crops. In the calculations for this purpose the rule is to deduct one-half of the *original manure-value* of the food used the last year, and one-third of the remainder each year to the eighth, in the case of all the more concentrated foods and of the roots—in fact, of all the foods in the list excepting the hays and the straws. For these, which contain larger amounts of indigestible matter, and the constituents of which will be more slowly available to crops, two-thirds of the *original manure-value* is deducted for the last year, and only one-fifth from year to year to the eighth year back. The results of the estimates of *compensation-value* so made are given for the five yields of 6, 8, 10, 12 and 14 quarts of milk per head per day respectively in Lawes and Gilbert's paper[6] on the valuation of the manures obtained by the consumption of foods for the production of milk, which may be consulted for fuller details. It must, however, be borne in mind that when cows are fed in sheds or yards the manure is generally liable to greater losses than is the case with fattening oxen. The manure of the cow contains much more water in proportion to solid matter than that of the ox. Water will, besides, frequently be used for washing, and it may be that a good deal of the manure is washed into drains and lost. In the event, therefore, of a claim for compensation, the management and disposal of the manure requires the attention of the valuer. Indeed, the varying circumstances that will arise in practice must be carefully considered. Bearing these in mind, the estimates may be accepted as at any rate the best approximation to the truth that existing knowledge provides; and they should be found sufficient for the requirements of practical use. Obviously they will be more directly applicable in the case of cows feeding entirely on the foods enumerated in the list, and not depending largely on grass; but, even when the animals are partially grass-fed, the value of the manure derived from the additional dry food or roots may be estimated according to the scale given.

Table VIII.—*Estimates of the Total or Original Manure-Value of Cattle Foods after Consumption by Cows for the Production of Milk. Valuation on the assumption of an average production by a herd of 10 quarts of milk per head per day.*

Nos.	Description of Food.	Nitrogen.							Phosphoric Acid.					Potash.					Total Original Manu Valu per T of Fo consur
		In 1 Ton of Food.	In Milk from 1 Ton of Food.	In Manure.					In 1 Ton of Food.	In Milk from 1 Ton of Food.	In Manure.			In 1 Ton of Food.	In Milk from 1 Ton of Food.	In Manure.			
				Total remaining for Manure.	Nitrogen equal Ammonia.	Value of Ammonia at 4 d. per lb.					Total remaining for Manure.	Value at 2 d. per lb.				Total remaining for Manure.	Value at 1½ d. per lb.		
		lb	lb	lb	lb	£	s.	d.	lb	lb	lb	s.	d.	lb	lb	lb	s.	d.	£ s.
1	Linseed	80.64	25.04	55.60	67.52	1	2	6	34.50	9.34	25.16	4	2	30.69	8.02	22.67	2	10	1 9
2	Linseed cake	106.40	20.86	85.54	103.87	1	14	7	44.80	7.79	37.01	6	2	31.36	6.71	24.65	3	1	2 3
3	Decorticated cotton cake	147.84	19.27	128.57	156.13	2	12	1	69.44	7.18	62.26	10	5	44.80	6.22	38.58	4	10	3 7
4	Palm-nut cake	56.00	17.86	38.14	46.31	0	15	5	26.88	6.68	20.20	3	4	11.20	5.73	5.47	0	8	0 19
5	Undecorticated cotton cake	84.00	15.66	68.34	82.99	1	7	8	44.80	5.85	38.95	6	6	44.80	5.07	39.73	5	0	1 19
6	Cocoanut cake	76.16	15.66	60.50	73.47	1	4	6	31.36	5.85	25.51	4	3	44.80	5.07	39.73	5	0	1 13
7	Rape cake	109.76	12.50	97.26	118.11	1	19	4	56.00	4.69	51.31	8	7	33.60	4.09	29.51	3	8	2 11
8	Peas	80.64	17.86	62.78	76.24	1	5	5	19.04	6.68	12.36	2	1	21.50	5.73	15.77	2	0	1 9
9	Beans	89.60	17.86	71.74	87.12	1	9	0	24.64|	6.68	17.96	3	0	29.12	5.73	23.39	2	11	1 14
10	Lentils	94.08	17.86	76.22	92.56	1	10	10	16.80	6.68	10.12	1	8	15.68	5.73	9.95	1	3	1 13
11	Tares (seed)	94.08	17.86	76.22	92.56	1	10	10	17.92	6.68	11.24	1	10	17.92	5.73	12.19	1	6	1 14
12	Maize	38.08	17.38	20.70	25.14	0	8	5	13.44	6.50	6.94	1	2	8.29	5.56	2.73	0	4	0 9
13	Wheat	40.32	17.38	22.94	27.86	0	9	3	19.04	6.50	12.54	2	1	11.87	5.56	6.31	0	9	0 12
14	Malt	38.08	17.86	20.22	24.55	0	8	2	17.92	6.68	11.24	1	10	11.20	5.73	5.47	0	8	0 10
15	Barley	36.96	17.38	19.58	23.78	0	7	11	16.80	6.50	10.30	1	9	12.32	5.56	6.76	0	10	0 10
16	Oats	44.80	16.68	28.12	34.15	0	11	5	13.44	6.24	7.20	1	2	11.20	5.40	5.80	0	9	0 13
17	Rice meal	42.56	16.68	25.88	31.43	0	10	6	(13.44)	6.24	7.20	1	2	(8.29)	5.40	2.89	0	4	0 12
18	Locust beans	26.88	13.90	12.98	15.76	0	5	3	..	5.19	..	..		..	4.42	..	..		..

19	Malt coombs	87.36	15.66	71.70	87.07	1	9	0	44.80	5.85	38.95	6	6	44.80	5.07	39.73	5	0	2	0
20	Fine pollard	54.88	16.68	38.20	46.39	0	15	6	64.96	6.24	58.72	9	9	32.70	5.40	27.30	3	5	1	8
21	Coarse pollard	56.00	15.66	40.34	48.99	0	16	4	78.40	5.85	72.55	12	1	33.60	5.07	28.53	3	7	1	12
22	Bran	56.00	13.90	42.10	51.12	0	17	0	80.64	5.19	75.45	12	7	32.48	4.42	28.06	3	6	1	13
23	Clover hay	53.76	8.94	44.82	54.43	0	18	2	12.77	3.35	9.42	1	7	33.60	2.94	30.66	3	10	1	3
24	Meadow hay	33.60	8.36	25.24	30.65	0	10	3	8.96	3.10	5.86	1	0	35.84	2.62	33.22	4	2	0	15
25	Pea straw	22.40	7.83	14.57	17.69	0	5	11	7.84	2.91	4.93	0	10	22.40	2.46	19.94	2	6	0	9
26	Oat straw	11.20	6.95	4.25	5.16	0	1	9	5.38	2.60	2.78	0	6	22.40	2.29	20.11	2	6	0	4
27	Wheat straw	10.08	5.98	4.10	4.98	0	1	8	5.38	2.23	3.15	0	6	17.92	1.96	15.96	2	0	0	4
28	Barley straw	8.96	5.46	3.50	4.25	0	1	5	4.03	2.04	1.99	0	4	22.40	1.80	20.60	2	7	0	4
29	Bean straw	20.16	5.68	14.48	17.58	0	5	10	6.72	2.14	4.58	0	9	22.40	1.80	20.60	2	7	0	9
30	Potatoes	5.60	2.07	3.53	4.29	0	1	5	3.36	0.78	2.58	0	5	12.32	0.66	11.66	1	5	0	3
31	Carrots	4.48	1.46	3.02	3.67	0	1	3	2.02	0.54	1.48	0	3	6.27	0.49	5.78	0	9	0	2
32	Parsnips	4.93	1.67	3.26	3.96	0	1	4	4.26	0.63	3.63	0	7	8.06	0.49	7.57	0	11	0	2
33	Mangel wurzels	4.93	1.32	3.61	4.38	0	1	6	1.57	0.49	1.08	0	2	8.96	0.49	8.47	1	1	0	2
34	Swedish turnips	5.60	1.14	4.46	5.42	0	1	10	1.34	0.44	0.90	0	2	4.93	0.33	4.60	0	7	0	2
35	Yellow turnips	4.48	0.93	3.55	4.31	0	1	5	1.34	0.34	1.00	0	2	4.93	0.33	(4.60)	0	7	0	2
36	White turnips	4.03	0.84	3.19	3.87	0	1	3	1.12	0.31	0.81	0	2	6.72	0.33	6.39	0	10	0	2

Cheese and Cheese-Making

For generations, perhaps for centuries, the question has been discussed as to why there should be so large a proportion of bad and inferior cheese and so small a proportion of really good cheese made in farmhouses throughout the land. That the result is not wholly due to skill and care or to the absence of these qualities on the part of the dairymaid may now be taken for granted. Instances might be quoted in which the most painstaking of dairymaids, in the cleanest of dairies, have failed to produce cheese of even second-rate quality and character, and yet others in which excellent cheese has been made under commonplace conditions as to skill and equipment, and with not much regard to cleanliness in the dairy. The 746
explanation of what was so long a mystery has been found in the domain of ferments. It is now known that whilst various micro-organisms, which in many dairies have free access to the milk, have ruined an incalculable quantity of cheese—and of butter also—neither cheese nor butter of first-rate quality can be made without the aid of lactic acid bacilli. As an illustrative case, mention may be made of that of two most painstaking dairymaids who had tried in vain to make good cheese from the freshest of milk in the cleanest of dairies in North Lancashire. Advice to resort to the use of the ferment was acted upon, and the result was a revelation and a transformation, excellent prize-winning cheese being made from that time forward. By the addition of a "starter," in the form of a small quantity of sour milk, whey or buttermilk, in an advanced stage of fermentation, the development of acidity in the main body of milk is accelerated. It has been ascertained that the starter is practically a culture of bacteria, which, if desired, may be obtained as a pure culture. Professor J. R. Campbell, as the result of experiments on pure cultures for Cheddar cheese-making, states[7] that (1) first-class Cheddar cheese can be made by using pure cultures of a lactic organism; (2) this organism abounds in all samples of sour milk and sour whey; (3) the use of a whey starter is attended with results equal in every respect to those obtained from a milk-starter. It is well within the power of any dairyman to prepare what is practically a pure culture of the same bacterium as is supplied from the laboratory. Moreover, the sour-whey starter used by some of the successful cheese-makers before the introduction of the American system is in effect a pure culture, from which it follows that these men had, by empirical methods, attained the same end as that to which bacteriological research subsequently led. Wherever a starter is necessary, the use of a culture practically pure is imperative, whether such culture be obtained from the laboratory or prepared by what may be called the "home-made starter." Pure cultures may be bought for a few shillings in the open market.

Table IX.—*Comparison of the Estimates of Total or Original Manure-Value when Foods are consumed for the Production of Fattening Increase, with those when the Food is consumed by Cows giving different Yields of Milk.*

Nos.	Description of Food.	Total or Original Manure-Value per Ton of Food consumed—that is, only deducting the Constituents in Fattening Increase or in Milk.																		
		For the Production of Fattening Increase.			For the Production of Milk, supposing the Yield per Head per Day to be as under—															
					6 qts.			8 qts.			10 qts.			12 qts.			14 qts.			
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
1	Linseed	1	19	2	1	14	7	1	12	0	1	9	6	1	7	1	1	4	5	
2	Linseed cake	2	11	11	2	8	1	2	6	0	2	3	10	2	1	9	1	19	8	
3	Decorticated cotton cake	3	14	9	3	11	2	3	9	2	3	7	4	3	5	4	3	3	4	
4	Palm-nut cake	1	6	4	1	3	2	1	1	4	0	19	5	0	17	9	0	15	11	
5	Undecorticated cotton cake	2	5	3	2	2	4	2	0	8	1	19	2	1	17	6	1	15	11	
6	Cocoa-nut cake	1	19	10	1	16	11	1	15	3	1	13	9	1	12	3	1	10	6	
7	Rape cake	2	16	5	1	14	2	2	12	11	2	11	7	2	10	4	2	9	1	
8	Peas	1	16	5	1	13	1	1	11	2	1	9	6	1	7	8	1	5	9	
9	Beans	2	1	11	1	18	7	1	16	10	1	14	11	1	13	1	1	11	4	
10	Lentils	2	0	8	1	17	5	1	15	7	1	13	9	1	12	2	1	10	1	
11	Tares (seed)	2	1	1	1	17	11	1	16	0	1	14	2	1	12	6	1	10	7	
12	Maize	0	16	7	0	13	4	0	11	7	0	9	11	0	8	1	0	6	5	
13	Wheat	0	18	11	0	15	8	0	13	11	0	12	1	0	10	5	0	8	8	
14	Malt	0	17	7	0	14	5	0	12	7	0	10	8	0	9	0	0	7	1	
15	Barley	0	17	2	0	14	0	0	12	3	0	10	6	0	8	8	0	6	11	
16	Oats	0	19	9	0	16	8	0	15	0	0	13	4	0	11	7	0	9	10	
17	Rice meal	(0	18	6)	0	15	5	0	13	9	0	12	0	0	10	5	0	8	7	
18	Locust beans		..			..			..			..			..			..		
19	Malt coombs	2	6	7	2	3	9	2	2	0	2	0	6	1	18	11	1	17	4	
20	Fine pollard	1	15	2	1	12	0	1	10	5	1	8	8	1	6	11	1	5	3	
21	Coarse pollard	1	18	1	1	15	2	1	13	6	1	12	0	1	10	5	1	8	9	
22	Bran	1	18	6	1	15	11	1	14	6	1	13	1	1	11	8	1	10	3	
23	Clover hay	1	7	0	1	5	5	1	4	5	1	3	7	1	2	8	1	1	8	
24	Meadow hay	0	18	7	0	17	0	0	16	3	0	15	5	0	14	5	0	13	7	
25	Pea straw	0	12	2	0	10	9	0	10	0	0	9	3	0	8	5	0	7	8	
26	Oat straw	0	7	5	0	6	2	0	5	5	0	4	9	0	4	0	0	3	3	
27	Wheat straw	0	6	6	0	5	5	0	4	10	0	4	2	0	3	6	0	3	0	
28	Barley straw	0	6	5	0	5	6	0	4	10	0	4	4	0	3	9	0	3	2	
29	Bean straw	0	11	5	0	10	4	0	9	9	0	9	2	0	8	7	0	8	0	
30	Potatoes	0	4	1	0	3	9	0	3	6	0	3	3	0	3	1	0	2	11	
31	Carrots	0	2	9	0	2	6	0	2	4	0	2	3	0	2	1	0	1	11	
32	Parsnips	0	3	6	0	3	3	0	3	1	0	2	10	0	2	8	0	2	7	

33	Mangel wurzels	0	3	2	0	3	0	0	2	10	0	2	9	0	2	7	0	2	5
34	Swedish turnips	0	2	11	0	2	9	0	2	8	0	2	7	0	2	5	0	2	3
35	Yellow turnips	(0 | 2 | 6)	0	2	4	0	2	3	0	2	2	0	2	1	0	2	0
36	White turnips	0	2	7	0	2	5	0	2	4	0	2	3	0	2	2	0	2	0

The factory-made cheese of Canada, the United States and Australasia, which is so largely imported into the United Kingdom, is all of the Cheddar type. The factory system has made no headway in the original home of the Cheddar cheese in the west of England. The system was thus described in the *Journal* of the British Dairy Farmers' Association in 1889 by Mr R. J. Drummond:—

"In the year 1885 I was engaged as cheese instructor by the Ayrshire Dairy Association, to teach the Canadian system of Cheddar cheese-making. I commenced operations under many difficulties, being a total stranger to both the people and the country, and with this, the quantities of milk were very much less than I had been in the habit of handling. Instead of having the milk from 500 to 1000 cows, we had to operate with the milk from 25 to not over 60 cows.

"The system of cheese-making commonly practised in the county of Ayr at that time was what is commonly known as the Joseph Harding or English Cheddar system, which differs from the Canadian system in many details, and in one particular is essentially different, namely, the manner in which the necessary acidity in the milk is produced. In the old method a certain quantity of sour whey was added to the milk each day before adding the rennet, and I have no doubt in my own mind that this whey was often added when the milk was already acid enough, and the consequence was a spoiled cheese.

"Another objection to this system of adding sour whey was, should the stuff be out of condition one day, the same trouble was inoculated with the milk from day to day, and the result was sure to be great unevenness in the quality of the cheese. The utensils commonly in use were very different to anything I had ever seen before; instead of the oblong cheese vat with double casings, as is used by the best makers at the present time, a tub, sometimes of tin and sometimes of wood, from 4 to 7 ft. in diameter by about 30 in. deep, was universally in use. Instead of being able to heat the milk with warm water or steam, as is commonly done now, a large can of a capacity of from 20 to 30 gallons was filled with cold milk and placed in a common hot-water boiler, and heated sufficiently to bring the whole body of the milk in the tub to the desired temperature for adding the rennet. I found that many mistakes were made in the quantity of rennet used, as scarcely any two makers used the same quantity to a given quantity of milk. Instead of having a graduated measure for measuring the rennet, a common tea-cup was used for this purpose, and I have found in some dairies as low as 3 oz. of rennet was used to 100 gallons of milk, where in others as high as 6½ oz. was used to the same quantity. This of itself would cause a difference in the quality of the cheese.

"Coagulation and breaking completed, the second heating was effected by dipping the whey from the curd into the can already mentioned, and heated to a temperature of 140° F., and returned to the curd, and thus the process was carried on till the desired temperature was reached. This mode of heating I considered very laborious and at the same time very unsatisfactory, as it is impossible to distribute the heat as evenly through the curd in this way as by heating either with hot water or steam. The other general features of the method do not differ from our own very materially, with the exception that in the old method the curd was allowed to mature in the bottom of the tub, where at the same stage we remove the curd from the vat to what we call a curd-cooler, made with a sparred bottom, so as to allow the whey to separate from the curd during the maturing or ripening process. In regard to the quality of cheese on the one method compared with the other, I think that there was some cheese just as fine made in the old way as anything we can possibly make in the new, with one exception, and that is, that the cheese made according to the old method will not toast—instead of the casein melting down with the butter-fat, the two become separated, which is very much objected to by the consumer—and, with this, want of uniformity through the whole dairy. This is a very short and imperfect description of how the cheese was made at the time I came into Ayrshire; and I will now give a short description of the system that has been taught by myself for the past four years, and has been the means of bringing this county so prominently to the front as one of the best cheese-making counties in Britain.

"Our duty in this system of cheese-making begins the night before, in having the milk properly set and cooled according to the temperature of the atmosphere, so as to arrive at a given heat the next morning. Our object in this is to secure, at the time we wish to begin work in the morning, that degree of acidity or ripeness essential to the success of the whole operation. We cannot give any definite guide to makers how, or in what quantities, to set their milk, as the whole thing depends on the good judgment of the operator. If he finds that his milk works best at a temperature of 68° F. in the morning, his study the night before should tend toward such a result, and he will soon learn by experience how best to manage the milk in his own individual dairy. I have found in some dairies that the milk worked quite fast enough at a temperature of 64° in the morning, where in others the milk set in the same way would be very much out of condition by being too sweet, causing hours of delay before matured enough to add the rennet. Great care should be taken at this point, making sure that the milk is properly matured before the rennet is added, as impatience at this stage often causes hours of delay in the making of a cheese. I advise taking about six hours from the time the rennet is added till the curd is ready for salting, which means a six-hours' process; if much longer than this, I have found by experience that it is impossible to obtain the best results. The cream should always be removed from the night's milk in the morning and heated to a temperature of about 84° before returning it to the vat. To do this properly and with safety, the cream should be heated by adding about two-thirds of warm milk as it comes from the cow to one-third of cream, and passed through the ordinary milk-strainers. If colouring matter is used, it should be added fifteen to twenty minutes before the rennet, so as to become thoroughly mingled with the milk before coagulation takes place.

"We use from 4 to 4½ oz. of Hansen's rennet extract to each 100 gallons of milk, at a temperature of 86° in spring and 84° in summer, or sufficient to coagulate milk firm enough to cut in about forty minutes when in a proper condition. In cutting, great care should be taken not to bruise the curd. I cut lengthwise, then across with perpendicular knife, then with horizontal knife the same way of the perpendicular, leaving the curd in small cubes about the size of ordinary peas. Stirring with the hands should begin immediately after cutting, and continue for ten to fifteen minutes prior to the application of heat. At this stage we use a rake instead of the hands for stirring the curd during the heating process, which lasts about one hour from the time of beginning until the desired temperature of 100° or 102° is reached. After heating, the curd should be stirred another twenty minutes, so as to become properly firm before allowing it to settle. We like the curd to lie in the whey fully one hour after allowing it to settle before it is ready for drawing the whey, which is regulated altogether by the condition of the milk at the time the rennet is added. At the first indication of acid, the whey should be removed as quickly as possible. I think at this point lies the greatest secret of cheese-making—to know when to draw the whey.

"I depend entirely on the hot-iron test at this stage, as I consider it the most accurate and reliable guide known to determine when the proper acidity has been developed. To apply this test, take a piece of steel bar about 18 in. long by 1 in. wide and ¼ in. thick, and heat to a black heat; if the iron is too hot, it will burn the curd; if too cold, it will not stick; consequently it is a very simple matter to determine the proper heat. Take a small quantity of the curd from the vat and compress it tightly in the hand, so as to expel all the whey; press the curd against the iron, and when acid enough it will draw fine silky threads ¼ in. long. At this stage the curd should be removed to the curd-cooler as quickly as possible, and stirred till dry enough to allow it to mat, which generally takes from five to eight minutes. The curd is now allowed to stand in one end of the cooler for thirty minutes, when it is cut into pieces from 6 to 8 in. square and turned, and so on every half-hour until it is fit for milling. After removing the whey, a new acid makes its appearance in the body of the curd, which seems to depend for its development upon the action of the air, and the presence of which experience has shown to be an essential element in the making of a cheese. This acid should be allowed to develop properly before the addition of salt. To determine when the curd is ready for salting, the hot-iron test is again resorted to; and when the curd will draw fine silky threads 1½ in. long, and at the same time have a soft velvety feel when pressed in the hand, the butter-fat will not separate

with the whey from the curd. I generally advise using 1 lb of salt to 50 lb of curd, more or less, according to the condition of the curd. After salting, we let the curd lie fifteen minutes, so as to allow the salt to be thoroughly dissolved before pressing.

"In the pressing, care should be taken not to press the curd too severely at first, as you are apt to lose some of the butter-fat, and with this I do not think that the whey will come away so freely by heavy pressing at first. We advise three days' pressing before cheese is taken to the curing-room. All cheese should have a bath in water at a temperature of 120° next morning after being made, so as to form a good skin to prevent cracking or chipping. The temperature of the curing-room should be kept as near 60° as possible at all seasons of the year, and I think it a good plan to ventilate while heating."

With regard to the hot-iron test for acidity, Mr F. J. Lloyd, in describing his investigations on behalf of the Bath and West of England Society, states that cheese-makers have long known that in both the manufacture and the ripening of cheese the acidity produced—known to the chemist as "lactic acid"—materially influences the results obtained, and that amongst other drawbacks to the test referred to is the uncertainty of the temperature of the iron itself. He gives an account,[8] however, of a chemical method involving the use of a standard solution of an alkali (soda), and of a substance termed an "indicator" (phenolphthalein), which changes colour according to whether a solution is acid or alkaline. The apparatus used with these reagents is called the acidimeter. The two stages in the manufacture of a Cheddar cheese most difficult to determine empirically are—(1) when to stop stirring and to draw the whey, and (2) when to grind the curd. The introduction of the acidimeter has done away with these difficulties; and though the use of this apparatus is not actually a condition essential to the manufacture of a good cheese, it is to many makers a necessity and to all an advantage. By its use the cheese-maker can determine the acidity of the whey, and so decide when to draw the latter off, and will thus secure not only the proper development of acidity in the subsequent changes of cheese-making, but also materially diminish the time which the cheese takes to make. Furthermore, it has been proved that the acidity of the whey which drains from the curd when in the cooler is a sufficiently accurate guide to the condition of the curd before grinding; and by securing uniformity in this acidity the maker will also ensure uniformity in the quality and ripening properties of the cheese. Speaking generally, the acidity of the liquid from the press should never fall below 0.80% nor rise above 1.20%, and, the nearer it can be kept to 1.00% the better. Simultaneously, of course, strict attention must be paid to temperature, time and every other factor which can be accurately determined. Analyses of large numbers of Cheddar cheeses manufactured in every month of the cheese-making season show the average composition of ripe specimens to be—water, 35.58%; fat, 31.33; casein, 29.12; mineral matter or ash, 3.97. It has been maintained that in the ripening of Cheddar cheese fat is formed out of the curd, but a comparison of analyses of ripe cheeses with analyses of the curd from which the cheeses were made affords no evidence that this is the case.

The quantity of milk required to make 1 lb of Cheddar cheese may be learnt from Table X., which shows the results obtained at the cheese school of the Bath and West of England Society in the two seasons of 1899 and 1900. The cheese was sold at an average age of ten to twelve weeks. In 1899 a total of 21,220 gallons of milk yielded 20,537 lb of saleable cheese, and in 1900, 31,808 gallons yielded 29,631 lb. In the two years together 53,028 gallons yielded 50,168 lb, which is equivalent to 1.05 gallon of milk to 1 lb of cheese. For practical purposes it may be taken that one gallon, or slightly over 10 lb of milk, yields 1 lb of pressed cheese. The prices obtained are added as a matter of interest.

Cheshire cheese is largely made in the county from which it takes its name, and in adjoining districts. It is extensively consumed in Manchester and Liverpool, and other parts of the densely populated county of Lancaster.

TABLE X.—*Quantities of Milk employed and of Cheese produced in the Manufacture of Cheddar Cheese.*

When Made.	Milk.	Green Cheese.	Saleable Cheese.	Shrinkage.	Price.
	galls.	lb	lb		per cwt.
April 1899	3077	3100	2924	6 per cent.	60s.
May	4462	4502	4257	6½ lb per cwt.	63s.
June	4316	4434	4141	7 lb 6 oz. per cwt.	70s.
July	3699	3785	3545	7 lb 2 oz. per cwt.	74s.
August	2495	2539	2353	8 lb 3 oz. per cwt.	74s.
Sept. and Oct.	3171	3583	3317	8 lb 5 oz. per cwt.	74s.
April 1900	3651	3505	3292	6 per cent.	63s.
May	6027	6048	5577	7¾ per cent.	64s.
June	5960	5889	5466	7¼ per cent.	68s.
July and Aug.	7227	7177	6630	7½ per cent.	66s.
Sept. and Oct.	8943	9635	8666	10 per cent.	66s.

The following is a description of the making of Cheshire cheese:—

The evening's milk is set apart until the following morning, when the cream is skimmed off. The latter is poured into a pan which has been heated by being placed in the boiling water of a boiler. The new milk obtained early in the morning is poured into the vessel containing the previous evening's milk with the warmed cream, and the temperature of the mixture is brought to about 75° F. Into the vessel is introduced a piece of rennet, which has been kept in warm water since the preceding evening, and in which a little Spanish annatto (¼ oz. is enough for a cheese of 60 lb) is dissolved. (Marigolds, boiled in milk, are occasionally used for colouring cheese, to which they likewise impart a pleasant flavour. In winter, carrots scraped and boiled in milk, and afterwards strained, will produce a richer colour; but they should be used with moderation, on account of their taste.) The whole is now stirred together, and covered up warm for about an hour, or until it becomes curdled; it is then turned over with a bowl and broken very small. After standing a little time, the whey is drawn from it, and as soon as the curd becomes somewhat more solid it is cut into slices and turned over repeatedly, the better to press out the whey.

The curd is then removed from the tub, broken by hand or cut by a curd-breaker into small pieces, and put into a cheese vat, where it is strongly pressed both by hand and with weights, in order to extract the remaining whey. After this it is transferred to another vat, or into the same if it has in the meantime been well scalded, where a similar process of breaking and expressing is repeated, until all the whey is forced from it. The cheese is now turned into a third vat, previously warmed, with a cloth beneath it, and a thin loop of binder put round the upper edge of the cheese and within the sides of the vat, the cheese itself being previously enclosed in a clean cloth, and its edges placed within the vat, before transfer to the cheese-oven. These various processes occupy about six hours, and eight more are requisite for pressing the cheese, under a weight of 14 or 15 cwt. The cheese during that time should be twice turned in the vat. Holes are bored in the vat which contains the cheese, and also in the cover of it, to facilitate the extraction of every drop of whey. The pressure being continued, the cheese is at length taken from the vat as a firm and solid mass.

On the following morning and evening it must be again turned and pressed; and also on the third day, about the middle of which it should be removed to the salting-chamber, where the outside is well rubbed with salt, and a cloth binder passed round it which is not turned over the upper surface. The cheese is then placed in brine extending half-way up in a salting-tub, and the upper surface is thickly covered with salt. Here it remains for nearly a week, being turned twice in the day. It is then left to dry for two or three days, during which period it is turned once—being well salted at each turning—and cleaned every day. When taken from the brine it is put on the salting benches, with a wooden girth round it of nearly the thickness of the cheese, where it stands a few days, during which time it is again salted and turned every day. It is next

washed and dried; and after remaining on the drying benches about seven days, it is once more washed in warm water with a brush, and wiped dry. In a couple of hours after this it is rubbed all over with sweet whey butter, which operation is afterwards frequently repeated; and, lastly, it is deposited in the cheese- or store-room—which should be moderately warm and sheltered from the access of air, lest the cheese should crack—and turned every day, until it has become sufficiently hard and firm. These cheeses require to be kept a considerable time.

As a matter of fact, there are three different modes of cheese-making followed in Cheshire, known as the *early* ripening, the *medium* ripening and the *late* ripening processes. There is also a method which produces a cheese that is permeated with "green mould" when ripe, called "Stilton Cheshire"; this, however, is confined to limited districts in the county. The early ripening method is generally followed in the spring of the year, until the middle or end of April; the medium process, from that time till late autumn, or until early in June, when the late ripening process is adopted and followed until the end of September, changing again to the medium process as the season advances. The late ripening process is not found to be suitable for spring or late autumn make. There is a decided difference between these several methods of making. In the early ripening system a larger quantity of rennet is used, more acidity is developed, and less pressure employed than in the other processes. In the medium ripening process a moderate amount of acidity is developed, to cause the natural drainage of the whey from the curd when under press. In the late ripening system, on the other hand, the development of acidity is prevented as far as possible, and the whey is got out of the curd by breaking down finer, using more heat, and skewering when under press. In the Stilton Cheshire process a larger quantity of rennet is used, and less pressure is employed, than in the medium or late ripening systems.

It is hardly possible to enunciate any general rules for the making of Stilton cheese, which differs from Cheddar and Cheshire in that it is not subjected to pressure. Mr J. Marshall Dugdale, in 1899, made a visit of inspection to the chief Leicestershire dairies where this cheese is produced, but in his report[9] he stated that every Stilton cheese-maker worked on his own lines, and that at no two dairies did he find the details all carried out in the same manner. There is a fair degree of uniformity up to the point when the curd is ladled into the straining-cloths, but at this stage, and in the treatment of the curd before salting, diversity sets in, several different methods being in successful use. Most of the cheese is made from two curds, the highly acid curd from the morning's milk being mixed with the comparatively sweet curd from the evening's milk. Opinion varies widely as to the degree of tightening of the straining-cloths. No test for acidity appears to be used, the amount of acidity being judged by the taste, feel and smell of the curd. When the desired degree of acidity has developed, the curd is broken by hand to pieces the size of small walnuts, and salt is added at the rate of about 1 oz. to 4 lb of dry curd, or 1 oz. to 3½ lb of wet curd, care being taken not to get the curd pasty. If a maker has learnt how to rennet the milk properly, and how to secure the right amount of acidity at the time of hooping—that is, when the broken and salted curd is put into the wooden hoops which give the cheese its shape—he has acquired probably two of the most important details necessary to success. It was formerly the custom to add cream to the milk used for making Stilton cheese, but the more general practice now is to employ new milk alone, which yields a product apparently as excellent and mellow as that from enriched milk.

As a cheese matures or becomes fit for consumption, not only is there produced the characteristic flavour peculiar to the type of cheese concerned, but with all varieties, independently of the quality of flavours developed, a profound physical transformation of the casein occurs. In the course of this change the firm elastic curd "breaks down"—that is, becomes plastic, whilst chemically the insoluble casein is converted into various soluble decomposition products. These ripening phenomena—the production of flavour and the breaking down of the casein (that is, the formation of proper texture)—used to be regarded as different phases of the same process. As subsequently shown, however, these changes are not necessarily so closely correlated. The theories formerly advanced as explanatory of the ripening changes in cheese were suggestive rather than based upon experimental data, and it is only since 1896 that careful scientific studies of the problem have been made. Of the two existing theories, the one, which is essentially European, ascribes the ripening changes wholly to the action of living organisms—the bacteria present in the cheese. The other, which had its origin in the United States, asserts that there are digestive enzymes—that is, unorganized or soluble ferments—inherent in the milk itself that render the casein soluble. The supporters of the bacterial theory are ranged in two classes. The one, led by Duclaux, regards the breaking down of the casein as due to the action of liquefying bacteria (Tyrothrix forms). On the other hand, von Freudenreich has ascribed these changes to the lactic-acid type of bacteria, which develop so luxuriantly in hard cheese like Cheddar.

With regard to the American theory, and in view of the important practical results obtained by Babcock and Russell at the Wisconsin experiment station, the following account[10] of their work is of interest, especially as the subject is of high practical importance. In 1897 they announced the discovery of an inherent enzyme in milk, which they named *galactase*, and which has the power of digesting the casein of milk, and producing chemical decomposition products similar to those that normally occur in ripened cheese. The theory has been advanced by them that this enzyme is an important factor in the ripening changes; and as in their experiments bacterial action was excluded by the use of anaesthetic agents, they conclude that, so far as the breaking down of the casein is concerned, bacteria are not essential to this process. In formulating a theory of cheese-ripening, they have further pointed out the necessity of considering the action of rennet extract as a factor concerned in the curing changes. They have shown that the addition of increased quantities of rennet extract materially hastens the rate of ripening, and that this is due to the pepsin which is present in all commercial rennet extracts. They find it easily possible to differentiate between the proteolytic action—that is, the decomposing of proteids—of pepsin and galactase, in that the first-named enzyme is incapable of producing decomposition products lower than the peptones precipitated by tannin. They have shown that the increased solubility—the ripening changes—of the casein in cheese made with rennet is attributable solely to the products peculiar to peptic digestion. The addition of rennet extract or pepsin to fresh milk does not produce this change, unless the acidity of the milk is allowed to develop to a point which experience has shown to be the best adapted to the making of Cheddar cheese. The *rationale* of the empirical process of ripening the milk before the addition of the rennet is thus explained. In studying the properties of galactase it was further found that this enzyme, as well as those present in rennet extract, is operative at very low temperatures, even below freezing-point. When cheese made in the normal manner was kept at temperatures ranging from 25° to 45° F. for periods averaging from eight to eighteen months, it was found that the texture of the product simulated that of a perfectly ripened cheese, but that such cheese developed a very mild flavour in comparison with the normally-cured product. Subsequent storage at somewhat higher temperatures gives to such cheese a flavour the intensity of which is determined by the duration of storage. This indicates that the breaking down of the casein and the production of the flavour peculiar to cheese are in a way independent of each other, and may be independently controlled—a point of great economic importance in commercial practice. Although it is generally believed that cheese ripened at low temperatures is apt to develop a more or less bitter flavour, the flavours in the cases described were found to be practically perfect. Under these conditions of curing, bacterial activity is inoperative, and these experiments are held to furnish an independent proof of the enzyme theory.

Not only are these investigations of interest from the scientific standpoint, as throwing light on the obscure processes of cheese-curing, but from a practical point of view they open up a new field for commercial exploitation. The inability to control the temperature in the ordinary factory curing-room results in serious losses, on account of the poor and uneven quality of the product, and the consumption of cheese has been greatly lessened thereby. These conditions may all be avoided by this low-temperature curing process, and it is not improbable that the cheese industry may undergo important changes in methods of treatment. With the introduction of cold-storage curing, and the necessity of constructing centralized plant for this purpose, the cheese industry may perhaps come to be differentiated into the manufacture of the

product in factories of relatively cheap construction, and the curing or ripening of the cheese in central curing stations. In this way not only would the losses which occur under present practices be obviated, but the improvement in the quality of the cured product would be more than sufficient to cover the cost of cold-storage curing.

The characteristics of typical specimens of the different kinds of English cheese may be briefly described. Cheddar cheese possesses the aroma and flavour of a nut—the so-called "nutty" flavour. It should melt in the mouth, and taste neither sweet nor acid. It is of flaky texture, neither hard nor crumbly, and is firm to the touch. It is early-ripening and, if not too much acid is developed in the making, long-keeping. Before all others it is a cosmopolitan cheese. Some cheeses are "plain," that is, they possess the natural paleness of the curd, but many are coloured with annatto—a practice that might be dispensed with. The average weight of a Cheddar cheese is about 70 ℔. Stilton cheese is popularly but erroneously supposed to be commonly made from morning's whole milk with evening's cream added, and to be a "double-cream" cheese. The texture is waxy, and a blue-green mould permeates the mass if well ripened; the flavour is suggestive of decay. The average weight of a Stilton is 15 ℔. Cheshire cheese has a fairly firm and uniform texture, neither flaky on the one hand nor waxy on the other; is of somewhat sharp and piquant flavour when fully ripe; and is often—at eighteen months old, when a well-made Cheshire cheese is at its best—permeated with a blue-green mould, which, as in the case of Stilton cheese, contributes a characteristic flavour which is much appreciated. Cheshire cheese is, like Cheddar, sometimes highly-coloured, but the practice is quite unnecessary; the weight is about 55 ℔. Gloucester cheese has a firm, somewhat soapy, texture and sweet flavour. Double Gloucester differs from single Gloucester only in size, the former usually weighing 26 to 30 ℔, and the latter 13 to 15 ℔. Leicester cheese is somewhat loose in texture, and mellow and moist when nicely ripened. Its flavour is "clean," sweet and mild, and its aroma pleasant. To those who prefer a mild flavour in cheese, a perfect Leicester is perhaps the most attractive of all the so-called "hard" cheese; the average weight of such a cheese is about 35 ℔. Derby cheese in its best forms is much like Leicester, being "clean" in flavour and mellow. It is sometimes rather flaky in texture, and is slow-ripening and long-keeping if made on the old lines; the average weight is 25 ℔. Lancashire cheese, when well made and ripe, is loose in texture and is mellow; it has a piquant flavour. As a rule it ripens early and does not keep long. Dorset cheese—sometimes called "blue vinny" (or veiny)—is of firm texture, blue-moulded, and rather sharp-flavoured when fully ripe; it has local popularity and the best makes are rather like Stilton. Wensleydale cheese, a local product in North Yorkshire, is of fairly firm texture and mild flavour, and may almost be spread with a knife when ripe; the finest makes are equal to the best Stilton. Cotherstone cheese, also a Yorkshire product, is very much like Stilton and commonly preferable to it. The blue-green mould develops, and the cheese is fairly mellow and moist, whereas many Stiltons are hard and dry. Wiltshire cheese, in the form of "Wilts truckles," may be described as small Cheddars, the weight being usually about 16 ℔. Caerphilly cheese is a thin, flat product, having the appearance of an undersized single Gloucester and weighing about 8 ℔; it has no very marked characteristics, but enters largely into local consumption amongst the mining population of Glamorganshire and Monmouthshire. Soft cheese of various kinds is made in many localities, beyond which its reputation scarcely extends. One of the oldest and best, somewhat resembling Camembert when well ripened, is the little "Slipcote," made on a small scale in the county of Rutland; it is a soft, mellow, moist cheese, its coat slipping off readily when the cheese is at its best for eating—hence the name. Cream cheese is likewise made in many districts, but nowhere to a great extent. A good cream cheese is fairly firm but mellow, with a slightly acid yet very attractive flavour. It is the simplest of all cheese to make—cream poured into a perforated box lined with loose muslin practically makes itself into cheese in a few days' time, and is usually ripe in a week.

In France the pressed varieties of cheese with hard rinds include Gruyère, Cantal, Roquefort and Port Salut. The first-named, a pale-yellow cheese full of holes of varying size, is made in Switzerland and in the Jura Mountains district in the east of France; whilst Cantal cheese, which is of lower quality, is a product of the midland districts and is made barrel-shape. Roquefort cheese is made from the milk of ewes, which are kept chiefly as dairy animals in the department of Aveyron, and the cheese is cured in the natural mountain caves at the village of Roquefort. It is a small, rather soft, white cheese, abundantly veined with a greenish-blue mould and weighs between 4 and 5 ℔. The Port Salut is quite a modern cheese, which originated in the abbey of that name in Mayenne; it is a thin, flat cheese of characteristic, and not unattractive odour and flavour. The best known of the soft unpressed cheeses are Brie, Camembert and Coulommiers, whilst Pont l'Evêque, Livarot and other varieties are also made. After being shaped in moulds of various forms, these cheeses are laid on straw mats to cure, and when fit to eat they possess about the same consistency as butter. The Neufchâtel, Gervais and Bondon cheeses are soft varieties intended to be eaten quite fresh, like cream cheese.

Of the varieties of cheese made in Switzerland, the best known is the Emmenthaler, which is about the size of a cart-wheel, and has a weight varying from 150 to 300 ℔. It is full of small holes of almost uniform size and very regularly distributed. In colour and flavour it is the same as Gruyère. The Edam and Gouda are the common cheeses of Holland. The Edam is spherical in shape, weighs from 3 to 4 ℔, and is usually dyed crimson on the outside. The Gouda is a flat cheese with convex edges and is of any weight up to 20 ℔. Of the two, the Edam has the finer flavour. Limburger is the leading German cheese, whilst other varieties are the Backstein and Munster; all are strong-smelling. Parmesan cheese is an Italian product, round and flat, about 5 in. thick, weighing from 60 to 80 ℔ and possessed of fine flavour. Gorgonzola cheese, so called from the Italian town of that name near Milan, is made in the Cheddar shape and weighs from 20 to 40 ℔. When ripe it is permeated by a blue mould, and resembles in flavour, appearance and consistency a rich old Stilton.

For descriptions of all the named varieties of cheese, see *Bulletin 105 of the Bureau of Animal Industry* (U.S. Department of Agriculture, Washington), issued 27th of June 1908, compiled by C. F. Doane and H. W. Lawson.

Butter and Butter-Making

As with cheese, so with butter, large quantities of the latter have been inferior not because the cream was poor in quality, but because the wrong kinds of bacteria had taken possession of the atmosphere in hundreds of dairies. The greatest if not the latest novelty in dairying in the last decade of the 19th century was the isolation of lactic acid bacilli, their cultivation in a suitable medium, and their employment in cream preparatory to churning. Used thus in butter-making, an excellent product results, provided cleanliness be scrupulously maintained. The culture repeats itself in the buttermilk, which in turn may be used again with marked success. Much fine butter, indeed, was made long before the bearing of bacteriological science upon the practice of dairying was recognized—made by using acid buttermilk from a previous churning.

In Denmark, which is, for its size, the greatest butter-producing country in the world, most of the butter is made with the aid of "starters," or artificial cultures which are employed in ripening the cream. Though the butter made by such cultures shows little if any superiority over a good sample made from cream ripened in the ordinary way—that is, by keeping the cream at a fairly high temperature until it is ready for churning, when it must be cooled—it is claimed that the use of these cultures enables the butter-makers of Denmark to secure a much greater uniformity in the quality of their produce than would be possible if they depended upon the ripening of the cream through the influence of bacteria taken up in the usual way from the air.

Butter-making is an altogether simpler process than cheese-making, but success demands strict attention to sound principles, the observance of thorough cleanliness in every stage of the work, and the intelligent use of the thermometer. The following rules for butter-making, issued by the Royal Agricultural Society sufficiently indicate the nature of the operation:—

Prepare churn, butter-worker, wooden-hands and sieve as follows:—(1) Rinse with cold water. (2) Scald with boiling water. (3) Rub thoroughly with salt. (4) Rinse with cold water.

Always use a correct thermometer.

The cream, when in the churn, to be at a temperature of 56° to 58° F. in summer and 60° to 62° F. in winter. The churn should never be more than half full. Churn at number of revolutions suggested by maker of churn. If none are given, *churn at 40 to 45 revolutions per minute*. Always churn slowly at first.

Ventilate the churn *freely* and frequently during churning, until no air rushes out when the vent is opened.

Stop churning immediately the butter comes. This can be ascertained by the sound; if in doubt, *look*.

The butter should now be like grains of mustard seed. Pour in a small quantity of cold water (1 pint of water to 2 quarts of cream) to harden the grains, and give a few more turns to the churn gently.

Draw off the buttermilk, giving plenty of time for draining. Use a straining-cloth placed over the hair-sieve, so as to prevent any loss, and wash the butter in the churn with plenty of cold water: then draw off the water, and repeat the process until the water comes off quite clear.

To brine butter, make a strong brine, 2 to 3 lb. of salt to 1 gallon of water. Place straining-cloth over mouth of churn, pour in brine, put lid on churn, turn sharply half a dozen times, and leave for 10 to 15 minutes. Then lift the butter out of the churn into sieve, turn butter out on worker, leave it a few minutes to drain, and work gently till all superfluous moisture is pressed out.

To drysalt butter, place butter on worker, let it drain 10 to 15 minutes, then work gently till all the butter comes together. Place it on the scales and weigh; then weigh salt, for slight salting, ¼ oz.; medium, ½ oz.; heavy salting, ¾ oz. to the lb. of butter. Roll butter out on worker and carefully sprinkle salt over the surface, a little at a time; roll up and repeat till all the salt is used.

Never touch the butter with your hands.

Well-made butter is firm and not greasy. It possesses a characteristic texture or "grain," in virtue of which it cuts clean with a knife and breaks with a granular fracture, like that of cast-iron. Theoretically, butter should consist of little else than fat, but in practice this degree of perfection is never attained. Usually the fat ranges from 83 to 88%, whilst water is present to the extent of from 10 to 15%.[11] There will also be from 0.2 to 0.8% of milk-sugar, and from 0.5 to 0.8% of casein. It is the casein which is the objectionable ingredient, and the presence of which is usually the cause of rancidity. In badly-washed or badly-worked butter, from which the buttermilk has not been properly removed, the proportion of casein or curd left in the product may be considerable, and such butter has only inferior keeping qualities. At the same time, the mistake may be made of overworking or of overwashing the butter, thereby depriving it of the delicacy of flavour which is one of its chief attractions as an article of consumption if eaten fresh. The object of washing with brine is that the small quantity of salt thus introduced shall act as a preservative and develop the flavour. Streaky butter may be due either to curd left in by imperfect washing, or to an uneven distribution of the salt.

Equipment of the Dairy

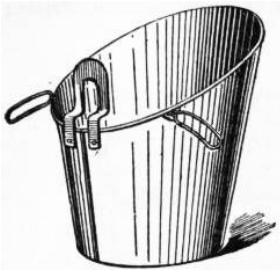

Fig. 1.—Milking-Pail.

Fig. 2.—Milk Sieve.

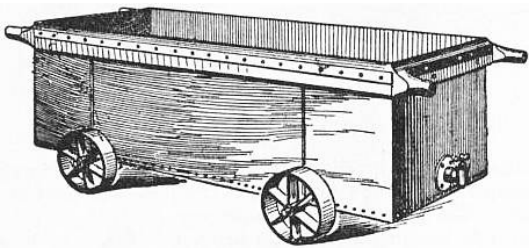

Fig. 3.—Rectangular Cheese-Vat.

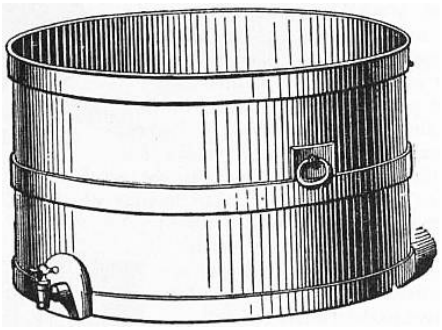

Fig. 4.—Cheese-Tub.

The improved form of milking-pail shown in fig. 1 has rests or brackets, which the milker when seated on his stool places on his knees; he thus bears the weight on his thighs, and is entirely relieved of the strain involved in

gripping the can between the knees. The milk sieve or strainer (fig. 2) is used to remove cow-hairs and any other mechanical impurity that may have fallen into the milk. A double straining surface is provided, the second being of very fine gauze placed vertically, so that the pressure of the milk does not force the dirt through; the strainer is easily washed. The cheese tub or vat receives the milk for cheese-making. The rectangular form shown in fig. 3 is a Cheshire cheese-vat, for steam. The inner vat is of tinned steel, and the outer is of iron and is fitted with pipes for steam supply. Round cheese-tubs (fig. 4) are made of strong sheets of steel, double tinned to render them lasting. They are fitted with a strong bottom hoop and bands round the sides, and can be double-jacketed for steam-heating if required. Curd-knives (fig. 5) are used for cutting the coagulated mass into cubes in order to liberate the whey. They are made of fine steel, with sharp edges; there are also wire curd-breakers. The object of the curd-mill (fig. 6) is to grind consolidated curd into small pieces, preparatory to salting and vatting; two spiked rollers work up to spiked breasts. Hoops, into which the curd is placed in order to acquire the shape of the cheese, are of wood or steel, the former being made of well-seasoned oak with iron bands (fig. 7), the latter of tinned steel. The cheese is more easily removed from the steel hoops and they are readily cleaned. The cheese-press (fig. 8) is used only for hard or “pressed” cheese, such as Cheddar. The arrangement is such that the pressure is continuous; in the case of soft cheese the curd is merely placed in moulds (figs. 9 and 10) of the required shape, and then taken cut to ripen, no pressure being applied. The cheese-room is fitted with easily-turned shelves, on which newly-made “pressed” cheeses are laid to ripen.

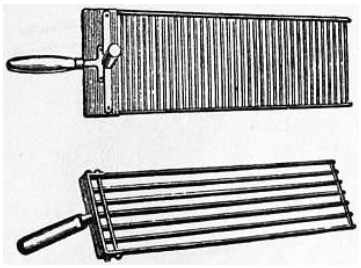

Fig. 5.—Curd-Knives.

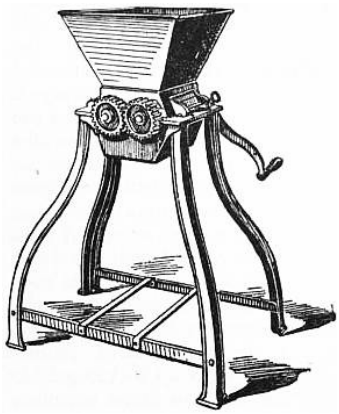

Fig. 6.—Curd-Mill.

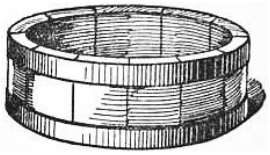

Fig. 7.—Hoop for Flat Cheese.

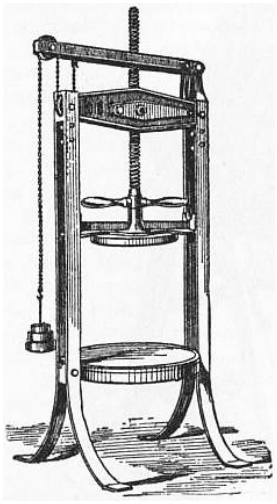

Fig. 8.—Cheese-Press.

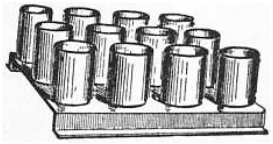

Fig. 9.—Cheese-Mould (Gervais).

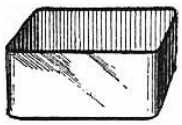

Fig. 10.—Cheese-Mould (Pont l’Évêque).

In the butter dairy, when the centrifugal separator is not used, milk is “set” for cream-raising in the milk-pan (fig. 11), a shallow vessel of white porcelain, tinned steel or enamelled iron. The skimming-dish or skimmer (fig 12), made of tin, is for collecting the cream from the surface of the milk, whence it is transferred to the cream-crock (fig. 13), in which vessel the cream remains from one to three days, till it is required for churning. Many different kinds of churns are in use, and vary much in size, shape and fittings; the one illustrated in fig. 14 is a very good type of diaphragm churn. The butter-scoop (fig. 15) is of wood and is sometimes perforated; it is used for taking the butter out of the churn. The butter-worker (fig. 16) is employed for consolidating newly-churned butter, pressing out superfluous water and mixing in salt. More extended use, however, is now being made of the “Délaiteuse” butter dryer, a centrifugal machine that rapidly extracts the moisture from the butter, and renders the butter-worker unnecessary, whilst the butter produced has a better grain. Scotch hands (fig. 17), made of boxwood, are used for the lifting, moulding and pressing of butter.

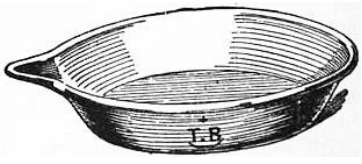

Fig. 11.—Milk-Pan.

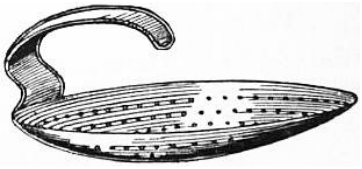

Fig. 12.—Skimmer.

Fig. 13.—Cream-Crock.

Fig. 14.—Churn.

Fig. 15.—Butter-Scoop.

In the centrifugal cream-separator the new milk is allowed to flow into a bowl, which is caused to rotate on its own axis several thousand times per minute. The heavier portion which makes up the watery part of the milk flies to the outer circumference of the bowl, whilst the lighter particles of butter-fat are forced to travel in an inner zone. By a simple mechanical arrangement the separated milk is forced out at one tube and the cream at another, and they are collected in distinct vessels. Separators are made of all sizes, from small machines dealing with 10 or 20 up to 100 gallons an hour, and worked by hand (fig. 18), to large machines separating 150 to 440 gallons an hour, and worked by horse, steam or other power (fig. 19). Separation is found to be most effective at temperatures ranging in different machines from 80° to 98° F., though as high a temperature as 150° is sometimes employed. The most efficient separators remove nearly the whole of the butter-fat, the quantity of fat left in the separated milk falling in some cases to as low as 0.1. When cream is raised by the deep-setting method, from 0.2 to 0.4% of fat is left in the skim-milk; by the shallow-setting method from 0.3 to 0.5% of the fat is left behind. As a rule, therefore, “separated” milk is much poorer in fat than ordinary “skim” milk left by the cream-raising method in deep or shallow vessels.

The first continuous working separator was the invention of Dr de Laval. The more recent invention by Baron von Bechtolsheim of what are known as the Alfa discs, which are placed along the centre of the bowl of the separator, has much increased the separating capacity of the machines without adding to the power required. This has been of great assistance to dairy farmers by lessening the cost of the manufacture of butter, and thus enabling a large additional number of factories to be established in different parts of the world, particularly in Ireland, where these disc machines are very extensively used.

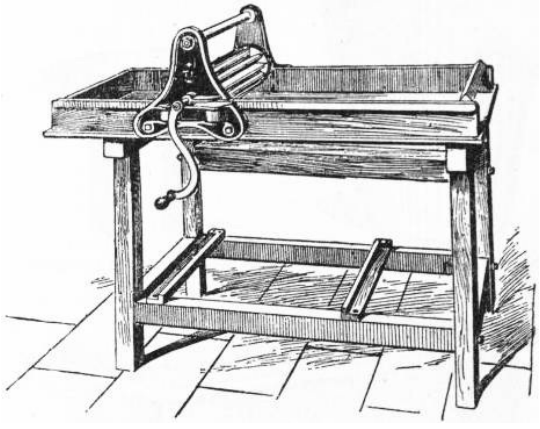

Fig. 16.—Butter-Worker.

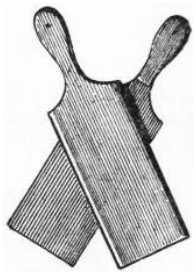

FIG. 17.—Scotch Hands.

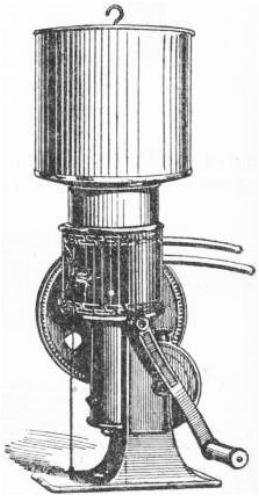

FIG. 18.—Hand-Separator.

The pasteurizer—so named after the French chemist Pasteur—affords a means whereby at the outset the milk is maintained at a temperature of 170° to 180° F. for a period of eight or ten minutes. The object of this is to destroy the tubercle bacillus, if it should happen to exist in the milk, whilst incidentally the bacilli associated with several other diseases communicable through the medium of milk would also be killed if they were present. Discordant results have been recorded by experimenters who have attempted to kill tubercle bacilli in milk by heating the latter in open vessels, thereby permitting the formation of a scum or "scalded layer" capable of protecting the tubercle bacilli, and enabling them to resist a higher temperature than otherwise would be fatal to them. At a temperature not much above 150° F. milk begins to acquire the cooked flavour which is objectionable to many palates, whilst its "body" is so modified as to lessen its suitability for creaming purposes. Three factors really enter into effective pasteurization of milk, namely (1) the temperature to which the milk is raised, (2) the length of time it is kept at that temperature, (3) the maintenance of a condition of mechanical agitation to prevent the formation of "scalded layer." Within limits, what a higher temperature will accomplish if maintained for a very short time may be effected by a lower temperature continued over a longer period. The investigation of the problem forms the subject of a paper[12] in the 17th *Annual Report of the Wisconsin Agricultural Experiment Station*, 1900. The following are the results of the experiments:—

1. An exposure of tuberculous milk in a tightly closed commercial pasteurizer for a period of ten minutes destroyed in every case the tubercle bacillus, as determined by the inoculation of such heated milk into susceptible animals like guinea-pigs.

2. Where milk is exposed under conditions that would enable a pellicle or membrane to form on the surface, the tubercle organism is able to resist the action of heat at 140° F. (60° C.) for considerably longer periods of time.

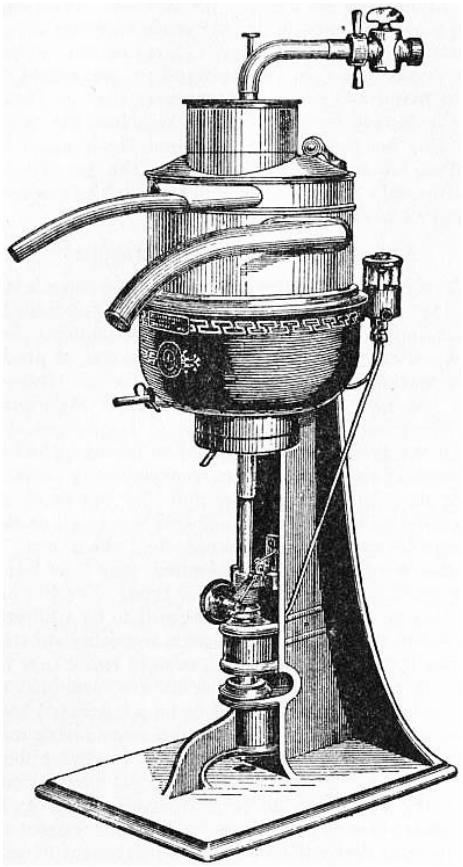

FIG. 19.—Power Separator.

3. Efficient pasteurization can be more readily accomplished in a closed receptacle such as is most frequently used in the commercial treatment of milk, than where the milk is heated in open bottles or open vats.

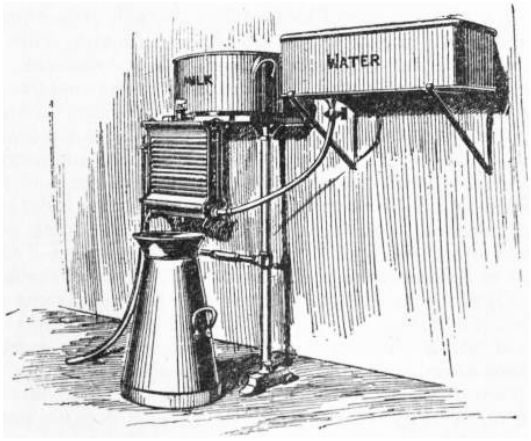

Fig. 20.—Refrigerator and Can.

4. It is recommended, in order thoroughly to pasteurize milk so as to destroy any tubercle bacilli which it may contain, without in any way injuring its creaming properties or consistency, to heat the same in closed pasteurizers for a period of not less than twenty minutes at 140° F.

Under these conditions one may be certain that disease bacteria such as the tubercle bacillus will be destroyed without the milk or cream being injured in any way. For over a year this new standard has been in constant use in the Wisconsin University Creamery, and the results, from a purely practical point of view, reported a year earlier by Farrington and Russell,[13] have been abundantly confirmed.

Dairy engineers have solved the problem as to how large bodies of milk may be pasteurized, the difficulty of raising many hundreds or thousands of gallons of milk up to the required temperature, and maintaining it at that heat for a period of twenty minutes, having been successfully dealt with. The plant usually employed provides for the thorough filtration of the milk as it comes in from the farms, its rapid heating in a closed receiver and under mechanical agitation up to the desired temperature, its maintenance thereat for the requisite time, and finally its sudden reduction to the temperature of cold water through the agency of a refrigerator, to be next noticed.

Fig. 21.—Cyclindrical Cooler or Refrigerator.

Refrigerators are used for reducing the temperature of milk to that of cold water, whereby its keeping properties are enhanced. The milk flows down the outside of the metal refrigerator (fig. 20), which is corrugated in order to provide a larger cooling surface, whilst cold water circulates through the interior of the refrigerator. The conical vessel into which the milk is represented as flowing from the refrigerator in fig. 20 is absurdly called a “milk-churn,” whereas milk-can is a much more appropriate name. For very large quantities of milk, such as flow from a pasteurizing plant, cylindrical refrigerators (fig. 21), made of tinned copper, are available; the cold water circulates inside, and the milk, flowing down the outside in a very thin sheet, is rapidly cooled from a temperature of 140° F. or higher to 1° above the temperature of the water.

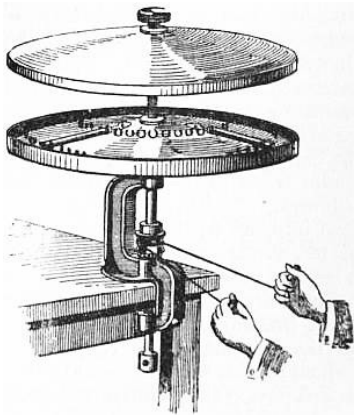

Fig. 22.—Butyrometer.

The fat test for milk was originally devised by Dr S. M. Babcock, of the Wisconsin, U.S.A., experiment station. It combines the principle of centrifugal force with simple chemical action. Besides the machine itself and its graduated glass vessels, the only requirements are sulphuric acid of standard strength and warm water. The machines—often termed butyrometers—are commonly made to hold from two up to two dozen testers. After the tubes or testers have been charged, they are put in the apparatus, which is rapidly rotated as shown (fig. 22); in a few minutes the test is complete, and with properly graduated vessels the percentage of fat can be read off at a glance. The butyrometer is extremely useful, alike for measuring periodically the fat-producing capacity of individual cows in a herd, for rapidly ascertaining the percentage of fat in milk delivered to factories and paying for such milk on the basis of quality, and for determining the richness in fat of milk supplied for the urban milk trade. Any intelligent person can soon learn to work the apparatus, but its efficiency is of course dependent upon the accuracy of the measuring vessels. To ensure this the board of agriculture have made arrangements with the National Physical Laboratory, Old Deer Park, Richmond, Surrey, to verify at a small fee the pipettes, measuring-glasses, and test-bottles used in connexion with the centrifugal butyrometer, which in recent years has been improved by Dr N. Gerber of Zürich.

Dairy Factories

In connexion with co-operative cheese-making the merit of having founded the first “cheesery” or cheese factory is generally credited to Jesse Williams, who lived near Rome, Oneida county, N.Y. The system, therefore, was of American origin. Williams was a skilled cheese-maker, and the produce of his dairy sold so freely, at prices over the average, that he increased his output of cheese by adding to his own supply of milk other quantities which he obtained from his neighbours. His example was so widely followed that by the year 1866 there had been established close upon 500 cheese factories in New York state alone. In 1870 two co-operative cheeseries were at work in England, one in the town of Derby and one at Longford in the same county. There are now thousands of cheeseries in the United States and Canada, and also many “creameries,” or butter factories, for the making of high-class butter.

The first creamery was that of Alanson Slaughter, and it was built near Wallkill, Orange county, N.Y., in 1861, or ten years later than the first cheese factory; it dealt daily with the milk of 375 cows. Cheeseries and creameries would almost certainly have become more numerous than they are in England but for the rapidly expanding urban trade in country milk. The development of each, indeed, has been contemporaneous since 1871, and they are found to work well in conjunction one with the other—that is to say, a factory is useful for converting surplus milk into cheese or butter when the milk trade

is overstocked, whilst the trade affords a convenient avenue for the sale of milk whenever this may happen to be preferable to the making of cheese or butter. Extensive dealers in milk arrange for its conversion into cheese or butter, as the case may be, at such times as the milk market needs relief, and in this way a cheesery serves as a sort of economic safety-valve to the milk trade. The same cannot always be said of creameries, because the machine-skimmed milk of some of these establishments has been far too much used to the prejudice of the legitimate milk trade in urban districts. Be this as it may, the operations of cheeseries and creameries in conjunction with the milk trade have led to the diminution of home dairying. A rapidly increasing population has maintained, and probably increased, its consumption of milk, which has obviously diminished the farmhouse production of cheese, and also of butter. The foreign competitor has been less successful with cheese than with butter, for he is unable to produce an article qualified to compete with the best that is made in Great Britain. In the case of butter, on the other hand, the imported article, though not ever surpassing the best home-made, is on the average much better, especially as regards uniformity of quality. Colonial and foreign producers, however, send into the British markets as a rule only the best of their butter, as they are aware that their inferior grades would but injure the reputation their products have acquired.

There are no official statistics concerning dairy factories in Great Britain, and such figures relating to Ireland were issued for the first time in 1901. The number of dairy factories in Ireland in 1900 was returned at 506, comprising 333 in Munster, 92 in Ulster, 52 in Leinster and 29 in Connaught. Of the total number of factories, 495 received milk only, 9 milk and cream and 2 cream only. As to ownership, 219 were joint-stock concerns, 190 were maintained by co-operative farmers and 97 were proprietary. In the year ended 30th September 1900 these factories used up nearly 121 million gallons of milk, namely, 94 in Munster, 14 in Ulster, 7 in Leinster and 6 in Connaught. The number of centrifugal cream-separators in the factories was 985, of which 889 were worked by steam, 79 by water, 9 by horse-power and 8 by hand-power. The number of hands permanently employed was 3653, made up of 976 in Munster, 279 in Leinster, 278 in Ulster and 120 in Connaught. The year's output was returned at 401,490 cwt. of butter, 439 cwt. of cheese (made from whole milk) and 46,253 gallons of cream. In most cases the skim-milk is returned to the farmers. A return of the number of separators used in private establishments gave a total of 899, comprising 693 in Munster, 157 in Leinster, 39 in Ulster and 10 in Connaught. In factories and private establishments together as many as 1884 separators were thus accounted for. Much of the factory butter would be sent into the markets of Great Britain, though some would no doubt be retained for local consumption. A great improvement in the quality of Irish butter has recently been noticeable in the exhibits entered at the London dairy show.

Adulteration of Dairy Produce[14]

The Sale of Food and Drugs Act 1899, which came into operation on the 1st of January 1900, contains several sections relating to the trade in dairy produce in the United Kingdom. Section 1 imposes penalties in the case of the importation of produce insufficiently marked, such as (*a*) margarine or margarine-cheese, except in passages conspicuously marked "Margarine" or "Margarine-cheese"; (*b*) adulterated or impoverished butter (other than margarine) or adulterated or impoverished milk or cream, except in packages or cans conspicuously marked with a name or description indicating that the butter or milk or cream has been so treated; (*c*) condensed separated or skimmed milk, except in tins or other receptacles which bear a label whereon the words "machine-skimmed milk" or "skimmed milk" are printed in large and legible type. For the purposes of this section an article of food is deemed to be adulterated or impoverished if it has been mixed with any other substance, or if any part of it has been abstracted, so as in either case to affect injuriously its quality, substance, or nature; provided that an article of food shall not be deemed to be adulterated by reason only of the addition of any preservative or colouring matter of such a nature and in such quantity as not to render the article injurious to health. Section 7 provides that every occupier of a manufactory of margarine or margarine-cheese, and every wholesale dealer in such substances, shall keep a register showing the quantity and destination of each consignment of such substances sent out from his manufactory or place of business, and this register shall be open to the inspection of any officer of the board of agriculture. Any such officer shall have power to enter at all reasonable times any such manufactory, and to inspect any process of manufacture therein, and to take samples for analysis. Section 8 is of much practical importance, as it limits the quantity of butter-fat which may be contained in margarine; it states that it shall be unlawful to manufacture, sell, expose for sale or import any margarine the fat of which contains more than 10% of butter-fat, and every person who manufactures, sells, exposes for sale or imports any margarine which contains more than that percentage shall be guilty of an offence under the Margarine Act 1887. For the purposes of the act *margarine-cheese* is defined as "any substance, whether compound or otherwise, which is prepared in imitation of cheese, and which contains fat not derived from milk"; whilst *cheese* is defined as "the substance usually known as cheese, containing no fat derived otherwise than from milk." The so-called "filled" cheese of American origin, in which the butter-fat of the milk is partially or wholly replaced by some other fat, would come under the head of "margarine-cheese." In making such cheese a cheap form of fat, usually of animal origin, but sometimes vegetable, is added to and incorporated with the skim-milk, and thus takes the place previously occupied by the genuine butter-fat. The act is regarded by some as defective in that it does not prohibit the artificial colouring of margarine to imitate butter.

In connexion with this act a departmental committee was appointed in 1900 "to inquire and report as to what regulations, if any, may with advantage be made by the board of agriculture under section 4 of the Sale of Food and Drugs Act 1899, for determining what deficiency in any of the normal constituents of genuine milk or cream, or what addition of extraneous matter or proportion of water, in any sample of milk (including condensed milk) or cream, shall for the purposes of the Sale of Food and Drugs Acts 1875 to 1899, raise a presumption, until the contrary is proved, that the milk or cream is not genuine." Much evidence of the highest interest to dairy-farmers was taken, and subsequently published as a Blue-Book (Cd. 484). The report of the committee (Cd. 491) included the following "recommendations," which were signed by all the members excepting one:—

I. That regulations under section 4 of the Food and Drugs Act 1899 be made by the board of agriculture with respect to milk (including condensed milk) and cream.

II.

(*a*) That in the case of any milk (other than skimmed, separated or condensed milk) the total milk-solids in which on being dried at 100° C. do not amount to 12% a presumption shall be raised, until the contrary is proved, that the milk is deficient in the normal constituents of genuine milk.

(*b*) That any milk (other than skimmed, separated or condensed milk) the total milk-solids in which are less than 12%, and in which the amount of milk-fat is less than 3.25%, shall be deemed to be deficient in milk-fat as to raise a presumption, until the contrary is proved, that it has been mixed with separated milk or water, or that some portion of its normal content of milk-fat has been removed. In calculating the percentage amount of deficiency of fat the analyst shall have regard to the above-named limit of 3.25% of milk-fat.

(*c*) That any milk (other than skimmed, separated or condensed milk) the total milk-solids in which are less than 12%, and in which the amount of non-fatty milk-solids is less than 8.5%, shall be deemed to be so deficient in normal constituents as to raise a presumption, until the contrary is proved, that it has been mixed with water. In calculating the percentage amount of admixed water the analyst shall have regard to the above-named limit of 8.5% of non-fatty milk-solids, and shall further take into account the extent to which the milk-fat may exceed

3.25%.

III. That the artificial thickening of cream by any addition of gelatin or other substance shall raise a presumption that the cream is not genuine.

IV. That any skimmed or separated milk in which the total milk-solids are less than 9% shall be deemed to be so deficient in normal constituents as to raise a presumption, until the contrary is proved, that it has been mixed with water.

V. That any condensed milk (other than that labelled "machine-skimmed milk" or "skimmed milk," in conformity with section 11 of the Food and Drugs Act 1899) in which either the amount of milk-fat is less than 10%, or the amount of non-fatty milk-solids is less than 25%, shall be deemed to be so deficient in some of the normal constituents of milk as to raise a presumption, until the contrary is proved, that it is not genuine.

The committee further submitted the following expressions of opinion on points raised before them in evidence:—

(*a*) That it is desirable to call the attention of those engaged in the administration of the Food and Drugs Acts to the necessity of adopting effective measures to prevent any addition of water, separated or condensed milk, or other extraneous matter, for the purpose of reducing the quality of genuine milk to any limits fixed by regulation of the board of agriculture.

(*b*) That it is desirable that steps should be taken with the view of identifying or "ear-marking" separated milk by the addition of some suitable and innocuous substance, and by the adoption of procedure similar to that provided by section 7 of the Food and Drugs Act 1899, in regard to margarine.

(*c*) That it is desirable that, so far as may be found practicable, the procedure adopted in collecting, forwarding, and retaining pending examination, samples of milk (including condensed milk) and cream under the Food and Drugs Acts should be uniform.

(*d*) That it is desirable that, so far as may be found practicable, the methods of analysis used in the examination of samples of milk (including condensed milk) or cream taken under the Food and Drugs Acts should be uniform.

(*e*) That it is desirable in the case of condensed milk (other than that labelled "machine-skimmed milk" or "skimmed milk," in conformity with section 11 of the Food and Drugs Act 1899) that the label should state the amount of dilution required to make the proportion of milk-fat equal to that found in uncondensed milk containing not less than 3.25% of milk-fat.

(*f*) That it is desirable in the case of condensed whole milk to limit, and in the case of condensed machine-skimmed milk to exclude, the addition of sugar.

(*g*) That the official standardizing of the measuring vessels commercially used in the testing of milk is desirable.

In the minority report, signed by Mr Geo. Barham, the most important clauses are the following:—

(*a*) That in the case of any milk (other than skimmed, separated or condensed milk) the total milk-solids in which are less than 11.75%, and in which, during the months of July to February inclusive, the amount of milk-fat is less than 3%, and in the case of any milk which during the months of March to June inclusive shall fall below the above-named limit for total solids, and at the same time shall contain less than 2.75% of fat, it shall be deemed that such milk is so deficient in its normal constituent of fat as to raise a presumption, for the purposes of the Sale of Food and Drugs Acts 1875 to 1899, until the contrary is proved, that the milk is not genuine.

(*b*) That any milk (other than skimmed, separated or condensed milk) the total milk-solids in which are less than 11.75%, and in which the amount of non-fatty solids is less than 8.5%, shall be deemed to be so deficient in its normal constituents as to raise a presumption, for the purposes of the Sale of Food and Drugs Acts 1875 to 1899, until the contrary is proved, that the milk is not genuine. In calculating the amount of the deficiency the analyst shall take into account the extent to which the milk-fat exceeds the limits above named.

(*c*) That any skimmed or separated milk in which the total milk-solids are less than 8.75% shall be deemed to be so deficient in its normal constituents as to raise a presumption, for the purpose of the Sale of Food and Drugs Acts 1875 to 1899, until the contrary is proved, that the milk is not genuine.

Much controversy arose out of the publication of these reports, the opinion most freely expressed being that the standard recommended in the majority report was too high. The difficulty of the problem is illustrated by, for example, the diverse legal standards for milk that prevail in the United States, where the prescribed percentage of fat in fresh cows' milk ranges from 2.5 in Rhode Island to 3.5 in Georgia and Minnesota, and 3.7 (in the winter months) in Massachusetts, and the prescribed total solids range from 12 in several states (11.5 in Ohio during May and June) up to 13 in others. Standards are recognized in twenty-one of the states, but the remaining states have no laws prescribing standards for dairy products. That the public discussion of the reports of the committee was effective is shown by the following regulations which appeared in the *London Gazette* on the 6th of August 1901, and fixed the limit of fat at 3%:—

The board of agriculture, in exercise of the powers conferred on them by section 4 of the Sale of Food and Drugs Act 1899, do hereby make the following regulations:—

1. Where a sample of milk (not being milk sold as skimmed, or separated or condensed milk) contains less than 3% of milk-fat, it shall be presumed for the purposes of the Sale of Food and Drugs Acts 1875 to 1899, until the contrary is proved, that the milk is not genuine, by reason of the abstraction therefrom of milk-fat, or the addition thereto of water.

2. Where a sample of milk (not being milk sold as skimmed, or separated or condensed milk) contains less than 8.5% of milk-solids other than milk-fat, it shall be presumed for the purposes of the Sale of Food and Drugs Acts 1875 to 1899, until the contrary is proved, that the milk is not genuine, by reason of the abstraction therefrom of milk-solids other than milk-fat, or the addition thereto of water.

3. Where a sample of skimmed or separated milk (not being condensed milk) contains less than 9% of milk-solids, it shall be presumed for the purposes of the Sale of Food and Drugs Acts 1875 to 1899, until the contrary is proved, that the milk is not genuine, by reason of the abstraction therefrom of milk-solids other than milk-fat, or the addition thereto of water.

4. These regulations shall extend to Great Britain.

5. These regulations shall come into operation on the 1st of September 1901.

6. These regulations may be cited as the Sale of Milk Regulations 1901.

In July 1901 another departmental committee was appointed by the board of agriculture to inquire and report as to what regulations, if any, might with advantage be made under section 4 of the Sale of Food and Drugs Act 1899, for determining what deficiency in any of the normal constituents of butter, or what addition of extraneous matter, or proportion of water in any sample of butter should, for the purpose of the Sale of Food and Drugs Acts, raise a presumption, until the contrary is proved, that the butter is not genuine. As bearing upon this point reference may be made to a report of the dairy division of the United States department of agriculture on experimental exports of butter, in the appendix to which are recorded the results of the analyses of many samples of butter of varied origin. First, as to American butters, 19 samples were

analysed in Wisconsin, 17 in Iowa, 5 in Minnesota and 2 in Vermont, at the respective experiment stations of the states named. The amount of moisture throughout was low, and the quantity of fat correspondingly high. In no case was there more than 15% of water, and only 4 samples contained more than 14%. On the other hand, 11 samples had less than 10%, the lowest being a pasteurized butter from Ames, Iowa, with only 6.72% of water. The average amount of water in the total 43 samples was 11.24%. The fat varies almost inversely as the water, small quantities of curd and ash having to be allowed for. The largest quantity of fat was 91.23% in the sample containing only 6.72% of water. The lowest proportion of fat was 80.18%, whilst the average of all the samples shows 85.9%, which is regarded as a good market standard. The curd varied from 0.55 to 1.7%, with an average of 0.98. This small amount indicates superior keeping qualities. Theoretically there should be no curd present, but this degree of perfection is never attained in practice. It was desired to have the butter contain about 2½% of salt, but the quantity of ash in the 43 samples ranged from 0.83 to 4.79%, the average being 1.88. Analyses made at Washington of butters other than American showed a general average of 13.22% of water over 28 samples representing 14 countries. The lowest were 10.25% in a Canadian butter and 10.38 in an Australian sample. The highest was 19.1% in an Irish butter, which also contained the remarkably large quantity of 8.28% of salt. Three samples of Danish butter contained 12.65, 14.27 and 15.14% respectively of water. French and Italian unsalted butter included, the former 15.46 and the latter 14.41% of water, and yet appeared to be unusually dry. In 7 samples of Irish butters the percentages of water ranged from 11.48 to 19.1. Of the 28 foreign butters 15 were found to contain preservatives. All 5 samples from Australia, the 2 from France, the single ones from Italy, New Zealand, Argentina, and England, and 4 out of the 7 from Ireland, contained boric acid.

The Milk Trade

The term “milk trade” has come to signify the great traffic in country milk for the supply of dwellers in urban districts. Prior to 1860 this traffic was comparatively small or in its infancy. Thirty years earlier it could not have been brought into existence, for it is an outcome of the great network of railways which was spread over the face of the country in the latter half of the 19th century. It affords an instructive illustration of the process of commercial evolution which has been fostered by the vast increase of urban population within the period indicated. It is a tribute to the spirit of sanitary reform which—as an example in one special direction—has brought about the disestablishment of urban cow-sheds and the consequent demand for milk produced in the shires. London, in fact, is now being regularly supplied with fresh milk from places anywhere within 150 m., and the milk traffic on the railways, not only to London but to other great centres, is an important item. A factor in the development of the milk trade must no doubt be sought in the outbreak of cattle plague in 1865, for it was then that the dairymen of the metropolis were compelled to seek milk all over England, and the capillary refrigerator being invented soon after, the production of milk has remained ever since in the hands of dairymen living mainly at a distance from the towns supplied.

This great change in country dairying, involving the continuous export of enormous quantities of milk from the farms, has been accompanied by subsidiary changes in the management of dairy-farms, and has necessitated the extensive purchase of feeding-stuffs for the production of milk, especially in winter-time. It is probable that, in this way, a gradual improvement of the soil on such farms has been effected, and the corn-growing soils of distant countries are adding to the store of fertility of soils in the British Isles. Country roads, exposed to the wear and tear of a comparatively new traffic, are lively at morn and eve with the rattle of vehicles conveying fresh milk from the farms to the railway stations. Most of these changes were brought about within the limits of the last third of the 19th century.

In the case of London the daily supply of a perishable article such as milk, which must be delivered to the consumer within a few hours of its production, to a population of five millions, is an undertaking of very great magnitude, especially when it is considered that only a comparatively minute proportion of the supply is produced in the metropolitan area itself. To meet the demand of the London consumer some 5000 dairies proper exist, as well as a large number of businesses where milk is sold in conjunction with other commodities. It has been computed that some 12,000 traders are engaged in the business of milk-selling in the metropolis, and the number of persons employed in its distribution, &c., cannot be fewer than 25,000. The amount of capital involved is very great, and it may be mentioned that the paid-up capital of six of the principal distributing and retail dairy companies amounts to upwards of one million sterling. The most significant feature in connexion with the milk-supply of the metropolis at the beginning of the 20th century is the gradual extinction of the town “cowkeeper”—the retailer who produces the milk he sells. The facilities afforded by the railway companies, the favourable rates which have been secured for the transport of milk, and the more enlightened methods of its treatment after production, have made it possible for milk produced under more favourable conditions to be brought from considerable distances and delivered to the retailer at a price lower than that at which it has been possible to produce it in the metropolis itself. As a result, the number of milk cows in the county of London diminished from 10,000 in 1889 to 5144 in 1900, the latter, on an estimated production of 700 gallons per cow—the average production of stall-fed town cows—representing a yearly milk yield of 3,600,000 gallons. How small a proportion this is of the total supply will be gathered from the fact that the annual quantity of milk delivered in London on the Great Western line amounts to some 11,000,000 gallons, whilst the London & North-Western railway delivers 9,000,000, and the Midland railway at St Pancras 5,000,000, and at others of its London stations about 1,000,000, making 6,000,000 in all. The London & South-Western railway brings upwards of 8,000,000 gallons to London, a quantity of 7,500,000 gallons is carried by the Great Northern railway, and the Great Eastern railway is responsible for 7,000,000. The London, Brighton & South Coast railway delivers 1,000,000 gallons, and the South-Eastern & Chatham and the London & Tilbury railways carry approximately 1,000,000 gallons between them. A large quantity of milk is also carried in by local lines from farms in the vicinity of London and delivered at the local stations, and a quantity is also brought by the Great Central railway. In addition to this, milk is taken into London by carts from farms in the neighbourhood of the metropolis. A computation of the total milk-supply of the metropolis reveals a quantity approximating to 60,000,000 gallons per annum, or rather more than a million gallons per week, which, taking 500 gallons as the average yearly production of the cows contributing to this supply, represents the yield of at least 120,000 cows. The growth of the supply of country milk to London may be judged from the figures given by Mr George Barham, chairman of the Express Dairy Co. Ltd., in an article on “The Milk Trade” contributed to Professor Sheldon’s work on *The Farm and Dairy*. The quantities carried by the respective railways in 1889 are therein stated in gallons as:—Great Western, 9,000,000; London & North-Western, 7,000,000; Midland, 7,000,000; London & South-Western, 6,000,000; Great Northern, 3,000,000; Great Eastern, 3,000,000; the southern lines, 2,000,000. The increase, therefore, on these lines amounted to no less than 13,500,000 gallons per annum, or 36%. The diminished production in the metropolis itself amounted approximately only to 3,000,000 gallons, and it follows, therefore, that the consumption largely increased.

Previously to 1864 it was only possible to bring milk into London from short distances, but the introduction of the refrigerator has enabled milk to be brought from places as far removed from the metropolis as North Staffordshire, and it has even been received from Scotland. Practically the whole of the milk supplied to the metropolis is produced in England. Attempts have been made to introduce foreign milk, and in 1898 a company was formed to promote the sale of fresh milk from Normandy, but the enterprise did not succeed. The trade subsequently showed signs of reviving, owing probably to the increased cost of the home produced article, and during the winter season of 1900-1901 the largest quantity received into the kingdom in one week amounted to 10,000 gallons. Of recent years a large demand has sprung up for sterilized milk in bottles, and a considerable trade is also done in humanized milk, which is a milk preparation approximating in its chemical composition to human milk.

Estimating the average yield of milk of each country cow at 500 gallons per annum, and assuming an average of 28 cows to each farm, as many as 4300 farmers are engaged in supplying London with milk; allotting ten cows to each milker, it needs 12 battalions of 1000 men each for this work alone. Some 3500 horses are required to convey the milk from the farms to the country railway stations. The chief sources of supply are in the counties of Derby, Stafford, Leicester, Northampton, Notts, Warwick, Bucks, Oxford, Gloucester, Berks, Wilts, Hants, Dorset, Essex, and Cambridge. It is not entirely owing to the railways that London's enormous supply of milk has been rendered possible, for the milk must still have been produced in the immediate neighbourhood of the metropolis had not the method of reducing the temperature of the product by means of the refrigerator been devised. There are probably 5700 horses engaged in the delivery of milk in London, and more people are employed in this work than in milking the cows. One of the great difficulties the London dairyman has to contend with, and a cause of frequent anxiety to him, is associated with the rise and fall of the thermometer, for a movement to the extent of ten degrees one way or the other may diminish or increase the supply in an inverse ratio to the demand. Thus, at periods of extreme cold, the cows shrink in their yield of milk, while from the same cause the Londoner is demanding more, in an extra cup of coffee, &c. Again, at periods of extreme heat, which has the same effect on the cow's production as extreme cold, the customer also demands an increased quantity of milk. Ten degrees fall of temperature in the summer will result in a lessened demand and an enlarged supply—to such an extent, indeed, that a single firm has been known to have had returned by its carriers some 600 gallons in one day. In such cases the cream separator is capable of rendering invaluable assistance. To make cheese in London in large quantities and at uncertain intervals has been found to be impracticable, while to set for cream a great bulk of milk is almost equally so. But now a considerable portion of what would otherwise be lost is saved by passing the milk through separators, and churning the cream into butter.

Previously to the enormous development of the urban trade in country milk, dairy farms were in the main self-sustaining in the matter of manures and feeding-stuffs, and the cropping of arable land was governed by routine. To-day, on the contrary, many dairy farms are run at high pressure by the help of purchased materials,—corn, cake, and manure,—and the land is cropped regardless of routine and independent of courses. Such crops, moreover, are grown—white straw crops, green crops, root crops—as are deemed likely to be most needed at the time when they are ready. Green crops, —"soiling" crops, as they are termed in North America,—consisting largely of vetches or tares (held up by stalks of oat plants grown amongst them), cabbages, and in some districts green maize, are used to supplement the failing grass-lands at the fall of the year, and root crops, especially mangel, are advantageously grown for the same purpose. For winter feeding the farm is made to yield what it will in the shape of meadow and clover hay, and of course root crops of the several kinds. This provision is supplemented by the purchase of, for example, brewers' grains as a bulky food, and of oilcake and corn of many sorts as concentrated food.

Table XI.—*Estimated Annual Production of Milk, Butter and Cheese in the United Kingdom for the Ten Years ended 31st December 1899.*

Year ended December 31.	Cows and Heifers in Milk or in Calf on 4th June.	Cows per 1000 of Popu-lation.	Cows and Heifers giving Milk all the year round; say 75% of Total.	Influence of Season. Percentage above or below the Average of previous 10 Years.	Estimated Total Quantity of Milk produced in the 52 Weeks, by 75% of the Total Herd, at 49 cwt. or 531 gallons per Cow.	Estimated Total Quantity of Butter produced in the 52 Weeks, taking 32% of the Total Milk to yield 80 lb of Butter per Ton of Milk.	Estimated Total Quantity of Cheese produced in the 52 Weeks, taking 20% of the Total Milk to yield 220 lb of Cheese per Ton of Milk.
	No.	No.	No.	%.	Tons.	Tons.	Tons.
1890	3,956,220	105.5	2,967,165	+3.0	7,487,640	85,572	147,078
1891	4,117,707	108.9	3,088,281	Average.	7,566,288	86,472	148,624
1892	4,120,451	108.1	3,090,339	−5.6	7,147,337	81,684	140,394
1893	4,014,055	104.4	3,010,542	−9.0	6,712,004	76,709	131,843
1894	3,925,486	101.2	2,944,115	+6.3	7,667,505	87,628	150,611
1895	3,937,590	100.5	2,953,193	−3.5	6,982,087	79,652	137,148
1896	3,958,762	100.0	2,969,387	−4.0	6,983,999	79,817	130,000
1897	3,984,167	99.7	2,988,126	+3.1	7,547,856	86,261	148,260
1898	4,035,501	100.0	3,025,526	+3.2	7,645,105	87,372	150,171
1899	4,133,249	101.9	3,099,937	−3.5	7,329,027	83,760	130,020
10 *Years' Average*	4,018,318	103.0	3,013,660	−0.7	7,906,874	83,992	141,412

British Output, Imports and Exports of Dairy Produce

Whilst the quantity of imported butter and cheese consumed in the United Kingdom from year to year can be arrived at with a tolerable degree of accuracy, it is more difficult to form an estimate of the amounts of these articles annually produced at home. Various attempts have, however, from time to time been made by competent authorities to arrive approximately at the annual output of milk, butter and cheese in the United Kingdom, and the results are given by Messrs W. Weddel & Co. in their annual *Dairy Produce Review*. Table XI. shows the estimates for each of the ten years 1890 to 1899, the numbers in the second column of "cows and heifers in milk or in calf" being identical with those officially recorded in the agricultural returns. In thus estimating the quantity of milk, butter and cheese produced within the United Kingdom, the "average milking life" of a cow is taken to be four years, from which it follows that on the average one-fourth of the total herd has to be renewed every year by heifers with their first calf. This leaves 75% of the total herd giving milk throughout the year. Each cow of this 75% is estimated as yielding 49 cwt., or 531 gallons of milk annually. It is assumed that 15% of the total milk yield is used for the calf, 32% utilized for butter-making, 20% for cheese-making, and the remaining 33% consumed in the household as fresh milk. A ton of milk is estimated to produce 80 lb of butter or 220 lb of cheese. A gallon of milk weighs 10.33 lb (10⅓ lb). The probable effects of each season upon the production have been taken into consideration in making these estimates, and it will be noticed that owing to the terrible drought of 1893 a reduction of 9% is made from the average. Accepting these estimates with due reservation,[15] it is seen that the annual production of milk varied in the decade to the extent of nearly a million tons, the exact difference between the maximum of 7,667,505 tons in 1894 and the minimum of 6,712,004 tons in 1893 being 955,501 tons. The decennial averages are 7,906,874 tons of milk, 83,992 tons of butter, and 141,412 tons of cheese.

Table XII. furnishes an estimate of the total consumption of butter in the United Kingdom in each of the years 1891 to 1900. Whilst the estimated home production did not vary greatly from year to year, the imports from colonial and foreign sources underwent almost continuous increase. The ten years' average indicates 37.6% home-made, 7.3% imported colonial, and 55.1% imported foreign butter. But whereas at the beginning of the decade the proportions were 45.4% home-made, 1.5% colonial, and 53.2% foreign, at the end of the percentages were 32.8, 14.7 and 52.5 respectively. It thus appears that whilst the United Kingdom was able in 1891 to furnish nearly half of its requirements (45.4%), by 1900 it was unable to supply more than one-third (32.8%).

TABLE XII.—*Estimated Home Production and Imports of Butter into the United Kingdom for the Ten Years ended 30th June 1900.*

Year ended 30th June.	Home Production, *estimated.*	Imported Colonial.	Imported Foreign.	Total.
	Tons.	Tons.	Tons.	Tons.
1891	84,961	2,883	99,598	187,442
1892	86,022	6,323	101,796	194,141
1893	84,078	9,408	105,712	199,198
1894	79,196	15,550	107,534	202,280
1895	82,168	17,807	116,730	216,705
1896	83,640	12,949	133,249	229,838
1897	79,734	18,111	138,800	236,645
1898	83,039	17,732	141,426	242,197
1899	87,326	22,443	142,193	251,962
1900	83,760	37,534	133,957	255,251
10 *Years' Average*	83,392	16,074	122,099	221,565

The rapid headway which colonial butter has made in British markets is shown by the fact that for the five years ended 30th of June 1900 the import had grown from 12,949 tons to 37,534 tons per annum, or an increase of 24,585 tons. It is during the mid-winter months that the colonial butter from Australasia arrives on the British markets, while that from Canada begins to arrive in July, and virtually ceases in the following January. The bulk of the Canadian butter reaches British markets during August, September and October; the bulk of the Australasian in December, January and February.

It appears to be demonstrated by the experience of the last decade of the 19th century that the United Kingdom is quite unable to turn out sufficient dairy produce to supply its own population. In the year ended 30th of June 1891 the total import of butter was 102,500 tons, and for the year ended 30th of June 1900 it was 170,700 tons, which shows an annual average increase in the decade of 6800 tons. This growth was on the whole very uniform, any disturbance in its regularity being attributable more to the deficient seasons in the colonies and foreign countries than to the bountiful seasons at home. Twice in the decade the import of butter from colonial sources fell off slightly from the previous year, namely, in 1896 and 1898, while only once was there any decrease in the foreign supply, and this occurred in 1900. In 1896 the colonial supply fell off by 5000 tons, principally owing to drought in Australia, but from foreign countries this deficiency was more than made good, as the increased import from these sources exceeded 16,500 tons. In 1900 the position was reversed, for while the foreign import fell away to the extent of over 8000 tons, the supply from the colonies exceeded that of 1899 by 15,000 tons, thus leaving a gain in the quantity of imported butter of nearly 7000 tons on the year. Table XII. shows that over the ten years, 1891-1900, the import of colonial butter was augmented by 34,600 tons, and that of foreign by 33,600 tons, so that the increased import is fairly divided between colonial and foreign sources. If, however, the last five years of the period be taken, it will be seen that the increases in the arrivals of colonial butter have far exceeded those from foreign countries. Between 1891 and 1900 the Australasian colonies increased their quota by 13,400 tons, and Canada by 11,100 tons. Of foreign countries, Denmark showed the greatest development in the supply of imported butter, which increased in the ten years by 28,678 tons. Next came Russia and Holland, with increases respectively of 7207 tons and 6589 tons. Sweden, which made steady progress from 1891 to 1896, subsequently declined, and in 1900 sent 1400 tons less than in 1891. France and Germany are rapidly falling away, and the latter country will soon cease its supply altogether. Up to 1896 it was 6000 tons annually; by 1900 it had fallen to 1850 tons. France, which in 1892 sent to the United Kingdom 29,000 tons, regularly declined, and in 1900 sent only 16,800. Among the countries sending the smaller quantities, Argentina, Belgium and Norway are all gradually increasing their supplies; but their totals are comparatively insignificant, as they together contributed in 1900 only 6400 tons out of a total foreign supply of 134,000 tons. The United States was erratic in its supplies during the decade, and up to 1900 had not made butter specially for export to the United Kingdom, as all the other foreign countries had done. Consequently it is only when supplies from elsewhere fail that American butter is sought for by British buyers. The large amount of salt in this butter, although suitable for the American palate, prevents its becoming popular in the United Kingdom.

TABLE XIII.—*Annual Imports of Butter into the United Kingdom, 1897-1900.*

From	1897.	1898.	1899.	1900.
	Cwt.	Cwt.	Cwt.	Cwt.
Denmark	1,334,726	1,465,030	1,430,052	1,486,342
Australasia	269,432	228,563	366,944	509,910
France	448,128	416,821	353,942	322,048
Holland	278,631	269,631	284,810	282,805
Russia*	..	..	..	209,738
Sweden	299,214	294,962	245,599	196,041
Canada	109,402	156,865	250,083	138,313
United States	154,196	66,712	159,137	56,046
Germany	51,761	41,231	36,953	36,042
Other countries	272,312	269,645	262,331	141,231
Total	3,217,802	3,209,153	3,389,851	3,378,516
	%	%	%	%
Denmark	41.5	45.6	42.2	44.0
Australasia	8.4	7.1	10.8	15.1
France	13.9	13.0	10.5	9.5
Holland	8.7	8.4	8.4	8.4
Russia*	..	..	..	6.2
Sweden	9.3	9.2	7.2	5.8
Canada	3.4	4.9	7.4	4.1
United States	4.8	2.1	4.7	1.6
Germany	1.6	1.3	1.1	1.1
Other countries	8.4	8.4	7.7	4.2
Total	100.0	100.0	100.0	100.0

* Not shown separately in the Trade and Navigation Returns prior to 1900.

The sources whence the United Kingdom receives butter from abroad are sufficiently indicated in Table XIII., which shows the absolute quantities and the relative proportions sent by the chief contributory countries in each of the four years 1897 to 1900, the order of precedence of the several countries being in accord with the figures for 1900. Denmark, as a

result of the efforts made by that little kingdom to supply a sound product of uniform quality, possesses over 40% of the trade, and in the year 1900 received from the United Kingdom upwards of £8,000,000 for butter and over £3,000,000 for bacon, the raising of pigs for the consumption of separated milk being an important adjunct of the dairying industry in Denmark, where butter factories are extensively maintained on the co-operative principle. It is worthy of note that some at least of the butter received in the United Kingdom from Russia is made in Siberia, whence it is sent at the outset on a long land journey in refrigerated railway cars for shipment at a Baltic port, usually Riga. The countries not specially enumerated in Table XIII. from which butter is sent to the United Kingdom are Argentina, Belgium, Norway and Spain—these are included in "other countries."

In Table XIV., relating to the estimated home production of cheese and the imports of that article, the ten years' average indicates a home-made supply of 555.3%, imports of colonial cheese 24.2%, and imports of foreign cheese 20.5%. Comparing, however, the first with the last year of the period 1891-1900, it appears that in 1891 the proportions were 58.6% home-made, 17.2% colonial and 24.2% foreign, whereas in 1900 the percentages were 50.3, 28.9 and 20.8 respectively. Hence the colonial contribution (chiefly Canadian) has gained ground at the expense both of the home-made and of the foreign. Again, comparing 1891 with 1900, the import of cheese into the United Kingdom increased to the extent of only 24,500 tons, so that it shows no expansion comparable with that of butter, which increased by about 70,000 tons. Simultaneously the estimated home production diminished by 17,000 tons.

TABLE XIV.—*Estimated Home Production and Imports of Cheese into the United Kingdom for the Ten Years ended 30th June 1900.*

Year ended 30th June.	Home Production, *estimated.*	Imported Colonial.	Imported Foreign.	Total.
	Tons.	Tons.	Tons.	Tons.
1891	147,078	43,228	60,816	251,122
1892	148,624	45,781	59,452	253,857
1893	140,394	55,549	56,767	252,710
1894	131,843	57,322	52,498	241,663
1895	150,611	61,622	52,570	264,803
1896	137,148	62,478	44,569	244,195
1897	130,000	67,028	46,317	243,345
1898	148,260	77,620	49,114	274,994
1899	150,000	73,752	46,985	270,737
1900	130,000	74,702	53,903	258,605
10 Years' Average	141,396	61,908	52,299	255,603

In imported colonial cheese Canada virtually has the field to itself, for the only other colonial cheese which finds its way into the United Kingdom is from New Zealand, but the amount of this kind is comparatively insignificant, having been in 1900 only 4000 tons out of a total import of 128,600 tons. Australia, in several seasons since 1891, sent small quantities, but they are not worth quoting.

From foreign countries the decline in the export of cheese is mainly in the case of the United States, which shipped to British ports 10,000 tons less in 1900 than in 1891. France also is losing its cheese trade in British markets, and is being supplanted by Belgium. In 1891 France supplied over 3000 tons, in 1900 the import was below 2000 tons. Belgium in 1891 supplied less than 1000 tons, but in 1900 contributed 2600 tons. The import trade in Dutch cheese remains almost stationary. In 1891 it amounted to 15,300 tons, in 1899 it was 15,600 tons, whilst in 1900, owing to exceptionally high prices, which stimulated the manufacture, it reached 17,000 tons.

TABLE XV.—*Annual Imports of Cheese into the United Kingdom, 1897-1900.*

From	1897.	1898.	1899.	1900.
	Cwt.	Cwt.	Cwt.	Cwt.
Canada	1,526,664	1,432,181	1,337,198	1,511,872
United States	631,616	485,995	590,737	680,583
Holland	297,604	292,925	328,541	327,817
Australasia	68,615	44,608	32,294	86,513
France	36,358	33,086	34,307	35,110
Other countries	42,321	50,657	60,992	69,910
Total	2,603,178	2,339,452	2,384,069	2,711,805
	%	%	%	%
Canada	58.6	61.2	56.1	55.8
United States	24.3	20.8	24.8	25.1
Holland	11.4	12.5	13.8	12.0
Australasia	2.7	1.9	1.3	3.2
France	1.4	1.4	1.4	1.3
Other countries	1.6	2.2	2.6	2.6
Total	100.0	100.0	100.0	100.0

Over 80% of the cheese imported into the United Kingdom is derived from North America, but the bulk of the trade belongs to Canada, which supplies nearly 60% of the entire import. The value of the cheese exported from Canada to the United Kingdom in the calendar year 1900 was close upon £3,800,000. As is shown in Table XV. below, Holland, Australasia and France participate in this trade, whilst amongst the "other countries" are Germany, Italy and Russia. The cheese sent from North America and Australasia is mostly of the substantial Cheddar type, whereas soft or "fancy" cheese is the dominant feature of the French shipments. Thus, in the calendar year 1900 the average price of the cheese imported into the United Kingdom from France was 61s. per cwt., whilst the average value of the cheese from all other sources was 50s. per cwt., there being a difference of 11s. in favour of the "soft" cheese of France.

The imports of butter and margarine into the United Kingdom were not separately distinguished before the year 1886. Previous to that date they amounted, at five-year intervals, to the following aggregate quantities:—

	1870.	1875.	1880.	1885.
Cwt.	1,159,210	1,467,870	2,326,305	2,401,373

For the same years the imports of cheese registered the subjoined totals:—

	1870.	1875.	1880.	1885.
Cwt.	1,041,281	1,627,748	1,775,997	1,833,832

The imports of butter and margarine, both separately and together, and also the imports of cheese in each year from 1886 to 1900 inclusive, are set out in Table XVI., the most significant feature of which is the rapid expansion it shows in the imports of butter. In the space of nine years, between 1887 and 1896, the quantity was doubled. On the other hand, the general tendency of the imports of margarine, which have been much more uniform than those of butter, has been in the direction of decline since 1892. It is necessary, however, to point out that there has been an increase in the number of margarine factories in the United Kingdom, and in the quantity of margarine manufactured in them, during the last few years. Taking the imports of butter and margarine together, the aggregate in 1889 and also in 1900 was practically three times as large as a quarter of a century earlier, in 1875. The imports of cheese have increased at a less rapid rate than those of butter, and the quantity imported in 1900, which was a maximum, fell considerably short of twice the quantity in 1875. In 1886, 1887, 1888, 1890 and 1892 the imports of cheese exceeded those of butter, but since the last-named year those of butter have always been the larger, and 1899 were fully a million cwt. more than the cheese imports. The cheapness of imported fresh meat has probably had the effect of checking the growth of the demand for cheese amongst the industrial classes.

TABLE XVI.—*Imports of Butter, Margarine and Cheese into the United Kingdom, 1886-1900.*

Year.	Butter.	Margarine.	Total Butter and Margarine.	Cheese.
	Cwt.	Cwt.	Cwt.	Cwt.
1886	1,543,566	887,974	2,431,540	1,734,890
1887	1,513,134	1,276,140	2,789,274	1,836,789
1888	1,671,433	1,139,743	2,811,176	1,917,616
1899	1,927,842	1,241,690	3,169,532	1,907,999
1890	2,027,717	1,079,856	3,107,573	2,144,074
1891	2,135,607	1,235,430	3,371,037	2,041,325
1892	2,183,009	1,305,350	3,488,359	2,232,817
1893	2,327,474	1,299,970	3,627,444	2,077,462
1894	2,574,835	1,109,325	3,684,160	2,266,145
1895	2,825,662	940,168	3,765,830	2,133,819
1896	3,037,718	925,934	3,963,652	2,244,525
1897	3,217,802	936,543	4,154,345	2,603,178
1898	3,209,153	900,615	4,343,026	2,384,069
1999	3,389,851	953,175	4,343,026	2,384,069
1900	3,378,516	920,416	4,298,932	2,711,805

The imports of condensed milk into the United Kingdom were not separately distinguished before 1888. In that year they amounted to 352,332 cwt. The quantities imported in subsequent years were the following:—

Year.	Cwt.	Year.	Cwt.	Year.	Cwt.
1889	389,892	1893	501,005	1897	756,243
1890	407,426	1894	529,465	1898	817,274
1891	444,666	1895	545,394	1899	824,599
1892	481,374	1896	611,335	1900	986,741

The quantity thus increased continuously in each year after 1889, with the result that in 1900 the imports had grown to nearly three times the amount of those in 1889. Simultaneously, over the period 1889-1900 the annual value of the imports steadily advanced from £704,849 to £1,405,033. Thus, while the imports of condensed milk trebled in quantity, they doubled in value. A fair proportion is, however, exported, as is shown in the following statement of exports of imported condensed milk for the four years 1897 to 1900:—

		1897.	1898.	1899.	1900.
Quantity,	cwt.	143,932	133,596	118,394	164,602
Value		£274,578	£256,525	£228,446	£309,460

There is also an export trade in condensed milk made in the United Kingdom. Thus, in 1892 the exports of home-made condensed milk amounted to 61,442 cwt., valued at £133,556. By 1896 the quantity had almost doubled, and reached 111,959 cwt., of the value of £224,831. In subsequent years the exports were:—

		1897.	1898.	1899.	1900.
Quantity,	cwt.	154,901	178,055	185,749	209,447
Value		£302,748	£343,070	£353,819	£390,559

Milk and cream (fresh or preserved other than condensed) received no separate classification in the imports until 1894, in which year the quantity imported was 161,633 gallons, followed by 126,995 gallons in 1895, and 22,776 gallons in 1896. The quantities have since been returned by weight—10,006 cwt. in 1897, 10,691 cwt. in 1898, 7859 cwt. in 1899, and 15,638 cwt. in 1900. The values of these imports in the successive years 1894 to 1900 were £21,371, £19,991, £5489, £9848, £11,293, £16,068 and £26,837.

The total values of the imports of dairy produce of all kinds—butter, margarine, cheese, &c.—into the United Kingdom were, at five-year intervals between 1875 and 1890, the following:—

	1875.	1880.	1885.	1890.
Value	£13,211,592	£17,232,548	£15,632,852	£19,505,798

TABLE XVII.—*Values of Dairy Products imported into the United Kingdom from 1891 to 1900, in Thousands of Pounds Sterling.*

				Condensed	

Year.	Butter.	Margarine.	Cheese.	Milk.	Total.
	£1000.	£1000.	£1000.	£1000.	£1000.
1891	11,591	3558	4813	900	20,863
1892	11,965	3713	5417	930	22,025
1893	12,754	3655	5161	1010	22,580
1894	13,457	3045	5475	1079	23,077
1895	14,245	2557	4675	1084	22,581
1896	15,344	2498	4900	1170	23,920
1897	15,917	2485	5886	1398	25,715
1898	15,962	2384	4970	1436	24,779
1899	17,214	2549	5503	1455	26,747
1900	17,450	2465	6838	1743	28,544

The values in each year of the closing decade of the 19th century are set forth in Table XVII., where the totals in the last column include small sums for margarine-cheese and, since 1893, for fresh milk and cream. The aggregate value more than doubled during the last quarter of the century. The earliest year for which the value of imported butter is separately available is 1886, when it amounted to £8,141,438. Thirteen years later this sum had more than doubled, and it is an impressive fact that in the closing year of the century the United Kingdom should have expended on imported butter alone a sum closely approximating to 17½ million pounds sterling, equivalent to about three-fourths of the total amount disbursed on imported wheat grain.[16]

The imports of margarine—that is, of margarine specifically declared to be such—into the United Kingdom are derived almost entirely from Holland. Out of a total of 920,416 cwt. imported in 1900 Holland supplied 862,154 cwt., and out of £2,464,839 expended on imported margarine in the same year Holland received £2,295,174. To the imports in the year named Holland contributed 93.7%; France, 2.9; Norway, 0.9; all other countries, 2.5; so that Holland possesses almost a monopoly of this trade. The quantities of imported butter, margarine and cheese that are again exported from the United Kingdom are trivial when compared with the imports, as will be seen from the following quantities and values in the three years 1898 to 1900:—

	1898.	1899.	1900.	1898.	1899.	1900.
	Cwt.	Cwt.	Cwt.	£	£	£
Butter	63,491	50,453	51,583	319,806	257,999	258,931
Margarine	10,023	13,139	11,326	24,721	33,319	27,882
Cheese	56,694	56,390	55,982	159,210	163,991	168,369

There is also a very small export trade in butter and cheese made in the United Kingdom, but its insignificant character is evident from the subjoined details as to quantities and values for the years named:—

	1898.	1899.	1900.	1898.	1899.	1900.
	Cwt.	Cwt.	Cwt.	£	£	£
Butter	11,359	9,936	10,127	59,731	53,195	53,701
Cheese	10,126	9,758	9,356	36,803	35,890	36,691

American Dairying

The development of the dairying industry in the vast region of the United States of America has been described in the official *Year-Book* by Major Henry E. Alvord, chief of the dairy division of the bureau of animal industry in the department of agriculture at Washington. The beginning of the 20th century found the industry upon an altogether higher level than seemed possible a few decades earlier. The milch cow herself, upon which the whole business rests, has become almost as much a machine as a natural product, and a very different creature from the average animal of bygone days. The few homely and inconvenient implements for use in the laborious duties of the dairy have been replaced by perfected appliances, skilfully devised to accomplish their object and to lighten labour. Long rows of shining metal pans no longer adorn rural dooryards. The factory system of co-operative or concentrated manufacture has so far taken the place of home dairying that in entire states the cheese vat or press is as rare as the handloom, and in many counties it is as difficult to find a farm churn as a spinning-wheel. An illustration of the nature of the changes is afforded in the butter-making district of northern Vermont, at St Albans, the business centre of Franklin county. In 1880 the first creamery was built in this county; ten years later there were 15. Now a creamery company at St Albans has upwards of 50 skimming or separating stations distributed through Franklin and adjoining counties. To these is carried the milk from more than 30,000 cows. Farmers who possess separators at home may deliver cream which, after being inspected and tested, is accepted and credited at its actual butter value, just as other raw material is sold to mills and factories. The separated cream is conveyed by rail and waggon to the central factory, where in one room from 10 to 12 tons of butter are made every working day—a single churning place for a whole county! The butter is all of standard quality, “extra creamery,” and is sold on its reputation upon orders received in advance of its manufacture. The price is relatively higher than the average for the product of the same farms fifty years earlier. This is mainly due to better average quality and greater uniformity—two important advantages of the creamery system.

In one important detail dairy labour is the same as a century ago. Cows still have to be milked by hand. Although many attempts have been made, and patent after patent has been issued, no mechanical contrivance has yet proved a practical success as a substitute for the human hand in milking. Consequently, twice (or thrice) daily every day in the year, the dairy cows must be milked by manual labour. This is one of the main items of labour in dairying, and is a delicate and important duty. Assuming 10 cows per hour to a milker, which implies quick work, it requires the continuous service of an army of 300,000 men, working 10 or 12 hours a day throughout the year, to milk the cows kept in the United States.

The business of producing milk for urban consumption, with the accompanying agencies for transportation and distribution, has grown to immense proportions. In many places the milk trade is regulated and supervised by excellent municipal ordinances, which have done much to prevent adulteration and to improve the average quality of the supply. Quite as much is, however, being done by private enterprise through large milk companies, well organized and equipped, and establishments which make a speciality of serving milk and cream of fixed quality and exceptional purity. Such efforts to furnish “certified” and “guaranteed” milk, together with general competition for the best class of trade, are doing more to raise the standard of quality and improve the service than all the legal measures. The buildings and equipment of some of these modern dairies are beyond precedent. This branch of dairying is advancing fast, upon the safe basis of care, cleanliness and better sanitary conditions.

Cheese-making has been transferred bodily from the domain of domestic arts to that of manufactures. In the middle of the 19th century about 100,000,000 lb of cheese was made yearly in the United States, and all of it in farm dairies. At the

beginning of the 20th century the annual production was about 300,000,000 ℔, and 96 or 97% of this was made in factories. Of these there are nearly 3000, but they vary greatly in capacity, and some are very small. New York and Wisconsin possess a thousand each, but the former state makes nearly twice as much cheese as the latter, whilst the two together produce three-fourths of the entire output of the country. A change is taking place in the direction of bringing a number of factories previously independent into a "combination" or under the same management. This tends to improve the quality and secure greater uniformity in the product, and often reduces cost of manufacture. More than nine-tenths of all the cheese made is of the familiar standard type, copied after the English Cheddar, but new kinds and imitations of foreign varieties are increasing. The annual export of cheese from the United States ranges between 30,000,000 and 50,000,000 ℔. The consumption *per capita* does not exceed 3½ ℔ per annum, which is much less than in most European countries.

Butter differs from cheese in that it is still made much more largely on farms in the United States than in creameries. Creamery butter controls all the large markets, but this represents little more than one-third of the entire business. Estimating the annual butter product of the entire country at 1,400,000,000 ℔ not much over 500,000,000 ℔ of this is made at the 7500 or 8000 creameries in operation. Iowa is the greatest butter-producing state, and the one in which the greater proportion is made on the factory plan. The total output of butter in this state is one-tenth of all made in the Union. The average quality of butter has materially improved since the introduction of the creamery system and the use of modern appliances. Nevertheless, a vast quantity of poor butter is made—enough to afford a large and profitable business in collecting it at country stores at grease prices or a little more, and then rendering or renovating it by patent processes. This renovated butter has been fraudulently sold to a considerable extent as the true creamery article, of which it is a fair imitation while fresh, and several states have made laws for the identification of the product and to prevent buyers from being imposed upon. No butter is imported, and the quantity exported is insignificant, although there is beginning to be a foreign demand for American butter. The home consumption is estimated at the yearly rate of 20 ℔ per person, which, if correct, would indicate Americans to be the greatest butter-eating people in the world. The people of the United States also consume millions of pounds every year of butter substitutes and imitations, such as oleomargarine and butterine. Most of this is believed to be butter by those who use it, and the state dairy commissioners are busily employed in carrying out the laws intended to protect purchasers from these butter frauds.

The by-products of dairying have, within recent years, been put to economical uses, in an increasing degree. For every pound of butter made there are 15 to 20 ℔ of skim-milk and about 3 ℔ of butter-milk, and for every pound of cheese nearly 9 ℔ of whey. Up to 1889 or 1890 enormous quantities of skim-milk and butter-milk from the creameries and of whey from the cheese factories were entirely wasted. At farm dairies these by-products are generally used to advantage in feeding animals, but at the factories—especially at the seasons of greatest milk supply—this most desirable method of utilization is to a great extent impracticable. In many places new branches have been instituted for the making of sugar-of-milk and other commercial products from whey, and for the utilization of skim-milk in various ways. The albumin of the latter is extracted for use with food products and in the arts. The casein is desiccated and prepared as a substitute for eggs in baking, as the basis of an enamel paint, and as a substitute for glue in paper-sizing. It has also been proposed to solidify it to make buttons, combs, brush-backs, electrical insulators and similar articles.

No census of cows in the United States was taken until the year 1840, but they have been enumerated in each subsequent decennial census. From 23 to 27 cows to every 100 of the population were required to keep the country supplied with milk, butter and cheese, and provide for the export of dairy products. The export trade, though it has fluctuated considerably, has never exceeded the produce of 500,000 cows. At the close of the 19th century it was estimated that there was one milch cow in the United States for every four persons, making the number of cows about 17,500,000. They are, however, very unevenly distributed, being largely concentrated in the great dairy states, Iowa leading with 1,500,000 cows, and being followed closely by New York. In the middle and eastern states the milk product goes very largely to the supply of the numerous large towns and cities. In the central, west and north-west butter is the leading dairy product.

TABLE XVIII.—*Estimated Number of Cows and Quantity and Value of Dairy Products in the United States in 1899.*

Cows.	Product.	Rate of Product per Cow.	Total Product.	Rate of Value.	Total Value.
				Cents.	Dollars.
11,000,000	Butter	130 ℔	1,430,000,000 ℔	18	257,400,000
1,000,000	Cheese	300 ℔	300,000,000 ℔	9	27,000,000
5,500,000	Milk	380 gals.	2,090,000,000 gals.	8	167,200,000

Table XVIII. shows approximately the quantity and value of the dairy products of the United States for a typical year, the grand total representing a value of $451,600,000. Adding to this the skim-milk, butter-milk and whey, at their proper feeding value, and the calves dropped yearly, the annual aggregate value of the produce of the dairy cows exceeds $500,000,000, or is more than one hundred million pounds sterling. Accepting these estimates as conservative, they show that the commercial importance of the dairy industry of the United States is such as to justify all reasonable provisions for guarding its interests.

(W. FR.)

1 A gallon of milk weighs 10.3 ℔, so that very little error is involved in converting pounds to gallons by dividing the number of pounds by 10.

2 A portable milk-weighing appliance is made in which the weight of the pail is included, and an indicator shows on a dial the exact weight in pounds and ounces, and likewise the volume in gallons and pints, of the milk in the pail. When the pail is empty the indicator of course points to zero.

3 *Landw. Futterungslehre*, 5te Aufl., 1888, p. 249.

4 The Analyst, April 1885, vol. x. p. 67.

5 The evidence on this point taken by the Committee on Milk and Cream Regulations in 1900 is somewhat conflicting. The report states that an impression commonly prevails that the quality of milk is more or less determined by the nature and composition of the food which the cow receives. One witness said that farmers who produce milk for sale feed differently from what they do if they are producing for butter. Another stated that most of the statistics which go to show that food has no effect on milk fail, because the experiments are not carried far enough to counterbalance that peculiarity of the animal first to utilize the food for itself before utilizing it for the milk. A witness who kept a herd of 100 milking cows expressed the opinion that improvement in the quality of milk can be effected by feeding, though not to any large extent. On the other hand, it was maintained that the fat percentage in the milk of a cow cannot be raised by any manner or method of feeding. It is possible that in the case of cows very poorly fed the addition of rich food would alter the composition of their milk, but if the cows are well-fed to begin with, this would not be so. The proprietor of a herd of 500 milking cows did not think that feeding affected the quality of milk from ordinarily well-kept animals. An experimenter found that the result of resorting to rather poor feeding was that the first effect was produced upon the weight of the cow and not upon the milk; the animal began to get thin, losing its weight, though there was not very much effect upon the quality of the milk.

6 *Journ. Roy. Agric. Soc.*, 1898.

7 Trans. Highl. and Agric. Soc. Scot., 1899.

8 *Report on Cheddar Cheese-Making*, London, 1899.

9 "The Practice of Stilton Cheese-Making," *Journ. Roy. Agric. Soc.*, 1899.

10 *Experiment Station Record*, xii. 9 (Washington, 1901).

11 Market butter is sometimes deliberately over-weighted with water, and a fraudulent profit is obtained by selling this extra moisture at the price of butter.

12 "Thermal Death-Point of Tubercle Bacilli, and Relation of same to Commercial Pasteurization of Milk," by H. L. Russell and E. G. Hastings.

13 *16th Rept. Wis. Agric. Expt. Station*, 1899, p. 129.

14 See also the article ADULTERATION.

15 A special committee appointed by the council of the Royal Statistical Society commenced in 1901 an inquiry into the home production of milk and meat in the United Kingdom.

16 In 1901 the United Kingdom imported 3,702,810 cwt. of butter, valued at £19,297,005, both totals being the largest on record.

DAIS (Fr. *dais*, *estrade*, Ital. *predella*), originally a part of the floor at the end of a medieval hall, raised a step above the rest of the building. On this the lord of the mansion dined with his friends at the high table, apart from the retainers and servants. In medieval halls there was generally a deep recessed bay window at one or at each end of the dais, supposed to be for retirement, or greater privacy than the open hall could afford. In France the word is understood as a canopy or hanging over a seat; probably the name was given from the fact that the seats of great men were then surmounted by such a feature. In ordinary use, the term means any raised platform in a room, for dignified occupancy.

DAISY (A.S. *daeges eage*, day's eye), the name applied to the plants constituting the genus *Bellis*, of the natural order Compositae. The genus contains ten species found in Europe and the Mediterranean region. The common daisy, *B. perennis*, is the only representative of the genus in the British Isles. It is a perennial, abundant everywhere in pastures and on banks in Europe, except in the most northerly regions, and in Asia Minor, and occurs as an introduced plant in North America. The stem of the daisy is short; the leaves, which are numerous and form a rosette, are slightly hairy, obovate-spathulate in shape, with rounded teeth on the margin in the upper part; and the root-stock is creeping, and of a brownish colour. The flowers are to be found from March to November, and occasionally in the winter months. The heads of flowers are solitary, the outer or ray-florets pink or white, the disk-florets bright yellow. The size and luxuriance of the plant are much affected by the nature of the soil in which it grows. The cultivated varieties, which are numerous, bear finely-coloured flowers, and make very effective borders for walks. What is known as the "hen-and-chicken" daisy has the main head surrounded by a brood of sometimes as many as ten or twelve small heads, formed in the axils of the scales of the involucre. The ray-florets curve inwards and "close" the flower-head in dull weather and towards evening.

Chaucer writes—

"The daisie, or els the eye of the daie,
The emprise, and the floure of flouris alle";

and again—

"To seen this floure agenst the sunne sprede
Whan it riseth early by the morrow,
That blissful sight softeneth all my sorrow";

and the flower is often alluded to with admiration by the other poets of nature. To the farmer, however, the daisy is a weed, and a most wasteful one, as it exhausts the soil and is not eaten by any kind of stock.

In French the daisy is termed *la marguerite* (μαργαρίτης, a pearl), and "herb margaret" is stated to be an old English appellation for it. In Scotland it is popularly called the gowan, and in Yorkshire it is the bairn wort, or flower beloved by children. The Christmas and Michaelmas daisies are species of *Aster*; the ox-eye daisy is *Chrysanthemum Leucanthemum*, a common weed in meadows and waste places. *B. perennis flore-pleno*, the double daisy, consists of dwarf, showy, 3 to 4 in. plants, flowering freely in spring if grown in rich light soil, and frequently divided and transplanted. The white and pink forms, with the white and red quilled, and the variegated-leaved *aucubaefolia*, are some of the best.

DAKAR, a seaport of Senegal, and capital of French West Africa, in 14° 40′ N., 17° 24′ W. The town, which is strongly fortified, holds a commanding strategic position on the route between western Europe and Brazil and South Africa, being situated in the Gulf of Goree on the eastern side of the peninsula of Cape Verde, the most westerly point of Africa. It is the only port of Senegal affording safe anchorage for the largest ships. Pop. (1904), within the municipal limits, 18,447; including suburbs, 23,452.

The town consists for the most part of broad and regular streets and possesses several fine public buildings, notably the palace of the governor-general. It is plentifully supplied with good water and is fairly healthy. It is the starting point of the railway to St Louis, and is within five days steam of Lisbon. The harbour, built in 1904-1908, is formed by two jetties, one of 6840 ft., the other of 1968 ft., the entrance being 720 ft. wide. There are three commercial docks, with over 7000 ft. of quayage, ships drawing 26 ft. being able to moor alongside. Cargo is transferred directly to the railway trucks. There is also a naval dock and arsenal with a torpedo-boat basin 755 ft. by 410 ft. and a dry dock 656 ft. long and 92 ft. broad. The

Messageries Maritimes Company use the port as a coaling station and provisioning depot for their South American trade. Dakar is a regular port of call for other French lines and for the Elder Dempster boats sailing between Liverpool and the West Coast of Africa. It shares with Rufisque and St Louis the external trade of Senegal and the adjacent regions. For trade statistics see Senegal.

Dakar was originally a dependency of Goree and was founded in 1862, a year after the declaration of a French protectorate over the mainland. The port was opened for commerce in 1867, and in 1885 its importance was greatly increased by the completion of the railway (163 m. long) to St Louis. Dakar thus came into direct communication with the countries of Upper Senegal and the middle Niger. In 1887 the town was made a commune on the French model, all citizens irrespective of colour being granted the franchise. In 1903 the offices of the governor-general and of the court of appeal of French West Africa were transferred from St Louis to Dakar, which is also the seat of a bishop. In February 1905 a submarine cable was laid between Brest and Dakar, affording direct telegraphic communication between France and her West African colonies by an all French route.

DALAGUETE, a town of the province of Cebú, island of Cebú, Philippine Islands, at the mouth of the Tapón river on the E. coast, 50 m. S.S.W. of Cebú, the capital. The town has a healthy climate, cool during November, December, January and February, and hot during the rest of the year. The inhabitants grow hemp, Indian corn, coffee, sibucao, cacao, cocoanuts (for copra) and sugar, weave rough fabrics and manufacture tuba (a kind of wine used as a stimulant), clay pots and jars, salt and soap. There is some fishing here. The language is Cebú-Visayan.

DALBEATTIE, a police burgh of Kirkcudbrightshire, Scotland. Pop. (1901) 3469. It lies on Dalbeattie Burn, 14½ m. S.W. of Dumfries by the Glasgow & South-Western railway. The town dates from 1780 and owes its rise to the granite quarries at Craignair and elsewhere in the vicinity, from which were derived the supplies used in the construction of the Thames Embankment, the docks at Odessa and Liverpool and other works. Besides quarrying, the industries include granite-polishing, concrete (crushed granite) works, dye-works, paper-mills and artificial manures. The estuary of the Urr, known as Rough Firth, is navigable by ships of from 80 to 100 tons, and small vessels can ascend as far as the mouth of Dalbeattie Burn, within a mile of the town. A mile to the north-west stand the ruins of the castle of Buittle or Botel, where lived John de Baliol, founder of Baliol college, who had married Dervorguila, daughter of Alan (d. 1234), the last “king” of Galloway.

DALBERG, the name of an ancient and distinguished German noble family, derived from the hamlet and castle (now in ruins) of Dalberg or Dalburg near Kreuznach in the Rhine Province. In the 14th century the original house of Dalberg became extinct in the male line, the fiefs passing to Johann Gerhard, chamberlain of the see of Worms, who married the heiress of his cousin, Anton of Dalberg, about 1330. His own family was of great antiquity, his ancestors having been hereditary ministerials of the bishop of Worms since the time of Ekbert the chamberlain, who founded in 1119 the Augustinian monastery of Frankenthal and died in 1132. By the close of the 15th century the Dalberg family had grown to be of such importance that, in 1494, the German King Maximilian I. granted them the honour of being the first to receive knighthood at the coronation; this part of the ceremonies being opened by the herald asking in a loud voice “Is no Dalberg present?” (*Ist kein Dalberg da?*). This picturesque privilege the family enjoyed till the end of the Holy Roman Empire. The elder line of the family of Dalberg-Dalberg became extinct in 1848, the younger, that of Dalberg-Herrnsheim, in 1833. The male line of the Dalbergs is now represented only by the family of Hessloch, descended from Gerhard of Dalberg (*c.* 1239), which in 1809 succeeded to the title and estates in Moravia and Bohemia of the extinct counts of Ostein.

The following are the most noteworthy members of the family:

1. Johann von Dalberg (1445-1503), chamberlain and afterwards bishop of Worms, son of Wolfgang von Dalberg. He studied at Erfurt and in Italy, where he took his degree of doctor *utriusque juris* at Ferrara and devoted himself more especially to the study of Greek. Returning to Germany, he became privy councillor to the elector palatine Philip, whom he assisted in bringing the university of Heidelberg to the height of its fame. He was instrumental in founding the first chair of Greek, which was filled by his friend Rudolph Agricola, and he also established the university library and a college for students of civil law. He was an ardent humanist, was president of the *Sodalitas Celtica* founded by the poet Konrad Celtes (q.v.), and corresponded with many of the leading scholars of his day, to whom he showed himself a veritable Maecenas. He was employed also on various diplomatic missions by the emperor and the elector.

See K. Morneweg, *Johann von Dalberg, ein deutscher Humanist und Bischof* (Heidelberg, 1887).

2. Karl Theodor Anton Maria von Dalberg (1744-1817), archbishop-elector of Mainz, arch-chancellor of the Holy Roman Empire, and afterwards primate of the Confederation of the Rhine and grand-duke of Frankfort. He was the son of Franz Heinrich, administrator of Worms, one of the chief counsellors of the elector of Mainz. Karl had devoted himself to the study of canon law, and entered the church; and, having been appointed in 1772 governor of Erfurt, he won further advancement by his successful administration; in 1787 he was elected coadjutor of Mainz and of Worms, and in 1788 of Constance; in 1802 he became archbishop-elector of Mainz and arch-chancellor of the Empire. As statesman Dalberg was distinguished by his “patriotic” attitude, whether in ecclesiastical matters, in which he leaned to the Febronian view of a German national church, or in his efforts to galvanize the atrophied machinery of the Empire into some sort of effective central government of Germany. Failing in this, he turned to the rising star of Napoleon, believing that he had found in “the truly great man, the mighty genius which governs the fate of the world,” the only force strong enough to save Germany from dissolution. By the peace of Lunéville, accordingly, though he had to surrender Worms and Constance, he received Regensburg, Aschaffenburg and Wetzlar. On the dissolution of the Empire in 1806 he formally resigned the office of arch-chancellor in a letter to the emperor Francis, and was appointed by Napoleon prince primate of the Confederation of the Rhine. In 1810, after the peace of Vienna (Schönbrunn), the grand-duchy of Frankfort was created for his benefit out of his territories, which, in spite of the cession of Regensburg to Bavaria, were greatly augmented. Dalberg’s subservience, as a prince of the Confederation, to Napoleon was specially resented since, as a priest, he had no excuse of necessity on the ground of saving family or dynastic interests; his fortunes therefore fell with those of Napoleon, and, when he died on the 10th of February 1817, of all his dignities he was in possession only of the archbishopric of Regensburg. Weak and

shortsighted as a statesman, as a man and prelate Dalberg was amiable, conscientious and large-hearted. Himself a scholar and author, he was a notable patron of letters, and was the friend of Goethe, Schiller and Wieland.

See Karl v. Beaulieu-Marconnay, *Karl von Dalberg und seine Zeit* (Weimar, 1879).

3. Wolfgang Heribert von Dalberg (1750-1806), brother of the above. He was intendant of the theatre at Mannheim, which he brought to a high state of excellence. His chief claim to remembrance is that it was he who first put Schiller's earlier dramas on the stage, and it is to him that the poet's *Briefe an den Freiherrn von Dalberg* (Karlsruhe, 1819) are addressed. He himself wrote several plays, including adaptations of Shakespeare. His brother, Johann Friedrich Hugo von Dalberg (1752-1812), canon of Trier, Worms and Spires, had some vogue as a composer and writer on musical subjects.

4. Emmerich Joseph, Duc de Dalberg (1773-1833), son of Baron Wolfgang Heribert. He was born at Mainz on the 30th of May 1773. In 1803 he entered the service of Baden, which he represented as envoy in Paris. After the peace of Schönbrunn (1809) he entered the service of Napoleon, who, in 1810, created him a duke and councillor of state. He had from the first been on intimate terms with Talleyrand, and retired from the public service when the latter fell out of the emperor's favour. In 1814 he was a member of the provisional government by whom the Bourbons were recalled, and he attended the congress of Vienna, with Talleyrand, as minister plenipotentiary. He appended his signature to the decree of outlawry launched in 1815 by the European powers against Napoleon. For this his property in France was confiscated, but was given back after the second Restoration, when he became a minister of state and a peer of France. In 1816 he was sent as ambassador to Turin. The latter years of his life he spent on his estates at Herrnsheim, where he died on the 27th of April 1833.

The due de Dalberg had inherited the family property of Herrnsheim from his uncle the arch-chancellor Karl von Dalberg, and this estate passed, through his daughter and heiress, Marie Louise Pelline de Dalberg, by her marriage with Sir (Ferdinand) Richard Edward Acton, 7th baronet (who assumed the additional name of Dalberg), to her son the historian, John Emerich Edward Dalberg-Acton, 1st Baron Acton (q.v.).

DALE, ROBERT WILLIAM (1829-1895), English Nonconformist divine, was born in London on the 1st of December 1829, and was educated at Spring Hill College, Birmingham, for the Congregational ministry. In 1853 he was invited to Carr's Lane Chapel, Birmingham, as co-pastor with John Angell James (q.v.), on whose death in 1859 he became sole pastor for the rest of his life. In the London University M.A. examination (1853) Dale stood first in philosophy and won the gold medal. The degree of LL.D. was conferred upon him by the university of Glasgow during the lord rectorship of John Bright. Yale University gave him its D.D. degree, but he never used it, "not because it came from America, but because I have a sentimental objection—perhaps it is something more—to divinity degrees." Dale displayed a keen interest in Liberal politics and in the municipal affairs of Birmingham; and his high moral ideal made him a great force on the progressive side. In 1886 he adhered to Mr Chamberlain in opposition to Irish Home Rule, but this difference did not diminish his influence even among those Liberals and Nonconformists who adopted the Gladstonian standpoint. In the education controversy of 1870 he took an important part, ably championing the Nonconformist position. When Mr Foster's bill appeared, Dale attacked it on the grounds that the schools would in many cases be purely denominational institutions, that the conscience clause gave inadequate protection, and that school boards were empowered by it to make grants out of the rates to maintain sectarian schools. He was himself in favour of secular education, claiming that it was the only logical solution and the only legitimate outcome of Nonconformist principles. In Birmingham the controversy was terminated in 1879 by a compromise, from which, however, Dale stood aloof. His interest in educational affairs had led him to accept a seat on the Birmingham school board. He was appointed a governor of the grammar school, served on the royal commission of education, and was also chairman of the council of Mansfield College, Oxford, with the foundation of which he had much to do. He was a strong advocate of disestablishment, holding that the church was essentially a spiritual brotherhood, and that any vestige of political authority impaired its spiritual work. In church polity he held that congregationalism constituted the most fitting environment in which religion could achieve her work. Perhaps the most effective contributions he made to ecclesiastical literature were those dealing with the history and principles of the congregational system. At his death on the 13th of March 1895 he left an unfinished MS. of the history of congregationalism, since edited and completed (1907) by his son, A. W. W. Dale, principal of Liverpool University.

Dale's powers were fully appreciated by his colleagues in the congregational ministry, and at the early age of thirty-nine he was elected chairman of the Congregational union of England and Wales. His addresses from the chair on "Christ and the Controversies of Christendom," and the "Holy Spirit and the Christian Ministry" were remarkable for a keen insight into the conditions and demands of the age. For some years he edited the *Congregationalist*, a monthly magazine connected with the denomination. In 1877 he was appointed Lyman Beecher lecturer at Yale University, and visited America to deliver his "Lectures on Preaching." At the International Council of Congregationalists, meeting in London in 1891, the first gathering of the kind, Dale was nominated for the presidency. He accepted the honour and delivered an address on "The Divine Life in Man."

As a theologian Dale occupied an influential position amongst the religious thinkers of the 19th century. He ably interpreted the Evangelical thought of his age, but his Evangelicalism was of a broad and progressive type. His chief contribution to constructive theological thought is his work *On The Atonement*, in which he contends that the death of Christ is the objective ground on which the sins of man were remitted. Among his other theological books are: *The Epistle to the Ephesians* (a series of expositions), *Christian Doctrine*, *The Living Christ and the Four Gospels*, *Fellowship with Christ*, *The Epistle to James*, and *The Ten Commandments*.

DALE, SIR THOMAS (d. 1619), British naval commander and colonial deputy-governor of Virginia. From about 1588 to 1609 he was in the service of the Low Countries with the English army originally under Robert Dudley, earl of Leicester; in 1606, while visiting in England, he was knighted by King James; from 1611 to 1616 he was actually though not always nominally in chief control of the province of Virginia either as deputy-governor or as "high marshall," and he is best remembered for the energy and the extreme rigour of his administration there, which established order and in various ways seems to have benefited the colony; he himself declared that he left it "in great prosperity and peace." Under him began the first real expansion of the colony with the establishment of the settlement of Henrico on and about what was later known as Farrar's Island; it was he who, about 1614, took the first step toward abolishing the communal system by the introduction of private holdings, and it was during his administration that the first code of laws of Virginia, nominally in force from 1610 to 1619, was effectively tested. This code, entitled "Articles, Lawes, and Orders—Divine, Politique, and

Martiall," but popularly known as Dale's Code, was notable for its pitiless severity, and seems to have been prepared in large part by Dale himself. He left Virginia in 1616 with the intention probably of returning to the service of the Low Countries, but instead was given command of an English fleet sent against the Dutch, defeated the enemy near Batavia in the East Indies late in the year 1618, arrived at Masulipatam in July 1619, and died there on the 9th of the following month.

An account of Dale's career in Virginia is given in Alexander Brown's *The First Republic in America* (Boston, 1898); a scholarly discussion of "Dale's Code" by Walter F. Prince may be found in vol. i. of the *Annual Report of the American Historical Association* for 1899 (Washington, D.C., 1900), and the code itself is reprinted in Peter Force's *Historical Tracts*, vol. iii., No. 11.

DALECARLIA (*Dalarne*, "the Dales"), a west midland region of Sweden, virtually coincident with the district (*län*) of Kopparberg, which extends from the mountains of the Norwegian frontier to within 25 m. of Gefle on the Baltic coast. It is a region full of historical associations, and possesses strong local characteristics in respect of its products, and especially of its people. The Dalecarlians or Dalesmen speak their own peculiar dialect, wear their own peculiar costumes, and are famed for their brave spirit and sturdy love of independence. In 1434, led by Engelbrecht, the miner, they rose against the oppressive tyranny of the officers of Eric XIV. of Denmark, and in 1519-1523 it was among them that Gustavus Vasa found his staunchest supporters in his patriotic task of freeing Sweden from the yoke of the Danes. The districts around Lakes Runn and Siljan ("the Eye of the Dales"), the principal sheets of water in the valleys of the Dal rivers, are consequently classic ground. By the banks of Lake Runn, for example, is seen the barn in which Vasa threshed corn in disguise, when still a fugitive from the Danes. The people are for the most part small peasant proprietors. They eke out their scanty returns from tilling the soil by a variety of home industries, such as making scythes, saws, bells, wooden wares, hair goods, and so forth. About three quarters of the whole district is covered with forest. Besides the wealth of the forests, the Dales contain some of the largest and most prolific iron mines in Sweden, notably those of Grängesberg. Copper is mined at Falun (q.v.), the chief town of Kopparberg, and some silver and lead, zinc and sulphur is found. In consequence of this the district has numerous smelting furnaces, blasting and rolling mills, iron and metallurgical works, as well as saw-mills, wood-pulp factories, and chemical works.

See G. H. Mellin, *Skildringar af den Skandinaviska Nordens Folklif og Natur*, vol. iii. (1865); and Frederika Bremer, *I Dalarne* (1845), of which there is an English translation by William and Mary Howitt (1852). For the dialect, see a paper by A. Noreen, in *De Svenska Landsmålen*, vol. iv. (1881).

DALGAIRNS, JOHN DOBREE (1818-1876), English Roman Catholic priest, was born in Guernsey on the 21st of October 1818. About the age of seventeen he entered Exeter College, Oxford, and soon after taking his degree he contributed a letter to Louis Veuillot's ultramontane organ *L'Univers*, on "Anglican Church Parties," which gave him considerable repute. Together with Mark Pattison and others, he translated the *Catena aurea* of St Thomas Aquinas, a commentary on the Gospels, taken from the works of the Fathers. He was a contributor to Newman's *Lives of the English Saints*, for which he wrote the beautiful studies on the Cistercian Saints. *The Life of St Stephen Harding* has been translated into several languages. Dalgairns became a Roman Catholic in 1845, and was ordained priest in the following year. He joined his friend John Henry Newman in Rome, and, together with him, entered the Congregation of the Oratory. On his return to England in 1848, he was attached to the London Oratory, where he laboured successfully as a priest, with the exception of three years spent in Birmingham. Dalgairns was a prominent member of the well-known "Metaphysical Society." He died at Burgess Hill, near Brighton, on the 6th of April 1876. During the Catholic period of his life, Dalgairns wrote *The Devotion to the Sacred Heart of Jesus, with an Introduction on the History of Jansenism* (London 1853); *The German Mystics of the Fourteenth Century* (London, 1858); *The Holy Communion, its Philosophy, Theology and Practice* (Dublin, 1861).

A list of his contributions on religious and philosophical subjects, to the reviews and periodicals, is given in J. Gillow's *Bibliographical Dictionary of English Catholics*, vol. ii.

DALGARNO, GEORGE (*c.* 1626-1687), English writer, was born at Old Aberdeen about 1626. He appears to have studied at Marischal College; but he finally settled in Oxford, where, according to Wood, "he taught a private grammar-school with good success for about thirty years," and where he died on the 28th of August 1687. He was master of Elizabeth school, Guernsey, for some ten years, but resigned in 1672. In his work entitled *Didascalocophus, or the Deaf and Dumb Man's Tutor* (Oxford, 1680), he explained, for the first time, the hand alphabet for the deaf and dumb, though he does not claim to have invented this method of communication. Twenty years before the publication of his *Didascalocophus*, Dalgarno had given to the world a very ingenious piece entitled *Ars Signorum* (1661), dividing ideas into seventeen classes, to be represented by the letters of the Latin alphabet with the addition of two Greek characters. Among the Sloane manuscripts are several tracts by Dalgarno, further elucidating his system of universal shorthand. Leibnitz on various occasions alluded to the *Ars signorum* in commendatory terms.

The chief works of Dalgarno were reprinted (1834) for the Maitland Club.

DALHOUSIE, JAMES ANDREW BROUN RAMSAY, 1st Marquess and 10th Earl of (1812-1860), British statesman and Indian administrator, was born at Dalhousie Castle, Scotland, on the 22nd of April 1812. He crowded into his short life conspicuous public services in England, and established an unrivalled position among the master-builders of the Indian empire. Denounced on the eve of his death as the chief offender who failed to notice the signs of the mutiny of 1857, and

even aggravated the crisis by his overbearing self-consciousness, centralizing activity and reckless annexations, he stands out in the clear light of history as the far-sighted governor-general who consolidated British rule in India, laid truly the foundations of its later administration, and by his sound policy enabled his successors to stem the tide of rebellion.

He was the third son of George Ramsay, 9th earl of Dalhousie (1770-1838), one of Wellington's generals, who, after holding the highest offices in Canada, became commander-in-chief in India, and of his wife Christina Broun of Coalstoun, a lady of noble lineage and distinguished gifts. From his father he inherited a vigorous self-reliance and a family pride which urged him to prove worthy of the Ramsays who had "not crawled through seven centuries of their country's history," while to his mother he owed his high-bred courtesy and his deeply seated reverence for religion. The Ramsays of Dalhousie (or Dalwolsie) in Midlothian were a branch of the main line of Scottish Ramsays, of whom the earliest known is Simon de Ramsay, of Huntingdon, England, mentioned in 1140 as the grantee of lands in West Lothian at the hands of David I. A Sir William de Ramsay of Dalhousie swore fealty to Edward I. in 1296, but is famous for having in 1320 signed the letter to the pope asserting the independence of Scotland; and his supposed son, Sir Alexander Ramsay (d. 1342), was the Scottish patriot and capturer of Roxburgh Castle (1342), who, having been made warder of the castle and sheriff of Teviotdale by David II., was soon afterwards carried off and starved to death by his predecessor, the Douglas, in revenge. Sir John Ramsay of Dalhousie (1580-1626), James VI.'s favourite, is famous for rescuing the king in the Gowrie conspiracy, and was created (1606) Viscount Haddington and Lord Ramsay of Barns (subsequently baron of Kingston and earl of Holderness in England). The barony of Ramsay of Melrose was granted in 1618 to his brother George Ramsay of Dalhousie (d. 1629), whose son William Ramsay (d. 1674) was made 1st earl of Dalhousie in 1633.

The 9th earl was in 1815 created Baron Dalhousie in the peerage of the United Kingdom, and had three sons, the two elder of whom died early. His youngest son, the subject of this article, was small in stature, but his firm chiselled mouth, high forehead and masterful manner intimated a dignity that none could overlook. Yet his early life gave little promise of the dominating force of his character or of his ability to rise to the full height of his splendid opportunities. Nor did those brought into closest intimacy with him, whether at school or at Oxford, suspect the higher qualities of statesmanship which afterwards established his fame on so firm a foundation.

Several years of his early boyhood were spent with his father and mother in Canada, reminiscences of which were still vivid with him when governor-general of India. Returning to Scotland he was prepared for Harrow, where he entered in 1825. Two years later he was removed from school, his entire education being entrusted to the Rev. Mr Temple, incumbent of a quiet parish in Staffordshire. To this gentleman he referred in later days as having taught him all he knew, and to his training he must have owed those habits of regularity and that indomitable industry which marked his adult life. In October 1829 he passed on to Christ Church, Oxford, where he worked fairly hard, won some distinction, and made many lifelong friends. His studies, however, were so greatly interrupted by the protracted illness and death in 1832 of his only surviving brother, that Lord Ramsay, as he then became, had to content himself with entering for a "pass" degree, though the examiners marked their appreciation of his work by placing him in the fourth class of honours for Michaelmas 1833. He then travelled in Italy and Switzerland, enriching with copious entries the diary which he religiously kept up through life, and storing his mind with valuable observations.

An unsuccessful but courageous contest at the general election in 1835 for one of the seats in parliament for Edinburgh, fought against such veterans as the future speaker, James Abercrombie, afterwards Lord Dunfermline, and John Campbell, future lord chancellor, was followed in 1837 by Ramsay's return to the House of Commons as member for East Lothian. In the previous year he had married Lady Susan Hay, daughter of the marquess of Tweeddale, whose companionship was his chief support in India, and whose death in 1853 left him a heartbroken man. In 1838 his father had died after a long illness, while less than a year later he lost his mother.

Succeeding to the peerage, the new earl soon made his mark in a speech delivered on the 16th of June 1840 in support of Lord Aberdeen's Church of Scotland Benefices Bill, a controversy arising out of the Auchterarder case, in which he had already taken part in the "general assembly" in opposition to Dr Chalmers. In May 1843 he became vice-president of the board of trade, Gladstone being president, and was sworn in as a member of the privy council. Succeeding Gladstone as president in 1845, he threw himself into the work during the crisis of the railway mania with such energy that his health partially broke down under the strain. In the struggle over the corn laws he ranged himself on the side of Sir Robert Peel, and after the failure of Lord John Russell to form a ministry he resumed his post at the board of trade, entering the cabinet on the retirement of Lord Stanley. When Peel resigned office in June 1846, Lord John offered Dalhousie a seat in the cabinet, an offer which he declined from a fear that acceptance might "involve the loss of public character." Another attempt to secure his services in the appointment of president of the railway board was equally unsuccessful; but in 1847 he accepted the post of governor-general of India in succession to Lord Hardinge, on the understanding that he was to be left in "entire and unquestioned possession" of his own "personal independence with reference to party politics."

Dalhousie assumed charge of his dual duties as governor-general of India and governor of Bengal on the 12th of January 1848, and shortly afterwards he was honoured with the green ribbon of the Order of the Thistle. In writing to the president of the board of control, Sir John Hobhouse, he was able to assure him that everything was quiet. This statement, however, was to be falsified by events almost before it could reach England. For on the 19th of April Vans Agnew of the civil service and Lieutenant Anderson of the Bombay European regiment, having been sent to take charge of Multan from Diwan Mulraj, were murdered there, and within a short time the Sikh troops and sardars joined in open rebellion. Dalhousie agreed with Sir Hugh Gough, the commander-in-chief, that the Company's military forces were neither adequately equipped with transport and supplies, nor otherwise prepared to take the field immediately. He also foresaw the spread of the rebellion, and the necessity that must arise, not merely for the capture of Multan, but also for the entire subjugation of the Punjab. He therefore resolutely delayed to strike, organized a strong army for operations in November, and himself proceeded to the Punjab. Despite the brilliant successes gained by Herbert Edwardes in conflict with Mulraj, and Goagh's indecisive victories at Ramnagar in November, at Sadulapur in December, and at Chillianwalla in the following month, the stubborn resistance at Multan showed that the task required the utmost resources of the government. At length, on the 22nd of January 1849, the Multan fortress was taken by General Whish, who was thus set at liberty to join Gough at Gujrat. Here a complete victory was won on the 21st of February, the Sikh army surrendered at Rawal Pindi, and their Afghan allies were chased out of India. For his services the earl of Dalhousie received the thanks of parliament and a step in the peerage, as marquess.

The war being now over, Dalhousie, without waiting for instructions from home, annexed the Punjab, and made provision for the custody and education of the infant maharaja. For the present the province was administered by a triumvirate under the personal supervision of the governor-general, and later, a place having been found for Henry Lawrence in Rajputana, by John Lawrence as sole commissioner. Twice did Dalhousie tour through its length and breadth, settling on the spot all matters of importance, and when he left India no province could show a better record of progress.

One further addition to the empire was made by conquest. The arrogant Burmese court at Ava was bound by the treaty of Yandabo, 1826, to protect British ships in Burmese waters, but the outrageous conduct of the governor of Rangoon towards the masters of the "Monarch" and "Champion" met with no redress from the king. Dalhousie adopted the maxim of Lord Wellesley "that an insult offered to the British flag at the mouth of the Ganges should be resented as promptly and fully as an insult offered at the mouth of the Thames"; but, anxious to save the cost of war, he tried to settle the dispute by diplomacy. When that failed he made vigorous preparation for the campaign to be undertaken in the autumn, giving his

attention to the adequate provision of rations, boat transport, and medical supplies, composing differences between the military contingents from Bengal and Madras, and between the military and naval forces employed, and conferring with General Godwin whom he had chosen to command the expedition. Martaban was taken on the 5th of April 1852, and Rangoon and Bassein shortly afterwards. Since, however, the court of Ava showed no sign of submission, the second campaign opened in October, and after the capture of Prome and Pegu the annexation of the province of Pegu was declared by a proclamation dated the 20th of December 1853. To any further invasion of the Burmese empire Dalhousie was firmly opposed, being content to "consolidate" the Company's possessions by uniting Arakan to Tenasserim. By his wise policy he pacified the new province, placing Colonel Arthur Phayre in sole charge of it, personally visiting it, and establishing a complete system of telegraphs and communications.

These military operations added force to the conviction which Dalhousie had formed of the need of consolidating the Company's ill-knit possessions, and as a step in that direction he decided to apply the doctrine of "lapse," and annex any Hindu native states, created or revived by the grants of the British government, in which there was a failure of male lineal descendants, reserving for consideration the policy of permitting adoptions in other Hindu chiefships tributary and subordinate to the British government as paramount. Under the first head he recommended the annexation of Satara in January 1849, of Jaitpur and Sambalpur in the same year, and of Jhansi and Nagpur in 1853. In these cases his action was approved by the home authorities, but his proposal to annex Karauli in 1849 was disallowed, while Baghat and the petty estate of Udaipur, which he had annexed in 1851 and 1852 respectively, were afterwards restored to native rule.

Other measures with the same object were carried out in the Company's own territories. Bengal, too long ruled by the governor-general or his delegate, was placed under a separate lieutenant-governor in May 1854; a department of public works was established in each presidency, and engineering colleges were provided. An imperial system of telegraphs followed; the first link of railway communication was completed in 1855; well-considered plans mapped out the course of other lines and their method of administration; the Ganges canal, which then exceeded "all the irrigation lines of Lombardy and Egypt together," was completed; and despite the cost of wars in the Punjab and Burma, liberal provision was made for metalled roads and bridges. The useless military boards were swept away; selection took the place of seniority in the higher commands; an army clothing and a stud department were created, and the medical service underwent complete reorganization.

"Unity of authority coupled with direct responsibility" was the keynote of his policy. In nine masterly minutes he suggested means for strengthening the Company's European forces, calling attention to the dangers that threatened the English community, "a handful of scattered strangers"; but beyond the additional powers of recruitment which at his entreaty were granted in the last charter act of 1853, his proposals were shelved by the home authorities, who scented no danger and wished to avoid expense. In his administration Dalhousie vigorously asserted the control of the civil government over military affairs, and when Sir Charles Napier ordered certain allowances, given as compensation for the dearness of provisions, to be granted to the sepoys on a system which had not been sanctioned from headquarters, and threatened to repeat the offence, the governor-general found it necessary to administer such a rebuke that the hot-headed soldier resigned his command.

Dalhousie's reforms were not confined to the departments of public works and military affairs. He created an imperial system of post-offices, reducing the rates of carrying letters and introducing postage stamps. To him India owes the first department of public instruction; it was he who placed the gaols under proper inspection, abolishing the practice of branding convicts; put down the crime of *meriahs* or human sacrifices; freed converts to other religions from the loss of their civil rights; inaugurated the system of administrative reports; and enlarged and dignified the legislative council of India. His wide interest in everything that concerned the welfare of the country was shown in the encouragement he gave to the culture of tea, in his protection of forests, in the preservation of ancient and historic monuments. With the object of improving civil administration, he closed the useless college in Calcutta for the education of young civilians, establishing in its place a proper system of training them in *mufasal* stations, and subjecting them to departmental examinations. He was equally careful of the well-being of the European soldier, providing him with healthy recreations and public gardens. To the civil service he gave improved leave and pension rules, while he purified its *moral* by forbidding all share in trading concerns, by vigorously punishing insolvents, and by his personal example of careful selection in the matter of patronage. As a comprehensive view of the constitution of the Indian government, dealing with the functions of its various members and the different parts of the official machinery, nothing could be more masterly than his minute of the 13th of October 1852. Indeed no governor-general ever penned a larger number of weighty papers dealing with public affairs in India. Even after laying down office and while on his way home, he forced himself, ill as he was, to review his own administration in a document of such importance that the House of Commons gave orders for its being printed (Blue Book 245 of 1856).

His foreign policy was guided by a desire to recognize the "independence" of the larger native states, and to avoid extending the political relations of his government with foreign powers outside India. Pressed to intervene in Hyderabad, he refused to do so, laying down the doctrine that interference was only justified "if the administration of native princes tends unquestionably to the injury of the subjects or of the allies of the British government." Protection in his view carried no right of interference in the affairs of what he called "independent" states. In this spirit he negotiated in 1853 a treaty with the nizam, which provided funds for the maintenance of the contingent kept up by the British in support of that prince's authority, by the assignment of the Berars in lieu of annual payments of the cost and large outstanding arrears. "The Berar treaty," he told Sir Charles Wood, "is more likely to keep the nizam on his throne than anything that has happened for fifty years to him," while at the same time the control thus acquired over a strip of territory intervening between Bombay and Nagpur promoted his policy of consolidation and his schemes of railway extension. The same spirit induced him to tolerate a war of succession in Bahawalpur, so long as the contending candidates did not violate British territory. This reluctance to increase his responsibilities further caused him to refrain from punishing Dost Mahommed for the part he had taken in the Sikh War, and resolutely to refuse to enter upon any negotiations until the amir himself came forward. Then he steered a middle course between the proposals of his own agent, Herbert Edwardes, who advocated an offensive alliance, and those of John Lawrence, who would have avoided any sort of engagement. He himself drafted the short treaty of peace and friendship which Lawrence signed in 1855, that officer receiving in 1856 the order of K.C.B, in acknowledgment of his services in the matter. While, however, Dalhousie was content with a mutual engagement with the Afghan chief, binding each party to respect the territories of the other, he saw that a larger measure of interference was needed in Baluchistan, and with the khan of Kalat he authorized Major Jacob to negotiate a treaty of subordinate co-operation on the 14th of May 1854. The khan was guaranteed an annual subsidy of Rs. 50,000, in return for the treaty which "bound him to us wholly and exclusively." To this the home authorities demurred, but the engagement was duly ratified, and the subsidy was largely increased by Dalhousie's successors. On the other hand, he insisted on leaving all matters concerning Persia and Central Asia to the decision of the queen's advisers. The frontier tribesmen it was obviously necessary to coerce into good behaviour after the annexation of the Punjab. "The hillmen," he wrote, "regard the plains as their food and prey," and the Afridis, Mohmands, Black Mountain tribes, Waziris and others had to be taught that their new neighbours would not tolerate outrages. But he proclaimed to one and all his desire for peace, and urged upon them the duty of tribal responsibility.

The settlement of the Oudh question was reserved to the last. The home authorities had begged Dalhousie to prolong his tenure of office during the Crimean War, but the difficulties of the problem no less than complications elsewhere had induced him to delay operations. In 1854 he appointed Outram as resident at the court of Lucknow, directing him to

submit a report on the condition of the province. This was furnished in March 1855. But though the state of disorder and misrule revealed by it called for prompt remedy, Dalhousie, looking at the treaty of 1801, considered that he was bound to proceed in the matter of reform with the king's consent. He proposed, therefore, to demand a transfer to the Company of the entire administration, the king merely retaining his royal rank, certain privileges in the courts, and a liberal allowance. If he should refuse this arrangement, a general rising was almost certain to follow, and then the British government would of necessity intervene on its own terms. On the 21st of November 1855 the court of directors instructed Dalhousie to assume the powers essential to the permanence of good government in Oudh, and to give the king no option unless he was sure that his majesty would surrender the administration rather than risk a revolution. Dalhousie was in wretched health and on the eve of retirement when the belated orders reached him; but he at once laid down instructions for Outram in every detail, moved up troops, and elaborated a scheme of government with particular orders as to conciliating local opinion. The king refused to sign the treaty put before him, and a proclamation annexing the province was therefore issued on the 13th of February 1856.

Only one important matter now remained to him before quitting office. The insurrection of the half-civilized Kolarian Santals of Bengal against the extortions of landlords and money-lenders had been severely repressed, but the causes of the insurrection had still to be reviewed and a remedy provided. By removing the tract of country from the ordinary regulations, enforcing the residence of British officers there, and employing the Santal headmen in a local police, he ensured a system of administration which afterwards proved eminently successful.

At length, after seven years of strenuous labour, Dalhousie, on the 6th of March 1856, set sail for England on board the Company's "Firoze," an object of general sympathy and not less general respect. At Alexandria he was carried by H.M.S. "Caradoc" to Malta, and thence by the "Tribune" to Spithead, which he reached on the 13th of May. His return had been eagerly looked for by statesmen who hoped that he would resume his public career, by the Company which voted him an annual pension of £5000, by public bodies which showered upon him every mark of respect, and by the queen who earnestly prayed for the "blessing of restored health and strength." That blessing was not to be his. He lingered on, seeking sunshine in Malta and medical treatment at Malvern, Edinburgh and other places in vain obedience to his doctors. The outbreak of the mutiny led to bitter attacks at home upon his policy, and to strange misrepresentation of his public acts, while on the other hand John Lawrence invoked his counsel and influence, and those who really knew his work in India cried out, "Oh, for a dictator," and his return "for one hour!" To all these cries he turned a deaf ear, refusing to embarrass those who were responsible by any expressions of opinion, declining to undertake his own defence or to assist in his vindication through the public press, and by his last directions sealing up his private journal and papers of personal interest against publication until fifty years after his death. On the 9th of August 1859 his youngest daughter, Edith, was married at Dalhousie Castle to Sir James Fergusson, Bart. In the same castle Dalhousie died on the 19th of December 1860; he was buried in the old churchyard of Cockpen.

Dalhousie's family consisted of two daughters, and the marquessate became extinct at his death.

The detailed events of the period will be found in Sir William Lee-Warner's *Life of the Marquis of Dalhousie, K.T.*; Sir E. Arnold's *Dalhousie's Administration of British India*; Sir C. Jackson's *Vindication of Dalhousie's Indian Administration*; Sir W. W. Hunter's *Dalhousie*; Capt. L. J. Trotter's *Life of the Marquis of Dalhousie*; the duke of Argyll's *India under Dalhousie and Canning*; Broughton MSS. (British Museum); and parliamentary papers.

(W. L.-W.)

DALHOUSIE, FOX MAULE RAMSAY, 11th Earl of (1801-1874), was the eldest son of William Ramsay Maule, 1st Baron Panmure (1771-1852), and a grandson of George, 8th earl of Dalhousie. Born on the 22nd of April 1801 and christened Fox as a compliment to the great Whig, he served for a term in the army, and then in 1835 entered the House of Commons as member for Perthshire. In Lord Melbourne's ministry (1835-1841) Maule was under-secretary for home affairs, and under Lord John Russell he was secretary-at-war from July 1846 to January 1852, when for two or three weeks he was president of the board of control. In April 1852 he became the 2nd Baron Panmure, and early in 1855 he joined Lord Palmerston's cabinet, filling the new office of secretary of state for war. Panmure held this office until February 1858, being at the war office during the concluding period of the Crimean War and having to meet a good deal of criticism, some of which was justified and some of which was not. In December 1860 he succeeded his kinsman, the marquess of Dalhousie, as 11th earl of Dalhousie, and he died childless on the 6th of July 1874. Always interested in church matters, Dalhousie was a prominent supporter of the Free Church of Scotland after the disruption of 1843. On his death the barony became extinct, but his earldom passed to his cousin, George Ramsay (1806-1880), an admiral who, in 1875, was created a peer of the United Kingdom as Baron Ramsay. George's grandson, Arthur George Maule Ramsay (b. 1878), became the 14th earl in 1887.

See the *Panmure Papers*, a selection from Panmure's correspondence, edited in two volumes (1908), by Sir G. Douglas, Bart., and Sir G. D. Ramsay. These numerous letters throw much light on the concluding stage of the Crimean War.

DALIN, OLOF VON (1708-1763), Swedish poet, was born on the 29th of August 1708 in the parish of Vinberg in Halland, where his father was the minister. He was nearly related to Rydelius, the philosophical bishop of Lund, and he was sent at a very early age to be instructed by him, Linnaeus being one of his fellow-pupils. While studying at Lund, Dalin had visited Stockholm in the year 1723, and in 1726 entered one of the public offices there. Under the patronage of Baron Rålamb he rapidly rose to preferment, and his skill and intelligence won him golden opinions. In 1733 he started the weekly *Svenska Argus*, on the model of Addison's *Spectator*, writing anonymously till 1736. His next work was *Tankar öfver Critiquer* (Thoughts about Critics, 1736). With the avowed purpose of enlarging the horizon of his cultivation and tastes, Dalin set off, in company with his pupil, Baron Rålamb's son, on a tour through Germany and France, in 1739-1740. On his return the shifting of political life at home caused him to write his famous satiric allegories of *The Story of the Horse* and *Aprilverk* (1738), which were very popular and provoked countless imitations. His didactic epos of *Svenska Friheten* (Swedish Liberty) appeared in 1742. Hitherto Addison and Pope had been his models; in this work he draws his inspiration from Thomson, whose poem of *Liberty* it emulated. On the accession of Adolphus Freduck in 1751 Dalin received the post of tutor to the crown prince, afterwards Gustavus III. He had enjoyed the confidence of Queen Louisa Ulrika, sister of Frederick the Great of Germany, while she was crown princess, and she now made him secretary of the Swedish academy of literature, founded by her in 1753. His position at court involved him in the queen's political intrigues, and separated him to a vexatious degree from the studies in which he had hitherto been absorbed. He held the post of tutor to the crown prince until 1756, when he was arrested on suspicion of having taken part in the attempted *coup d'état*

of that year, and was tried for his life before the diet. He was acquitted, but was forbidden on any pretence to show himself at court. This period of exile, which lasted until 1761, Dalin spent in the preparation of the third volume of his great historical work, the *Svea Rikes historia* (History of the Swedish Kingdom), which came down to the death of Charles IX. in 1611. The first two volumes appeared in 1746-1750; the third, in two parts, in 1760-1762. Dalin had been ennobled in 1751, and made privy councillor in 1753; and now, in 1761, he once more took his place at court. During his exile, however, his spirit and his health had been broken; in a fit of panic he had destroyed some packets of his best unpublished works and this he constantly brooded over. On the 12th of August 1763 he died at his house in Drottningholm. In the year 1767 his writings in *belles lettres* were issued in six volumes, edited by J. C. Bökman, his half-brother. Amid an enormous mass of occasional verses, anagrams, epigrams, impromptus and the like, his satires and serious poems were almost buried. But some of these former, even, are found to be songs of remarkable grace and delicacy, and many display a love of natural scenery and a knowledge of its forms truly remarkable in that artificial age. His dramas also are of interest, particularly his admirable comedy of *Den afvundsjuke* (The Envious Man, 1738); he also wrote a tragedy, *Brynilda* (1739), and a pastoral in three scenes on King Adolphus Frederick's return from Finland. During the early part of his life he was universally admitted to be *facile princeps* among the Swedish poets of his time.

See also K. Warburg, "Olof von Dalin," in the *Handlingar* (vol. lix., 1884) of the Swedish Academy. A selection of his works was edited by E. V. Lindblad (Örebro, 1872).

DALKEITH, a municipal and police burgh of Edinburghshire, Scotland, lying between the North and South Esk, 7½ m. S.E. of Edinburgh, by the North British railway. Pop. (1891) 7035; (1901) 6812. It is an important agricultural centre, and has every week one of the largest grain-markets in Scotland. Besides milling, brewing and tanning, the chief industries are the making of carpets, brushes and bricks, and iron and brass founding. Near Eskbank, a handsome residential quarter with a railway station, coal-mining is carried on. Market-gardening, owing to the proximity of the capital, flourishes. The parish church—an old Gothic edifice, which was originally the Castle chapel, and was restored in 1852—the municipal buildings, corn exchange, Foresters' hall and Newmills hospital are among the principal public buildings. Dalkeith was the birthplace of Professor Peter Guthrie Tait, the mathematician (1831-1901). Dalkeith Palace, a seat of the duke of Buccleuch, was designed by Sir John Vanbrugh in 1700 for the widow of the duke of Monmouth, countess of Buccleuch in her own right. It occupies the site of a castle which belonged first to the Grahams and afterwards to the Douglases, and was sold in 1642 by William, seventh or eighth earl of Morton, to Francis, second earl of Buccleuch, for the purpose of raising money to assist Charles I. in the Civil War. The palace has been the residence of several sovereigns during their visits to Edinburgh, among them George IV. in 1822, Queen Victoria in 1842, and Edward VII. in 1903. The picture gallery possesses important examples of the Old Masters; the gardens are renowned for their fruit and flowers; and the beautiful park of over 1000 acres—containing a remnant of the Caledonian Forest, with oaks, beeches and ashes of great girth and height—is watered by the North and South Esk, which unite before they leave the policy. About 1 m. south is Newbattle Abbey, the seat of the marquess of Lothian, delightfully situated on the South Esk. It is built on the site of an abbey founded by David I., the ancient crypt being incorporated in the mansion. The library contains many valuable books and illuminated MSS., and excellent pictures and carvings. In the park are several remarkable trees, among them one of the largest beeches in the United Kingdom. Two miles still farther south lies Cockpen, immortalized by the Baroness Nairne's humorous song "The Laird of Cockpen," and Dalhousie Castle, partly ancient and partly modern, which gives a title to the earls of Dalhousie. About 6 m. south-east of Dalkeith are Borthwick and Crichton castles, 1 m. apart, both now in ruins. Queen Mary spent three weeks in Borthwick Castle, as in durance vile, after her marriage with Bothwell, and fled from it to Dunbar in the guise of a page. The castle, which is a double tower, was besieged by Cromwell, and the marks of his cannon-balls are still visible. In the manse of the parish of Borthwick, William Robertson, the historian, was born in 1721. About 4 m. west of Dalkeith is the village of Burdiehouse, the limestone quarries of which are famous for fossils. The name is said to be a corruption of Bordeaux House, which was bestowed on it by Queen Mary's French servants, who lived here when their mistress resided at Craigmillar.

DALKEY, a small port and watering-place of Co. Dublin, Ireland, in the south parliamentary division; 9 m. S.E. of Dublin by the Dublin & South-Eastern railway. Pop. of urban district (1901), 3398. It is pleasantly situated on and about Sorrento Point, the southern horn of Dublin Bay. Dalkey Island, lying off the town, has an ancient ruined chapel, of the history of which nothing is certainly known, and a disused battery, which protected the harbour, a landing-place of some former importance. A castle in the town, of the 15th century, is restored to use as offices for the urban district council. There are also ruins of an old church, the dedication of which, like the island chapel, is ascribed to one St Begnet, perhaps a diminutive form of Bega, but the identity is not clear. Until the close of the 18th century Dalkey was notorious for the burlesque election of a "king," a mock ceremony which became invested with a certain political importance.

DALLAS, ALEXANDER JAMES (1759-1817), American statesman and financier, was born on the island of Jamaica, West Indies, on the 21st of June 1759, the son of Dr Robert C. Dallas (d. 1774), a Scottish physician then practising there. Dr Dallas soon returned to England with his family, and Alexander was educated at Edinburgh and Westminster. He studied law for a time in the Inner Temple, and in 1780 returned to Jamaica. There he met the younger Lewis Hallam (1738-1808), a pioneer American theatrical manager and actor, who induced him to remove to the United States, and in 1783 he settled in Philadelphia, where he at once took the oath of allegiance to the United States, was admitted to practise law in 1785, and rapidly attained a prominent position at the bar. He was interested in the theatrical projects of Hallam, for whom he wrote several dramatic compositions, and from 1787 to 1789 he edited *The Columbian Magazine*. From 1791 to 1801 he was secretary of the commonwealth of Pennsylvania. Partly owing to his publication of an able pamphlet against the Jay treaty in 1795, he soon acquired a position of much influence in the Democratic-Republican party in the state. During the Whisky Insurrection he was paymaster-general of the state militia. His official position as secretary did not entirely prevent him from continuing his private law practice, and, with Jared Ingersoll, he was the counsel of Senator William Blount in his impeachment trial. Dallas was United States attorney for the eastern district of Pennsylvania from 1801 until 1814, a period marked by bitter struggles between the Democratic-Republican factions in the state, in which he took a leading part in alliance with Governor Thomas M'Kean and Albert Gallatin, and in opposition to the radical factions

led by Michael Leib (1759-1822) and William Duane (1760-1835), of the *Aurora*. The quarrel led in 1805 to the M'Kean party seeking Federalist support. By such an alliance, largely due to the political ingenuity of Dallas, M'Kean was re-elected. In October 1814 President Madison appointed Dallas secretary of the treasury, to succeed George W. Campbell (1768-1848), whose brief and disastrous term had been marked by wholesale bank suspensions, and an enormous depreciation of state and national bank notes. The appointment itself inspired confidence, and Dallas's prompt measures still further relieved the situation. He first issued new interest-bearing treasury notes of small denominations, and in addition proposed the re-establishment of a national bank, by which means he expected to increase the stability and uniformity of the circulating medium, and furnish the government with a powerful engine in the upholding of its credit. In spite of his already onerous duties, Dallas, with characteristic energy, served also as secretary of war *ad interim* from March to August 1815, and in this capacity successfully reorganized the army on a peace footing. Although peace brought a more favourable condition of the money market, Dallas's attempt to fund the treasury notes on a satisfactory basis was unsuccessful, but a bill, reported by Calhoun, as chairman of the committee on national currency, for the establishment of a national bank, became law on the 10th of April 1816. Meanwhile (12th of February 1816) Dallas, in a notable report, recommended a protective tariff, which was enacted late in April, largely in accordance with his recommendation. Although Dallas left the cabinet in October 1816, it was through his efforts that the new bank began its operations in the following January, and specie payments were resumed in February. Dallas, who belonged to the financial school of Albert Gallatin, deserves to rank among America's greatest financiers. He found the government bankrupt, and after two years at the head of the treasury he left it with a surplus of $20,000,000; moreover, as Henry Adams points out, his measures had "fixed the financial system in a firm groove for twenty years." He retired from office to resume his practice of the law, but the burden of his official duties had undermined his health, and he died suddenly at Philadelphia on the 16th of June 1817. He was the author of several notable political pamphlets and state papers, and in addition edited *The Laws of Pennsylvania, 1700-1801* (1801), and *Reports of Cases ruled and adjudged by the Courts of the United States and of Pennsylvania before and since the Revolution* (4 vols., 1790-1807; new edition with notes by Thomas J. Wharton, 1830). He wrote *An Exposition of the Causes and Character of the War of 1812-15* (1815), which was republished by government authority in New York and London and widely circulated. He left in MS. an unfinished *History of Pennsylvania*.

His brother, Robert Charles Dallas (1754-1824), was born in Jamaica, and lived at various times in the West Indies, the United States, England and France. He was an intimate friend of Lord Byron. He wrote *Recollections of Lord Byron* (1824), and several novels, plays and miscellaneous works.

See G. M. Dallas, *Life and Writings of Alexander James Dallas* (Philadelphia, 1871).

DALLAS, GEORGE MIFFLIN (1792-1864), American statesman and diplomat, was born in Philadelphia, Pennsylvania, on the 10th of July 1792. He graduated at Princeton in 1810 at the head of his class; then studied law in the office of his father, Alexander J. Dallas, the financier, and was admitted to the bar in 1813. In the same year he accompanied Albert Gallatin, as his secretary, to Russia, and in 1814 returned to the United States as the bearer of important dispatches from the American peace commissioners at Ghent. He practised law in New York and Philadelphia, was chosen mayor of Philadelphia in 1828, and in 1829 was appointed by President Jackson, whom he had twice warmly supported for the presidency, United States attorney for the eastern district of Pennsylvania, a position long held by his father. From 1831 to 1833 he was a Democratic member of the United States Senate, in which he advocated a compromise tariff and strongly supported Jackson's position in regard to nullification. On the bank question he was at first at variance with the president; in January 1832 he presented in the Senate a memorial from the bank's president, Nicholas Biddle, and its managers, praying for a recharter, and subsequently he was chairman of a committee which reported a bill re-chartering the institution for a fifteen-year period. Afterwards, however, his views changed and he opposed the bank. From 1833 to 1835 Dallas was attorney-general of Pennsylvania, and from 1835 to 1839 was minister to Russia. During the following years he was engaged in a long struggle with James Buchanan for party leadership in Pennsylvania. He was vice-president of the United States from 1845 to 1849, but the appointment of Buchanan as secretary of state at once shut him off from all hope of party patronage or influence in the Polk administration, and he came to be looked upon as the leader of that body of conservative Democrats of the North, who, while they themselves chafed at the domination of Southern leaders, were disposed to disparage all anti-slavery agitation. By his casting vote at a critical period during the debate in the Senate on the tariff bill of 1846, he irretrievably lost his influence with the protectionist element of his native state, to whom he had given assurances of his support of the Tyler tariff of 1842. For several years after his retirement from office, he devoted himself to his law practice, and in 1856 succeeded James Buchanan as United States minister to England, where he remained until relieved by Charles Francis Adams in May 1861. During this trying period he represented his country with ability and tact, making every endeavour to strengthen the Union cause in Great Britain. He died at Philadelphia on the 1st of December 1864. He wrote a biographical memoir for an edition of his father's writings, which was published in 1871.

His *Diary* of his residence in St Petersburg and London was published in Philadelphia in 1892.

DALLAS, a city and the county-seat of Dallas county, Texas, U.S.A., about 220 m. N.W. of Houston, on the E. bank of the Trinity river. Pop. (1880) 10,358; (1890) 38,067; (1900) 42,638, of whom 9035 were negroes and 3381 were foreign-born; (1910) 92,104. Area, about 15 sq. m. Dallas is served by the Chicago, Rock Island & Pacific, the Gulf, Colorado & Santa Fé, the Houston & Texas Central, the Missouri, Kansas & Texas, the St Louis South-western, the Texas & New Orleans, the Trinity & Brazos Valley, and the Texas & Pacific railways, and by interurban electric railways to Fort Worth and Sherman. The lower channel of the Trinity river has been greatly improved by the Federal government; but in 1908 the river was not navigable as far as Dallas. Among public buildings are the Carnegie library (1901), Dallas county court house, the city hall, the U.S. government building, St Matthew's cathedral (Prot. Episc.), the cathedral of the Sacred Heart (Rom. Cath.), the city hospital, St Paul's sanitarium (Rom. Cath.), and the Baptist Memorial sanitarium. Educational institutions include Dallas medical college (1901), the colleges of medicine and pharmacy of Baylor University, the medical college of South-western University (at Georgetown, Texas), Oak Cliff female academy, Patton seminary, St Mary's female college (Prot. Episc.), and Holy Trinity college (Rom. Cath.). The city had in 1908 three parks—Bachman's Reservoir (500 acres); Fair (525 acres)—the Texas state fair grounds, in which an annual exhibition is held—and City park (17 acres). Lake Cliff, Cycle and Oak Lawn parks are amusement grounds. A Confederate soldiers' monument, a granite shaft 50 ft. high, was erected in 1897, with statues of R. E. Lee, Jefferson Davis, "Stonewall" Jackson and A. S. Johnston. Dallas was in 1900 the third city in population and the most important railway centre in Texas. It is a shipping centre for a large wheat, fruit and cotton-raising region, and the principal jobbing market for northern Texas, Oklahoma and part of Louisiana, and the biggest distributing point for agricultural machinery in the South-west. It is a livestock market, and one of the chief centres in the

United States for the manufacture of saddlery and leather goods, and of cotton-gin machinery. It has flour and grist mills (the products of which ranked first in value among the city's manufactures in 1905), wholesale slaughtering and meat-packing establishments, cooperage works, railway repair shops, cotton compresses, lumber yards, salt works, and manufactories of cotton-seed oil and cake, boots and shoes and cotton and agricultural machinery. In 1900 and 1905 it was the principal manufacturing centre in the state, the value of its factory product in 1905 being $15,627,668, an increase of 64.7% over that in 1900. The water-works are owned and operated by the city, and the water is taken from the Elm fork of Trinity river. There are several artesian wells. Dallas, named in honour of G. M. Dallas, was settled in 1841, and first chartered as a city in 1856. The city is governed, under a charter of 1907, by a mayor and four commissioners, who together pass ordinances, appoint nearly all city officers, and generally are responsible for administering the government. In addition a school board is elected by the people. The charter contains initiative and referendum provisions, provides for the recall of any elective city official, and prohibits the granting of any franchise for a longer term than twenty years.

DALLE (pronounced "dal," Fr. for a flag-stone or flat tile), a rapid falling over flat smooth rock surfaces in a river bed, especially in rivers flowing between basaltic rocks. The name is common in America, and came into use through the French employés of the Hudson's Bay Company. Well-known "dalles" are on the St Louis, St Croix and Wisconsin rivers. The "dalles" of the Columbia river are very beautiful, and have given its name to Dalles (1910 pop. 4880), county-seat of Wasco county, Oregon.

DALLIN, CYRUS EDWIN (1861-), American sculptor, was born at Springville, Utah, on the 22nd of November 1861. He was a pupil of Truman H. Bartlett in Boston, of the École des Beaux Arts, the Académie Julien and the sculptors Henri M. Chapu and Jean Dampt (born 1858), in Paris, and on his return to America became instructor in modelling in the state normal art school in Boston. He is best known for his plastic representations of the North American Indian—especially for "The Signal of Peace" in Lincoln Park, Chicago, and "The Medicine Man," in Fairmount Park, Philadelphia. As a boy he had lived among the Indians in the Far West, and had learned their language. His later works include "Pioneer Monument," Salt Lake City; "Sir Isaac Newton," Congressional Library, Washington; and "Don Quixote." He won a silver medal at the Paris Exposition, 1900, and a gold medal at the St Louis Exposition, 1904.

DALLING AND BULWER, WILLIAM HENRY LYTTON EARLE BULWER, Baron (1801-1872), better known as Sir Henry Bulwer, English diplomatist and author, was born in London on the 13th of February 1801. His father, General William Earle Bulwer, when colonel of the 106th regiment, had married Elizabeth Barbara Lytton, who—as the only child of Richard Warburton Lytton, of Knebworth Park, in Hertfordshire—was sole heiress of the family of Norreys-Robinson-Lytton of Monacdhu in the island of Anglesea and of Guersylt in Denbighshire. Three sons were the fruit of this marriage. The second, afterwards Lord Dalling, was amply provided for by his selection as heir to his maternal grandmother; the paternal estates in Norfolk went to his elder brother William, and the maternal property in Herts to the youngest, Edward, known first as Bulwer the novelist and dramatist, and afterwards as the first Baron Lytton (q.v.) of Knebworth.

General Bulwer, as brigadier-general of volunteers, was one of the four commanding officers to whom was entrusted the defence of England in 1804, when threatened with invasion by Napoleon. Three years afterwards, on the 7th of July 1807, he died prematurely at fifty-two at Heyden Hall. His young widow had then devolved upon her not only the double charge of caring for the estates in Herts and Norfolk, but the far weightier responsibility of superintending the education of her three sons, then in their earliest boyhood. Henry Bulwer was educated at Harrow, under Dr George Butler, and at Trinity College and Downing College, Cambridge. In 1822 he published a small volume of verse, beginning with an ode on the death of Napoleon. It is chiefly interesting now for its fraternal dedication to Edward Lytton Bulwer, then a youth of nineteen.

On leaving Cambridge in the autumn of 1824, Henry Bulwer went, as emissary of the Greek committee then sitting in London, to the Morea, carrying with him £80,000 sterling, which he handed over to Prince Mavrocordato and his colleagues, as the responsible leaders of the War of Independence. He was accompanied on this expedition by Hamilton Browne, who, a year before, had been despatched by Lord Byron to Cephalonia to treat with the insurgent government. Shortly after his return to England in 1826, Bulwer published a record of this excursion, under the title of *An Autumn in Greece*. Meanwhile, bent for the moment upon following in his father's footsteps, he had, on the 19th of October 1825, been gazetted as a cornet in the 2nd Life Guards. Within less than eight months, however, he had exchanged from cavalry to infantry, being enrolled on the 2nd of June 1826 as an ensign in the 58th regiment. That ensigncy he retained for little more than a month, obtaining another unattached, which he held until the 1st of January 1829, when he finally abandoned the army. The court, not the camp, was to be the scene of his successes; and for thirty-eight years altogether—from August 1827 to August 1865—he contrived, while maturing from a young attaché to an astute and veteran ambassador, to hold his own with ease, and in the end was ranked amongst the subtlest intellects of his time as a master of diplomacy. His first appointment in his new profession was as an attaché at Berlin. In April 1830 he obtained his next step through his nomination as an attaché at Vienna. Thence, exactly a year afterwards, he was employed nearer home in the same capacity at the Hague.

As yet ostensibly no more than a careless lounger in the *salons* of the continent, the young ex-cavalry officer veiled the keenest observation under an air of indifference. His constitutional energy, which throughout life was exceptionally intense and tenacious, wore from the first a mask of languor. When in reality most cautious he was seemingly most negligent. No matter what he happened at the moment to take in hand, the art he applied to it was always that highest art of all, the *ars celare artem*. His mastery of the lightest but most essential weapon in the armoury of the diplomatist, tact, came to him as it seemed intuitively, and from the outset was consummate. Talleyrand himself would have had no reason, even in Henry Bulwer's earliest years as an attaché, to write entreatingly, "*pas de zèle*," to one who concealed so felicitously, even at starting, a lynx-like vigilance under an aspect the most phlegmatic. He had hardly reached his new post at the Hague when he found and seized his opportunity. The revolutionary explosion of July at Paris had been echoed on the 25th of August 1830 by an outburst of insurrection at Brussels. During the whole of September a succession of stormy events swept over Belgium, until the popular rising reached its climax on the 4th of October in the declaration of

Belgian independence by the provisional government. At the beginning of the revolution, the young attaché was despatched by the then foreign secretary at Whitehall, Lord Aberdeen, to watch events as they arose and report their character. In the execution of his special mission he traversed the country in all directions amidst civil war, the issue of which was to the last degree problematic. Under those apparently bewildering circumstances, he was enabled by his sagacity and penetration to win his spurs as a diplomatist. Writing almost haphazard in the midst of the conflict, he sent home from day to day a series of despatches which threw a flood of light upon incidents that would otherwise have appeared almost inexplicable. Scarcely a week had elapsed, during which his predictions had been wonderfully verified, when he was summoned to London to receive the congratulations of the cabinet. He returned to Brussels no longer in a merely temporary or informal capacity. As secretary of legation, and afterwards as chargé d'affaires, he assisted in furthering the negotiations out of which Belgium rose into a kingdom. Scarcely had this been accomplished when he wrote what may be called the first chapter of the history of the newly created Belgian kingdom. It appeared in 1831 as a brief but luminous paper in the January number of the *Westminster Review*. And as the events it recorded had helped to inaugurate its writer's career as a diplomatist, so did his narrative of those occurrences in the pages of the Radical quarterly signalize in a remarkable way the commencement of his long and consistent career as a Liberal politician. Shortly before his appearance as a reviewer, and immediately prior to the carrying of the first Reform Bill, Bulwer had won a seat in the House of Commons as member for Wilton, afterwards in 1831 and 1832 sitting there as M.P. for Coventry. Nearly two years having elapsed, during which he was absent from parliament, he was in 1834 returned to Westminster as member for Marylebone. That position he retained during four sessions, winning considerable distinction as a debater. Within the very year in which he was chosen by the Marylebone electors, he brought out in two volumes, entitled *France—Literary, Social and Political*, the first half of a work which was only completed upon the publication, two years afterwards, of a second series, also in two volumes, under the title of *The Monarchy of the Middle Classes*. Through its pages he made good his claim to be regarded not merely as a keen-witted observer, but as one of the most sagacious and genial delineators of the generic Frenchman, above all of that supreme type of the race, with whom all through his life he especially delighted to hold familiar intercourse, the true Parisian. Between the issuing from the press of these two series, Henry Bulwer had prefixed an intensely sympathetic *Life of Lord Byron* to the Paris edition of the poet's works published by Galignani,—a memoir republished sixteen years afterwards. A political argument of a curiously daring and outspoken character, entitled *The Lords, the Government, and the Country*, was given to the public in 1836 by Bulwer, in the form of an elaborate letter to a constituent. At this point his literary labours, which throughout life were with him purely labours by-the-way, ceased for a time, and he disappeared during three decades from authorship and from the legislature.

During the period of his holding the position of chargé d'affaires at Brussels, Bulwer had seized every opportunity of making lengthened sojourns at Paris, always for him the choicest place of residence. It was in the midst of one of these *dolce far niente* loiterings on the boulevards that, on the 14th of August 1837, he received his nomination as secretary of embassy at Constantinople. Recognizing his exceptional ability Lord Ponsonby, the British ambassador at Constantinople, at once entrusted to him the difficult task of negotiating a commercial treaty, which had the double object of removing the intolerable conditions which hampered British trade with Turkey and of dealing a blow at the threatening power of Mehemet Ali, pasha of Egypt, by shattering the system of monopolies on which it was largely based. In this difficult task Bulwer was helped by the hatred of Sultan Mahmed II. for Mehemet Ali, but the treaty was none the less a remarkable proof of his diplomatic skill, and the compliment was well deserved when Palmerston, in writing his congratulations to him from Windsor Castle, on the 13th of September 1838, pronounced the treaty a *capo d'opera*, adding that without reserve it would be at once ratified. Shortly after this achievement Bulwer was nominated secretary of embassy at St Petersburg. Illness, however, compelled him to delay his northern journey—almost opportunely, as it happened, for in June 1839 he was despatched, in the same capacity, to the more congenial atmosphere of Paris. At that juncture the developments of the feud between Mehemet Ali and the Porte were threatening to bring England and France into armed collision (see Mehemet Ali). In 1839 and 1840, during the temporary absence of his chief, Lord Granville, the secretary of embassy was gazetted *ad interim* chargé d'affaires at the court of France, and thus during this critical time he had fresh opportunities of winning distinction as a diplomatist.

On the 14th of November 1843 he was appointed ambassador at the court of the young Spanish queen Isabella II. Upon his arrival at Madrid signal evidence was afforded of the estimation in which he was then held as a diplomatist. He was chosen arbitrator between Spain and Morocco, then confronting each other in deadly hostility, and, as the result of his mediation, a treaty of peace was signed between the two powers in 1844. In 1846 a much more formidable difficulty arose, —one which, after threatening war between France and England, led at last to a diplomatic rupture between the British and Spanish governments. The dynastic intrigues of Louis Philippe were the immediate cause of this estrangement, and those intrigues found their climax in what has ever since been known in European annals as the Spanish Marriages. The storm sown in the Spanish marriages was reaped in the whirlwind of the February revolution. And the explosion which took place at Paris was answered a month afterwards at Madrid by a similar outbreak. Marshal Narvaez thereupon assumed the dictatorship, and wreaked upon the insurgents a series of reprisals of the most pitiless character. These excessive severities of the marshal-dictator the British ambassador did his utmost to mitigate. When at last, however, Narvaez carried his rigour to the length of summarily suppressing the constitutional guarantees, Bulwer sent in a formal protest in the name of England against an act so entirely ruthless and unjustifiable. This courageous proceeding at once drew down upon the British envoy a counter-stroke as ill-judged as it was unprecedented. Narvaez, with matchless effrontery, denounced the ambassador from England as an accomplice in the conspiracies of the Progressistas; and despite his position as an envoy, and in insolent defiance of the Palmerstonian boast, *Civis Britannicus*, Bulwer, on the 12th of June, was summarily required to quit Madrid within twenty-four hours. Two days afterwards M. Isturitz, the Spanish ambassador at the court of St James's, took his departure from London. Diplomatic relations were not restored between the two countries until years had elapsed, nor even then until after a formal apology, dictated by Lord Palmerston, had been signed by the prime minister of Queen Isabella. Before his return the ambassador was gazetted a K.C.B., being promoted to the grand cross some three years afterwards. In addition to this mark of honour he received the formal approbation of the ministry, and with it the thanks of both Houses of Parliament.

Before the year of his return from the peninsula had run out Sir Henry Bulwer was married to the Hon. Georgiana Charlotte Mary Wellesley, youngest daughter of the 1st Baron Cowley, and niece to the duke of Wellington. Early in the following year, on the 27th of April 1849, he was nominated ambassador at Washington. There he acquired immense popularity. His principal success was the compact known as the Clayton-Bulwer Treaty (q.v.), ratified in May 1850, pledging the contracting governments to respect the neutrality of the meditated ship canal through Central America, bringing the waters of the Atlantic and Pacific into direct communication. After having been accredited as ambassador to the United States for three years, Sir Henry Bulwer, early in 1852, was despatched as minister plenipotentiary at the court of the grand duke of Tuscany at Florence. Shortly after his retirement from that post in the January of 1855, he was entrusted with various diplomatic missions, in one of which he was empowered as commissioner under the 23rd article of the treaty of Paris, 1856, to investigate the state of things in the Danubian principalities, with a view to their definite reorganization. Finally he was installed, from May 1858 to August 1865, as the immediate successor, after the close of the Crimean war, of the "Great Elchi," Viscount Stratford de Redcliffe, as ambassador extraordinary to the Ottoman Porte at Constantinople.

In the winter of 1865 Bulwer returned home from the Bosporus, and retired with a pension. He was elected member for Tamworth on the 17th of November 1868, and retained his seat until gazetted as a peer of the realm on the 21st of March

1871, under the title of Baron Dalling and Bulwer of Wood Dalling in the county of Norfolk. Upon the eve of his return to his old haunts as a debater and a politician he had asserted his claim to literary distinction by giving to the world in two volumes his four masterly sketches of typical men, entitled *Historical Characters*. This work, dedicated to his brother Edward, in testimony of the writer's fraternal affection and friendship, portrayed in luminous outline Talleyrand the Politic Man, Cobbett the Contentious Man, Canning the Brilliant Man, and Mackintosh the Man of Promise. Two other kindred sketches, those of Sir Robert Peel and Viscount Melbourne, having been selected from among their author's papers, were afterwards published posthumously. Another work of ampler outline and larger pretension was begun and partially issued from the press during Lord Dalling's lifetime, but not completed. This was the *Life of Viscount Palmerston*, the first two volumes of which were published in 1870. A third volume appeared four years afterwards. Even then it left the story of the English statesman broken off so abruptly that the work remained at the last the merest fragment. It was completed by Evelyn Ashley.

Lord Dalling died unexpectedly on the 23rd of May 1872 at Naples. He had no issue, and the title became extinct. In his public career he enjoyed a three-fold success—as ambassador, as politician and as man of letters. His popularity in society was at all times remarkable, mainly no doubt from his mastery of all the subtler arts of a skilled conversationalist. The apparent languor with which he related an anecdote, flung off a *bon mot*, or indulged in a momentary stroke of irony imparted interest to the narrative, wings to the wit and point to the sarcasm in a manner peculiarly his own.

(C. K.)

DALLMEYER, JOHN HENRY (1830-1883), Anglo-German optician, was born on the 6th of September 1830 at Loxten, Westphalia, the son of a landowner. On leaving school at the age of sixteen he was apprenticed to an Osnabrück optician, and in 1851 he came to London, where he obtained work with an optician, W. Hewitt, who shortly afterwards, with his workmen, entered the employment of Andrew Ross, a lens and telescope manufacturer. Dallmeyer's position in this workshop appears to have been an unpleasant one, and led him to take, for a time, employment as French and German correspondent for a commercial firm. After a year he was, however, re-engaged by Ross as scientific adviser, and was entrusted with the testing and finishing of the highest class of optical apparatus. This appointment led to his marriage with Ross's second daughter, Hannah, and to the inheritance, at Ross's death (1859), of a third of his employer's large fortune and the telescope manufacturing portion of the business. Turning from astronomical work to the making of photographic lenses (see Photography), he introduced improvements in both portrait and landscape lenses, in object-glasses for the microscope and in condensers for the optical lantern. In connexion with celestial photography he constructed photo-heliographs for the Wilna observatory in 1863, for the Harvard College observatory in 1864, and, in 1873, several for the British government. Dallmeyer's instruments achieved a wide success in Europe and America, taking the highest awards at various international exhibitions. The Russian government gave him the order of St Stanislaus, and the French government made him chevalier of the Legion of Honour. He was for many years upon the councils of both the Royal Astronomical and Royal Photographic societies. About 1880 he was advised to give up the personal supervision of his workshops, and to travel for his health, but he died on board ship, off the coast of New Zealand, on the 30th of December 1883.

His second son, Thomas Rudolphus Dallmeyer (1859-1906), who assumed control of the business on the failure of his father's health, was principally known as the first to introduce telephotographic lenses into ordinary practice (patented 1891), and he was the author of a standard book on the subject (*Telephotography*, 1899). He served as president of the Royal Photographic Society in 1900-1903.

DALL' ONGARO, FRANCESCO (1808-1873), Italian writer, born in Friuli, was educated for the priesthood, but abandoned his orders, and taking to political journalism founded the *Favilla* at Trieste in the Liberal interest. In 1848 he enlisted under Garibaldi, and next year was a member of the assembly which proclaimed the republic in Rome, being given by Mazzini the direction of the *Monitor officiale*. On the downfall of the republic he fled to Switzerland, then to Belgium and later to France, taking a prominent part in revolutionary journalism; it was not till 1860 that he returned to Italy, where he was appointed professor of dramatic literature at Florence. Subsequently he was transferred to Naples, where he died on the 10th of January 1873. His patriotic poems, *Stornelli*, composed in early life, had a great popular success; and he produced a number of plays, notably *Fornaretto*, *Bianca Capello*, *Fasma* and *Il Tesoro*. His collected *Fantasie drammatiche e liriche* were published in his lifetime.

DALMATIA (Ger. *Dalmatien*; Ital. *Dalmazia*; Serbo-Croatian, *Dalmacija*), a kingdom and crownland of the Austro-Hungarian empire, in the north-west of the Balkan Peninsula, and on the Adriatic Sea. Dalmatia is bounded, on the landward side, by Croatia and Bosnia, in the N. and N.E.; and by Herzegovina and Montenegro, in the S.E. and S. Its area amounts to 4923 sq. m.; its greatest length, from north-west to south-east, is 210 m.; its breadth reaches 35 m. between Point Planca and the Bosnian frontier, diminishing to less than 1 m. at Cattaro. Near the ports of Klek and Castelnuovo the Herzegovinian frontier comes down to the sea,[1] but only for a total distance of 14½ m.

Physical Features.—No part of the Mediterranean shore, except the coast of Greece, is so deeply indented as the Dalmatian littoral, with its multitude of rock-bound bays and inlets. It is sheltered from the open sea by a rampart of islands which vary greatly in size; a few being large enough to support several thousand inhabitants, while others are mere reefs, swept bare by the sea, or tenanted only by rabbits and seabirds. This Dalmatian archipelago, separated from the Istrian by the Gulf of Quarnerolo, forms two island groups, the northern or Liburnian, and the southern; with open water intervening, off Point Planca. In calm weather the channels between the islands and the mainland resemble a chain of landlocked lakes, brilliantly clear to a depth of several fathoms. As a rule, the surrounding hills are rugged, bleached almost white or pale russet, and destitute of verdure; but their monotony is relieved by the half-ruined castles and monasteries clinging to the rocks, or by the beauty of such cities as Ragusa, or Arbe, with its fantastic row of steeples overlooking the beach. The principal islands, Arbe, Brazza, Curzola, Lacroma, Lesina, Lissa and Meleda, are described under separate headings. The promontory of Sabbioncello, or Punta di Stagno, which juts out for 41 m. into the sea, between Curzola and Lesina, is almost another island; for its breadth, which nowhere exceeds 5 m., dwindles to about 1 m. at the narrow isthmus which unites it with the shore. There are two small ports on this isthmus—on the south, Stagno

Grande (Serbo-Croatian, *Ston Veliki*), once celebrated for its salt and shipbuilding industries, and, on the north, Stagno Piccolo (*Ston Mali*). Dalmatia possesses a magnificent anchorage in the Bocche di Cattaro, and there are numerous lesser havens, at Sebenico, Traù, Zara and elsewhere along the coast and among the islands.

The country is almost everywhere hilly or mountainous. On the Croatian border rises the lofty barrier of the Velebit, which culminates in Sveto Brdo (5751 ft.), and Vakanski Vrh (5768 ft.). The Dinaric Alps form the frontier between Dalmatia and Bosnia; Dinara (6007 ft.), which gives its name to the whole chain, and Troglav (6276 ft.), being the highest Dalmatian summits. North-west of Sinj rise the Svilaja and Moseć Planinas; the ridges of Mosor and Biokovo, with Sveto Juraj (5781 ft.), follow the windings of the coast from Spalato to Macarsca; Orjen marks the meeting-place of the Herzegovinian, Montenegrin and Dalmatian frontiers, and the Sutorman range appears in the extreme south. The barren dry limestone of the Dalmatian highlands has been aptly compared with a petrified sponge; for it is honeycombed with underground caverns and water-courses, into which the rainfall is at once filtered. Thus arises a complete system of subterranean rivers, with waterfalls, lakes and regular seasons of flood. Even the few surface rivers vanish and emerge again at intervals. The Trebinjčica, for instance, disappearing in Herzegovina, supplies both the broad and swift estuary of Ombla, near Ragusa, and the fresh-water spring of Doli, which issues from the bottom of the sea. Apart from the Ombla, and the Narenta (Serbo-Croatian, *Neretva*; Roman, *Naro*), which creates a broad marshy delta between Metković and the sea, Dalmatia has only three rivers more than 25 m. long; the Zermagna (*Zrmanja*, *Tedanium*), Kerka, (*Krka*, *Titius*), and Cetina (*Cetina*; *Narona* or *Tilurus*). The Zermagna skirts the southern foothills of the Velebit and falls into the harbour of Novigrad. Better known is the Kerka, which rises in the Dinaric Alps and flows south-westward to the Adriatic. Near Scardona (*Skradin*) it spreads into a broad lake, and forms several fine waterfalls, after receiving its tributary the Cikola (*Čikola*), from the east. South of Spalato, the Cetina, which also springs from the Dinaric Alps, descends to the sea at Almissa (*Omiš*), after passing between the Mosor and Biokovo ranges. There are a few small lakes near Zara, Zaravecchia and the Narenta estuary; while the fertile, but unhealthy, hollows among the mountains fill with water after heavy rain, and sometimes cause disastrous floods. But most parts of the country suffer from drought.

For an account of the chief geological formations see Balkan Peninsula. Small quantities of iron, lignite, asphalt and bay salt are the only minerals of commercial importance.

The climate is warm and healthy, the mean temperature at Zara being 57° F., at Lesina 62°, and at Ragusa 63°. The prevailing wind is the sirocco, or S.E.; but the terrible Bora, or N.N.E., may blow at any season of the year. The average annual rainfall is about 28 in., but a dry and a wet year usually alternate.

Fauna.—Bears, badgers and wild cats, with a larger number of wolves and foxes, find shelter in the Dinaric Alps and on the heights of Svilaja, Mosor and Biokovo; while jackals exist on Curzola and Sabbioncello, almost their last refuges in Europe. Roedeer are uncommon, and the wild boar, chamois, red-deer and beaver are extinct; but hares and rabbits abound. The game-laws are not strict, and are often evaded by the Morlachs; but moderate sport may be obtained in the fens formed by the Cetina about Sinj, and the lagoons of the Narenta estuary; both regions being frequented by wild swans, geese, duck, snipe and other aquatic birds. Among land-birds, the commonest are quails, woodcock, partridges, and especially the so-called "stone-fowl" (*Steinhuhn*, *Perdix Graeca*). Tortoises are numerous; snakes, lizards, scorpions and innumerable sand-flies infest the dry hillsides; and the limestone caverns are peopled by sightless bats, reptiles, fish, flies, beetles, spiders, crustacea and molluscs.

Fisheries.—No region of Europe is richer in its marine fauna and flora. Sponge and coral fisheries afford a valuable source of income to the peasantry, many of whom also go northward for the sardine and tunny fisheries of the Istrian coast, while salmon, trout and eels are caught in the Dalmatian rivers.

Flora.—The olive, almond, fig, orange, palm, aloe, myrtle, locust-tree and other characteristic members of the Mediterranean flora thrive in the sheltered valleys of the Dalmatian littoral, where almond-blossoms appear in mid-winter, and the palm occasionally bears ripe fruit. The *marasca*, or wild cherry, is abundant, and yields the celebrated liqueur called *maraschino*. But at a little distance from the rivers and on the more exposed parts of the coast the aspect of the country changes entirely. Patches of thin grass, heather, juniper, thyme, tamarisks and mountain roses hardly relieve the bareness and aridity of the seaward slopes.

Forests.—Oaks, pines and beeches still, in a few parts, clothe the landward slopes, but, as a rule, the forests for which Dalmatia was once famous were cut down for the Venetian shipyards or burned by pirates; while every attempt at replanting is frustrated by the shallowness of the soil, the drought and the multitude of goats that browse on the young trees.

Agriculture.—Little more than one-tenth of the whole surface is under the plough; the rest, where it is not altogether sterile, being chiefly mountain pasture, vineyards and garden land. Asses are the favourite beasts of burden; goats are strikingly numerous; and sheep are kept for the sake of their mutton, which is almost the only animal food freely consumed by the peasantry. Cattle-breeding, bee-keeping, and the cultivation of fruit and vegetables, especially potatoes and beetroot, are among the principal resources of the people, while wheat, rye, barley, oats, Indian corn, hemp and millet are also grown. Viticulture is carried on with great and increasing success (see Wine).

Land-tenure.—Individual proprietorship of the soil is rare, for, despite the decadence of the *zadruga* or household community, the tenure of land and the privilege of using the communal domain still appertain to the family as a whole. There are a few large estates, but most of the land is parcelled out in small holdings.

Industries.—Besides fishing, farming and such allied trades as shipbuilding, wine and oil pressing, and the distillation of spirits, notably *maraschino,* a few other industries are practised, such as tile-burning and the manufacture of soap; but these are of minor importance. Certain crafts are also carried on by the country-folk, in their own homes; thus the peasant is sometimes his own mason, carpenter, weaver and miller. Manufactured goods and foodstuffs are imported, in return for asphalt, lignite, bay salt, wine, spirits, oil, honey, wax and hides; and there is a lucrative transit trade with Bosnia and Herzegovina, Montenegro, Turkey and various Adriatic and Mediterranean ports.

Communications.—Communications are defective, some parts of the interior being only accessible by the roughest of mountain roads. The principal railway, in point of size, traverses the central districts, linking together Knin, Spalato, Sebenico and Sinj; but the southern lines, which unite Dalmatia with Herzegovina and terminate at Ragusa, Metković and Castlenuovo on the Bocche di Cattaro, are almost of equal importance, Cattaro being one of the chief outlets for Montenegrin commerce, while the vessels which steam up the Narenta to Metković carry the bulk of the sea-borne trade of Herzegovina. In 1897 Dalmatia possessed 151 post and 98 telegraph offices.

Chief Towns.—The chief towns are Zara, the capital, with 32,506[2] inhabitants in 1900, Spalato (27,198), Sebenico (24,751), Traù (17,064), Ragusa (13,174), Macarsca (11,016), and Cattaro (5418). All these are described under separate headings.

Population and National Characteristics.—With a constant excess of male over female children, the population increased steadily from 1869 to 1900, when it reached 591,597. Of this total 1% are foreigners and about 3% Italians, whose numbers tend slowly to diminish. The Morlachs, who constitute the remaining 96%, belong to the Serbo-Croatian branch of the Slavonic race, having absorbed the Latinized Illyrians, Albanians and other alien elements with which they have been

associated. The name of *Morlachs*, *Morlaks* or *Morlacks* commonly bestowed by English writers on the Dalmatian Slavs, though sometimes restricted to the peasantry of the hills, is an abbreviated form of *Mavrovlachi*, meaning either "Black Vlachs," or, less probably, "Sea Vlachs." It was originally applied to the scattered remnants of the Latin or Latinized inhabitants of central Illyria, who were driven from their homes by the barbarian invaders during the 7th century, and took refuge among the mountains. Throughout the middle ages the Mavrovlachi were usually nomadic shepherds, cattle-drovers or muleteers. In the 14th century they emigrated from central Illyria into northern Dalmatia and maritime Croatia; and these regions were thenceforward known as *Morlacchia*, until the 18th century. Gradually, however, the Mavrovlachi became identified with the Slavs, whose language and manners they adopted, and to whom they gave their own name. In northern Dalmatia the Slavs of the interior are still called *Morlacchi*; in the south this name expresses contempt. Of the Vlachs, properly so called, very few are left in the country; although the name Vlachs (q.v.) is frequently used by the Slavs to designate the Italians and the town-dwellers generally. The literary languages of Dalmatia are Italian and Serbo-Croatian; the spoken language is, in each case, modified by the introduction of various dialect forms.

The Morlachs wear a picturesque and brightly-coloured costume, resembling that of the Serbs (see Servia). In appearance they are sometimes blond, with blue or grey eyes, like the Shumadian peasantry of Servia; more often, olive-skinned, with dark hair and eyes, like the Montenegrins, whom they rival in stature, strength and courage; while their conservative spirit, their devotion to national traditions, poetry and music, their pride, indolence and superstition, are typically Servian. Dalmatian public life is deeply affected by the jealousies which subsist between the Slavs and the Italians, whose influence, though everywhere waning, remains predominant in some of the towns; and between Orthodox "Serbs," who use the Cyrillic alphabet, and Roman Catholic "Croats," who prefer the Latin.

Government.—Dalmatia occupies a somewhat anomalous position in the Austro-Hungarian state system. Itself a crownland of Austria, returning eleven members to the Austrian parliament, it is severed geographically from the other Austrian lands by the Hungarian kingdom of Croatia. Ethnologically it is one with Croatia, and it is included in the official title of the Croatian king, i.e. the emperor. The political system is based on a law of the 26th of February 1861. The provincial diet is composed of 43 members, comprising the Roman Catholic archbishop, the Orthodox bishop of Zara and representatives of the chief taxpayers, the towns and the communes. Benkovac, on the main road from Zara to Spalato, Cattaro, Curzola, Imotski, 21 m. N. by E. of Macarsca, Knin, Lesina, Macarsca, Ragusa, Sebenico, Sinj, Spalato and Zara, give names to the twelve administrative districts, of which they are the capitals.

Defence.—Conscription is in force, as elsewhere in Austria, and the Dalmatian coast furnishes the Austrian—as formerly the Venetian—navy with many of its best recruits.

Religion.—Roman Catholicism is the religion of more than 80% of the population, the remainder belonging chiefly to the Orthodox Church. The Roman Catholic archbishop has his seat in Zara, while Cattaro, Lesina, Ragusa, Sebenico and Spalato are bishoprics. At the head of the Orthodox community stands the bishop of Zara.

The use of Slavonic liturgies written in the Glagolitic alphabet, a very ancient privilege of the Roman Catholics in Dalmatia and Croatia, caused much controversy during the first years of the 20th century. There was considerable danger that the Latin liturgies would be altogether superseded by the Glagolitic, especially among the northern islands and in rural communes, where the Slavonic element is all-powerful. In 1904 the Vatican forbade the use of Glagolitic at the festival of SS. Cyril and Methodius, as likely to impair the unity of Catholicism. A few years previously the Slavonic archbishop Rajčević of Zara, in discussing the "Glagolitic controversy," had denounced the movement as "an innovation introduced by Panslavism to make it easy for the Catholic clergy, after any great revolution in the Balkan States, to break with Latin Rome." This view is shared by very many, perhaps by the majority, of the Roman Catholics in Dalmatia.

Education.—Education progressed slowly between 1860 and 1900, attendance at school being often a hardship in the poor and widely scattered hamlets of the interior. In 1890 more than 80% of the population could neither read nor write, although schools are maintained by every commune. In 1893 the country possessed 5 intermediate and 337 elementary schools, 6 theological seminaries, 6 gymnasia, and about 40 continuation and technical schools.

Antiquities.—To the foreign visitor Dalmatia is chiefly interesting as a treasury of art and antiquities. The grave-mounds of Curzola, Lesina and Sabbioncello have yielded a few relics of prehistoric man, and the memory of the early Celtic conquerors and Greek settlers is preserved only in a few place-names; but the monuments left by the Romans are numerous and precious. They are chiefly confined to the cities; for the civilization of the country was always urban, just as its history is a record of isolated city-states rather than of a united nation. Beyond the walls of its larger towns, little was spared by the barbarian Goths, Avars and Slavs; and the battered fragments of Roman work which mark the sites of Salona, near Spalato, and of many other ancient cities, are of slight antiquarian interest and slighter artistic value. Among the monuments of the Roman period, by far the most noteworthy in Dalmatia, and, indeed, in the whole Balkan Peninsula, is the Palace of Diocletian at Spalato (q.v.). Dalmatian architecture was Byzantine in its general character from the 6th century until the close of the 10th. The oldest memorials of this period are the vestiges of three basilicas, excavated in Salona, and dating from the first half of the 7th century at latest. Byzantine art, in the latter half of this period and the two succeeding centuries, continued to flourish in those cities which, like Zara, gave their allegiance to Venice; just as, in the architecture of Traù and other cities dominated by Hungary, there are distinct traces of German influence. The belfry of S. Maria, at Zara, erected in 1105, is first in a long list of Romanesque buildings. At Arbe there is a beautiful Romanesque campanile which also belongs to the 12th century; but the finest example in this style is the cathedral of Traù. The 14th century Dominican and Franciscan convents in Ragusa are also noteworthy. Romanesque lingered on in Dalmatia until it was displaced by Venetian Gothic in the early years of the 15th century. The influence of Venice was then at its height. Even in the hostile republic of Ragusa the Romanesque of the custom-house and Rectors' palace is combined with Venetian Gothic, while the graceful balconies and ogee windows of the Prijeki closely follow their Venetian models. Gothic, however, which had been adopted very late, was abandoned very early; for in 1441 Giorgio Orsini of Zara, summoned from Venice to design the cathedral of Sebenico, brought with him the influence of the Italian Renaissance. The new forms which he introduced were eagerly imitated and developed by other architects, until the period of decadence—which virtually concludes the history of Dalmatian art—set in during the latter half of the 17th century. Special mention must be made of the carved woodwork, embroideries and plate preserved in many churches. The silver statuette and the reliquary of St Biagio at Ragusa, and the silver ark of St Simeon at Zara, are fine specimens of Byzantine and Italian jewellers' work, ranging in date from the 11th or 12th to the 17th century.

History

Dalmatia under Roman Rule, A.D. 9-1102.—The history of Dalmatia may be said to begin with the year 180 B.C., when the tribe from which the country derives its name declared itself independent of Gentius, the Illyrian king, and established a republic. Its capital was Delminium[3]; its territory stretched northwards from the Narenta to the Cetina, and later to the Kerka, where it met the confines of Liburnia. In 156 B.C. the Dalmatians were for the first time attacked by a Roman army and compelled to pay tribute; but only in the time of Augustus (31 B.C.-A.D. 14) was their land finally annexed, after the last of many formidable revolts had been crushed by Tiberius in A.D. 9. This event was followed by total submission and a ready acceptance of the Latin civilization which overspread Illyria (q.v.). The downfall of the Western Empire left this region subject to Gothic rulers, Odoacer and Theodoric, from 476 to 535, when it was added by Justinian to the Eastern

Empire. The great Slavonic migration into Illyria, which wrought a complete change in the fortunes of Dalmatia, took place in the first half of the 7th century. In other parts of the Balkan Peninsula these invaders—Serbs, Croats or Bulgars—found little difficulty in expelling or absorbing the native population. But here they were baffled when confronted by the powerful maritime city-states, highly civilized, and able to rely on the moral if not the material support of their kinsfolk in Italy. Consequently, while the country districts were settled by the Slavs, the Latin or Italian population flocked for safety to Ragusa, Zara and other large towns, and the whole country was thus divided between two frequently hostile communities. This opposition was intensified by the schism between Eastern and Western Christianity (1054), the Slavs as a rule preferring the Orthodox or sometimes the Bogomil creed, while the Italians were firmly attached to the Papacy. Not until the 15th century did the rival races contribute to a common civilization in the literature of Ragusa. To such a division of population may be attributed the two dominant characteristics of local history—the total absence of national as distinguished from civic life, and the remarkable development of art, science and literature. Bosnia, Servia and Bulgaria had each its period of national greatness, but remained intellectually backward; Dalmatia failed ever to attain political or racial unity, but the Dalmatian city-states, isolated and compelled to look to Italy for support, shared perforce in the march of Italian civilization. Their geographical position suffices to explain the relatively small influence exercised by Byzantine culture throughout the six centuries (535-1102) during which Dalmatia was part of the Eastern empire. Towards the close of this period Byzantine rule tended more and more to become merely nominal. In 806 Dalmatia was added to the Holy Roman empire, but was soon restored; in 829 the coast was ravaged by Saracens. A strange republic of Servian pirates arose at the mouth of the Narenta. In the 10th century description of Dalmatia by Constantine Porphyrogenitus (*De Administrando Imperio*, 29-37), this region is called *Pagania*, from the fact that its inhabitants had only accepted Christianity about 890, or 250 years later than the other Slavs. These *Pagani*, or *Arentani* (Narentines), utterly defeated a Venetian fleet despatched against them in 887, and for more than a century exacted tribute from Venice itself. In 998 they were finally crushed by the doge Pietro Orseolo II., who assumed the title duke of Dalmatia, though without prejudice to Byzantine suzerainty. Meanwhile the Croatian kings had extended their rule over northern and central Dalmatia, exacting tribute from the Italian cities, Traù, Zara and others, and consolidating their own power in the purely Slavonic towns, such as Nona or Belgrad (Zaravecchia). The Church was involved in the general confusion; for the synod of Spalato, in 1059, had forbidden the use of any but Greek or Latin liturgies, and so had accentuated the differences between Latin and Slav. A raid of Norman corsairs in 1073 was hardly defeated with the help of a Venetian fleet.

Rivalry of Venice and Hungary in Dalmatia, 1102-1420.—Unable amid such dissensions to stand alone, unprotected by the Eastern empire and hindered by their internal dissensions from uniting in a defensive league, the city-states turned to Venice and Hungary for support. The Venetians, to whom they were already bound by race, language and culture, could afford to concede liberal terms because their own principal aims was not the territorial aggrandizement sought by Hungary, but only such a supremacy as might prevent the development of any dangerous political or commercial competitor on the eastern Adriatic. Hungary had also its partisans; for in the Dalmatian city-states, like those of Greece and Italy, there were almost invariably two jealous political factions, each ready to oppose any measure advocated by its antagonist. The origin of this division seems here to have been economic. The farmers and the merchants who traded in the interior naturally favoured Hungary, their most powerful neighbour on land; while the seafaring community looked to Venice as mistress of the Adriatic. In return for protection, the cities often furnished a contingent to the army or navy of their suzerain, and sometimes paid tribute either in money or in kind. Arbe, for example, annually paid ten pounds of silk or five pounds of gold to Venice. The citizens clung to their municipal privileges, which were reaffirmed after the conquest of Dalmatia in 1102-1105 by Coloman of Hungary. Subject to the royal assent they might elect their own chief magistrate, bishop and judges. Their Roman law remained valid. They were even permitted to conclude separate alliances. No alien, not even a Hungarian, could reside in a city where he was unwelcome; and the man who disliked Hungarian dominion could emigrate with all his household and property. In lieu of tribute, the revenue from customs was in some cases shared equally by the king, chief magistrate, bishop and municipality. These rights and the analogous privileges granted by Venice were, however, too frequently infringed, Hungarian garrisons being quartered on unwilling towns, while Venice interfered with trade, with the appointment of bishops, or with the tenure of communal domains. Consequently the Dalmatians remained loyal only while it suited their interests, and insurrections frequently occurred. Even in Zara four outbreaks are recorded between 1180 and 1345, although Zara was treated with special consideration by its Venetian masters, who regarded its possession as essential to their maritime ascendancy. The doubtful allegiance of the Dalmatians tended to protract the struggle between Venice and Hungary, which was further complicated by internal discord due largely to the spread of the Bogomil heresy; and by many outside influences, such as the vague suzerainty still enjoyed by the Eastern emperors during the 12th century; the assistance rendered to Venice by the armies of the Fourth Crusade in 1202; and the Tartar invasion of Dalmatia forty years later (see Traù). The Slavs were no longer regarded as a hostile race, but the power of certain Croatian magnates, notably the counts of Bribir, was from time to time supreme in the northern districts (see Croatia-Slavonia); and Stephen Tvrtko, the founder of the Bosnian kingdom, was able in 1389 to annex the whole Adriatic littoral between Cattaro and Fiume, except Venetian Zara and his own independent ally, Ragusa (see Bosnia and Herzegovina). Finally, the rapid decline of Bosnia, and of Hungary itself when assailed by the Turks, rendered easy the success of Venice; and in 1420 the whole of Dalmatia, except Almissa, which yielded in 1444, and Ragusa, which preserved its freedom, either submitted or was conquered. Many cities welcomed the change with its promise of tranquillity.

Venetian and Turkish Rule, 1420-1797.—An interval of peace ensued, but meanwhile the Turkish advance continued. Constantinople fell in 1453, Servia in 1459, Bosnia in 1463 and Herzegovina in 1483. Thus the Venetian and Ottoman frontiers met; border wars were incessant; Ragusa sought safety in friendship with the invaders. In 1508 the hostile league of Cambrai compelled Venice to withdraw its garrison for home service, and after the overthrow of Hungary at Mohács in 1526 the Turks were able easily to conquer the greater part of Dalmatia. The peace of 1540 left only the maritime cities to Venice, the interior forming a Turkish province, governed from the fortress of Clissa by a *Sanjakbeg*, or administrator with military powers. Christian Slavs from the neighbouring lands now thronged to the towns, outnumbering the Italian population and introducing their own language, but falling under the influence of the Roman Catholic Church. The pirate community of the Uskoks (q.v.) had originally been a band of these fugitives; its exploits contributed to a renewal of war between Venice and Turkey (1571-1573). An extremely curious picture of contemporary manners is presented by the Venetian agents,[4] whose reports on this war resemble some knightly chronicle of the middle ages, full of single combats, tournaments and other chivalrous adventures. They also show clearly that the Dalmatian levies far surpassed the Italian mercenaries in skill and courage. Many of these troops served abroad; at Lepanto, for example, in 1571, a Dalmatian squadron assisted the allied fleets of Spain, Venice, Austria and the Papal States to crush the Turkish navy. A fresh war broke out in 1645, lasting intermittently until 1699, when the peace of Carlowitz gave the whole of Dalmatia to Venice, including the coast of Herzegovina, but excluding the domains of Ragusa and the protecting band of Ottoman territory which surrounded them. After further fighting this delimitation was confirmed in 1718 by the treaty of Passarowitz; and it remains valid, though modified by the destruction of Ragusan liberty and the substitution of Austria-Hungary for Venice and Turkey.

The intellectual life of Dalmatia during the 15th, 16th and 17th centuries reached a higher level than any attained by the purely Slavonic peoples of the Balkan Peninsula. Its chief monuments are described elsewhere,—the work of the Ragusan poets and historians as a part of Servian literature, the scientific achievements of R. G. Boscovich and Marcantonio de Dominis in separate biographies. Architecture and art generally have been discussed above. But this intellectual development was the work of a small and opulent minority in all the cities except Ragusa. Popular education was neglected; Zara had no printing-press until 1796; Venetian Dalmatia possessed only one public school, and that an

ecclesiastical seminary; and even the sons of the rich, though free to visit the universities of Italy, France, Holland and England, ran the risk of exile or worse punishment if they brought home too liberal a culture. Poorer students learned what they could from the clergy, and the peasantry were wholly illiterate. Although the secular power of the Church was strictly limited, the country was overrun by ecclesiastics. When Fortis visited the island of Arbe in the 18th century, he found a population of 3000, mostly fishermen, contributing to the stipends of sixty priests. There were also three monasteries and three nunneries. Heavy taxes, the salt monopoly, reckless destruction of timber, and a deliberate attempt to ruin the oil and silk industries, were among the means by which Venice prevented competition with its own trade. Although justice was fairly well administered and some show of municipal autonomy conceded, the right of electing a chief magistrate had been withheld after 1420; and the Grand Council or Senate of each city, losing its original democratic character, had degenerated into a mere tool of the resident Venetian agents (*provveditori*), officials who held their post for thirty-two months and were subject to little effective control. Nevertheless, 150 years of war against the common Turkish enemy had drawn the Venetians and their subjects closely together, and the loyalty of the Dalmatian soldiers and sailors abroad, if not of their fellow-citizens at home, rests beyond doubt.

Dalmatia after 1797.—After the fall of the Venetian republic in 1797, the treaty of Campo Formio gave Dalmatia to Austria. The republics of Ragusa and Poglizza retained their independence, and Ragusa grew rich by its neutrality during the earlier Napoleonic wars. By the peace of Pressburg in 1805 the country was handed over to France, but its occupation was ineffectually contested by a Russian force which seized the Bocche di Cattaro and induced the Montenegrins to render aid. Poglizza was deprived of its independence by Napoleon in 1807, Ragusa in 1808. In 1809 the French troops were withdrawn, but in the same year Dalmatia was restored to France and united to the Illyrian kingdom by the treaty of Vienna. A British naval force under Captain Hoste, after a successful engagement with a small French squadron off Lissa, occupied the islands of Curzola, Lesina and Lagosta from 1812 to 1815, and established a considerable overland trade through Dalmatia, Austria and Germany. The allied British and Austrian forces drove out the last French garrison in 1814, and in 1815 Dalmatia was finally incorporated in the Austro-Hungarian empire, with which its history has since been identified. Its subsequent tranquillity has only been disturbed by the ineffectual risings of 1869 and 1881-1882, which took place near Cattaro (q.v.). For an account of the development of Croatian nationalism among the Dalmatians, during the 19th and 20th centuries, see Croatia-Slavonia.

Bibliography.—A minute and accurate account of Dalmatian history, art (especially architecture), antiquities and topography, is given by T. G. Jackson, in *Dalmatia, the Quarnero and Istria* (Oxford, 1887), (3 vols. illustrated). E. A. Freeman, *Subject and Neighbour Lands of Venice* (London, 1881), and G. Modrich, *La Dalmazia* (Turin, 1892), describe the chief towns, their history and antiquities. Much miscellaneous information is contained in the following mainly topographical works:—P. Bauron, *Les Rives illyriennes* (Paris, 1888); Sir A. A. Paton, *Highlands and Islands of the Adriatic* (London, 1849); Sir J. G. Wilkinson, *Dalmatia and Montenegro* (London, 1840); A. Fortis, *Travels into Dalmatia* (London, 1778); and the periodicals, *Rivista Dalmatica* (Zara, 1899, &c.), and *Annuario Dalmatico* (Zara, 1884, &c.). The best maps are those of the Austrian General Staff and Vincenzo de Haardt's *Zemljovid Kraljevine Dalmacije* (Zara, 1892). See also for trade, the Annual British Consular Reports; for sport, "Snaffle," *In the Land of the Bora* (London, 1897); for Roman and pre-Roman antiquities, R. Munro, *Bosnia-Herzegovina and Dalmatia* (Edinburgh, 1904). Besides the works mentioned above, and those by Farlatus, Makushev, Miklosich, Theiner, Shafarik, Orbini and du Cange, which are quoted under Bosnia and Herzegovina, the chief authority for Dalmatian history is G. Lucio (Lucius of Traù), *De regno Dalmatiae et Croatiae, a gentis origine ad annum 1480* (Amsterdam, 1666). To this edition are appended the works of the Presbyter Diocleas, Thomas of Spalato and other native chroniclers from the 12th century onwards. An Italian translation, omitting the appendix, was published at Trieste in 1892, entitled *Storia del Regno di Dalmatia e di Croazia*, and edited by Luigi Cesare. Lucio's work is singularly trustworthy and scientific. See also P. Pisani, *La Dalmatie de 1797 à 1815* (Paris, 1893).

(K. G. J.)

1 This arrangement is based on the terms of the peace of Carlowitz 1699 (articles IX. and XI. of the Turco-Venetian Treaty). It is due to the commercial and maritime rivalry between Venice and Ragusa. The Ragusans bribed the Turkish envoys at Carlowitz to stipulate for a double extension of the Ottoman dominions down to the Adriatic; and thus the Ragusan lands, which otherwise would have bordered upon the Dalmatian possessions of Venice, were surrounded by neutral territory.

2 These figures, taken from the Austrian official returns, include the population of the entire commune, not merely the urban residents. Only in Zara, Spalato, Sebenico and Ragusa, do the actual townsfolk number more than 1000.

3 Also written *Dalminium*, *Deminium*, and *Delmis*. Thomas of Spalato (*c.* 1200-1250) mentions that the site of Delminium had been forgotten in his time, although certain ancient walls among the mountains were believed to be its ruins. It has been variously identified, by modern archaeologists, with Almissa, on the coast, Dalen, in the Herzegovina, Duvno, near Sinj, and Gardun, in the same locality. It was evidently a stronghold of considerable size and importance, and Appian (*De bellis Illyricis*) alludes to its almost impregnable fortifications.

4 Long extracts from these reports or diaries are published by Wilkinson, *Dalmatia and Montenegro* (London, 1840), ii. 297-350.

DALMATIC (Lat. *dalmatica*, *tunica dalmatica*), a liturgical vestment of the Western Church, proper to deacons, as the tunicle (*tunicella*) is to subdeacons. Dalmatic and tunicle are now, however, practically identical in shape and size; though, strictly, the latter should be somewhat smaller and with narrower arms. In most countries, e.g. England, France, Spain and Germany, dalmatic and tunicle are now no longer tunics, but scapular-like cloaks, with an opening for the head to pass through and square lappets falling from the shoulder over the upper part of the arm; in Italy, on the other hand, though open up the side, they still have regular sleeves and are essentially tunics. The most characteristic ornament of the dalmatic and tunicle is the vertical stripes running from the shoulder to the lower hem, these being connected by a cross-band, the position of which differs in various countries (see figs. 3, 4). Less essential are the orphreys on the hem of the arms and the fringes along the slits at the sides and the lower hem. The tassels hanging from either shoulder at the back (see fig. 6), formerly very much favoured, have now largely gone out of use.

The *dalmatica*, which originated—as its name implies—in Dalmatia, came into fashion in the Roman world in the 2nd century A.D. It was a loose tunic with very wide sleeves, and was worn over the *tunica alba* by the better class of citizens (see. fig. 2). According to the *Liber pontificalis* (ed. Duchesne, l. 171) the dalmatic was first introduced as a vestment in public worship by Pope Silvester I. (314-335), who ordered it to be worn by the deacons; but Braun (*Liturg. Gewandung*, p. 250) thinks that it was probably in use by the popes themselves so early as the 3rd century, since St Cyprian (d. 258) is mentioned as wearing it when he went to his death. If this be so, it was probably given to the Roman deacons to distinguish them from the other clergy and to mark their special relations to the pope. However this may be, the dalmatic remained for centuries the vestment distinctive of the pope and his deacons, and—according at least to the view held at Rome—could be worn by other clergy only by special concession of the pope. Thus Pope Symmachus (498-514) granted the right to wear it to the deacons of Bishop Caesarius of Arles; and so late as

757 Pope Stephen II. gave permission to Fulrad, abbot of St Denis, to be assisted by six deacons at mass, and these are empowered to wear “the robe of honour of the dalmatic.” How far, however, this rule was strictly observed, and what was the relation of the Roman dalmatic to the diaconal alba and subdiaconal tunica, which were in liturgical use in Gaul and Spain so early as the 6th century, are moot points (see Braun, p. 252). The dalmatic was in general use at the beginning of the 9th century, partly as a result of the Carolingian reforms, which established the Roman model in western Europe; but it continued to be granted by the popes to distinguished ecclesiastics not otherwise entitled to wear it, e.g. to abbots or to the cardinal priests of important cathedrals. So far as the records show, Pope John XIII. (965-972) was the first to bestow the right to wear the dalmatic on an abbot, and Pope Benedict VII. the first to grant it to a cardinal priest of a foreign cathedral (975). The present rule was firmly established by the 11th century. According to the actual use of the Roman Catholic Church dalmatic and tunicle are worn by deacon and subdeacon when assisting at High Mass, and at solemn processions and benedictions. They are, however, traditionally vestments symbolical of joy (the bishop in placing the dalmatic on the newly ordained deacon says:—“May the Lord clothe thee in the tunic of joy and the garment of rejoicing”), and they are therefore not worn during seasons of fasting and penitence or functions connected with these, the folded chasuble (*paenula plicata*) being substituted (see Chasuble). Dalmatic and tunicle are never worn by priests, as priests, but both are worn by bishops under the chasuble (never under the cope) and also by those prelates, not being bishops, to whom the pope has conceded the right to wear the episcopal vestments.

Fig. 1.—Deacon in dalmatic, apparelled amice and alb.

In England at the Reformation the dalmatic ultimately shared the fate of the chasuble and other mass vestments. It was, however, certainly one of the “ornaments of the minister” in the second year of Edward VI., the rubric in the office for Holy Communion directing the priest’s “helpers” to wear “albes with tunacles.” In many Anglican churches it has therefore been restored, as a result of the ritual revival of the 19th century, it being claimed that its use is obligatory under the “ornaments rubric” of the Book of Common Prayer (see Vestments).

In the Eastern churches the only vestment that has any true analogy with the dalmatic or liturgical upper tunic is the *sakkos*, the tunic worn by deacons and subdeacons over their everyday clothes being the equivalent of the Western alb (q.v.). The sakkos, which, as a liturgical vestment, first appears in the 12th century as peculiar to patriarchs, is now a scapular-like robe very similar to the modern dalmatic (see fig. 5). Its origin is almost certainly the richly embroidered dalmatic that formed part of the consular insignia, which under the name of sakkos became a robe of state special to the emperors. It is clear, then, that this vestment can only have been assumed with the emperor’s permission; and Braun suggests (p. 305) that its use was granted to the patriarchs, after the completion of the schism of East and West, in order “in some sort to give them the character, in outward appearance as well, of popes of the East.” Its use is confined to the Greek rite. In the Greek and Greek-Melchite churches it is confined to the patriarchs and metropolitans; in the Russian, Ruthenian and Bulgarian churches it is worn by all bishops. Unlike the practice of the Latin church, it is not worn under, but has replaced the phelonion (chasuble).

Plate I.

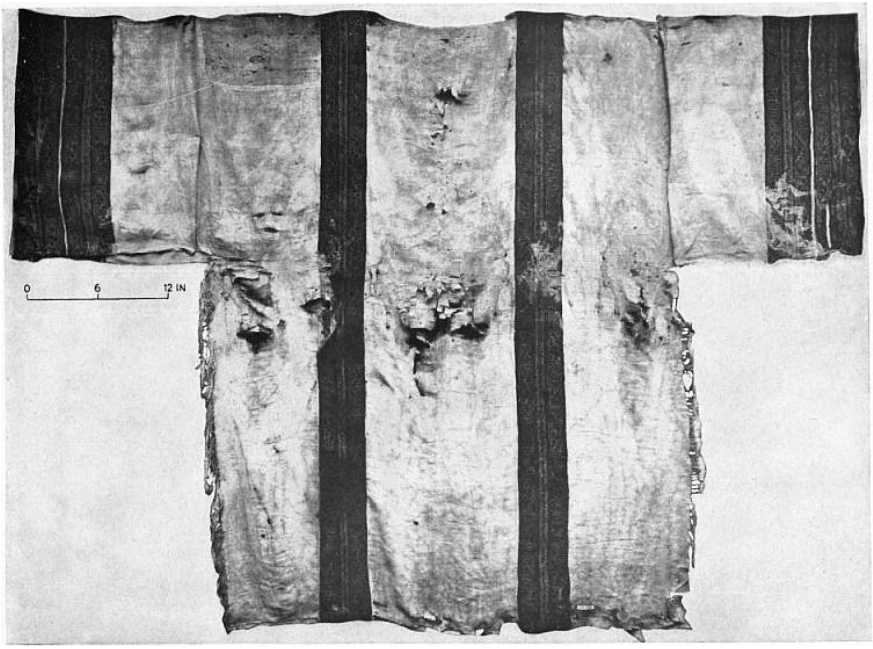

Fig. 2.—TUNIC OF LINEN, WOVEN WITH BANDS OF PURPLE WOOL EMBROIDERED WITH WHITE FLAX.

From the tombs at Akhmim. Egypto-Roman; 1st to 4th century. (In the Victoria and Albert Museum.)

FIG. 3.—BACK OF A DALMATIC OF STAMPED GREEN WOOLLEN VELVET: THE ORPHREYS AND APPARELS ARE OF EMBROIDERED SILK VELVET.

The two figures on the cross-band or apparel represent St. Gregory the Great and St. Augustine. The shields of arms are for the dukes of Jülich and Berg, counts of Ravensberg, and for the electors of Bavaria. Said to have come from the church of St. Severin, Cologne. German (Cologne); second half of 15th century. (In the Victoria and Albert Museum.)

PLATE II.

FIG. 4.—DALMATIC OF WHITE SATIN EMRROIDERED WITH COLOURED SILKS AND SILVER-GILT AND SILVER THREAD.

Spanish; early 17th century. (In the Victoria and Albert Museum.)

FIG. 5.—GREEK SAKKOS, OF RED SATIN EMBROIDERED WITH SILVER-GILT AND SILVER THREAD WITH SILK.

It has the names and arms of two archbishops. 18th century. (In the Victoria and Albert Museum.)

FIG. 6.—DALMATIC OF POPE PIUS V.

An early example of the modern Roman type. Roman; 16th century. Preserved at Santa Maria Maggiore, Rome. From a photograph taken by Father J. Braun (in *Die liturgische Gewandung*), by permission of B. Herder.

A silk dalmatic forms one (the undermost) of the English coronation robes. Its use would seem to have been borrowed, not from the robes of the Eastern emperors, but from the church, and to symbolize with the other robes the quasi-sacerdotal character of the kingship (see CORONATION). The magnificent so-called dalmatic of Charlemagne, preserved at Rome (see EMBROIDERY), is really a Greek sakkos.

See Joseph Braun, S.J., *Die liturgische Gewandung* (Freiburg im Breisgau, 1907), pp. 247-305. For further references and illustrations see the article VESTMENTS.

(W. A. P.)

DALMELLINGTON, a village of Ayrshire, Scotland, 15 m. S.E. of Ayr by a branch line, of which it is the terminus, of the Glasgow & South-Western railway. Pop. (1901) 1448. The district is rich in minerals—coal, ironstone, sandstone and limestone. Though the place is of great antiquity, the Roman road running near it, few remains of any interest exist. It was, however, a centre of activity in the Covenanting times.

DALOU, JULES (1838-1902), French sculptor, was the pupil of Carpeaux and Duret, and combined the vivacity and richness of the one with the academic purity and scholarship of the other. He is one of the most brilliant virtuosos of the French school, admirable alike in taste, execution and arrangement. He first exhibited at the Salon in 1867, but when in 1871 the troubles of the Commune broke out in Paris, he took refuge in England, where he rapidly made a name through his appointment at South Kensington. Here he laid the foundation of that great improvement which resulted in the development of the modern British school of sculpture, and at the same time executed a remarkable series of terra-cotta statuettes and groups, such as “A French Peasant Woman” (of which a bronze version under the title of “Maternity” is erected outside the Royal Exchange), the group of two Boulogne women called “The Reader” and “A Woman of Boulogne telling her Beads.” He returned to France in 1879 and produced a number of masterpieces. His great relief of “Mirabeau replying to M. de Dreux-Brézé,” exhibited in 1883 and now at the Palais Bourbon, and the highly decorative panel, “Triumph of the Republic,” were followed in 1885 by “The Procession of Silenus.” For the city of Paris he executed his most elaborate and splendid achievement, the vast monument, “The Triumph of the Republic,” erected, after twenty years’ work, in the Place de la Nation, showing a symbolical figure of the Republic, aloft on her car, drawn by lions led by Liberty, attended by Labour and Justice, and followed by Peace. It is somewhat in the taste of the Louis XIV. period, ornate, but exquisite in every detail. Within a few days there was also inaugurated his great “Monument to Alphand” (1899), which almost equalled in the success achieved the monument to Delacroix in the Luxembourg Gardens. Dalou, who gained the *Grand Prix* of the International exhibition of 1889, and was an officer of the Legion of Honour, was one of the founders of the New Salon (*Société Nationale des Beaux-Arts*), and was the first president of the sculpture section. In portraiture, whether statues or busts, his work is not less remarkable.

DALRADIAN, in geology, a series of metamorphic rocks, typically developed in the high ground which lies E. and S. of the Great Glen of Scotland. This was the old Celtic region of Dalradia, and in 1891 Sir A. Geikie proposed the name Dalradian as a convenient provisional designation for the complicated set of rocks to which it is difficult to assign a definite position in the stratigraphical sequence (*Q.J.G.S.* 47, p. 75). In Sir A. Geikie’s words, “they consist in large proportion of altered sedimentary strata, now found in the form of mica-schist, graphite-schist, andalusite-schist, phyllite, schistose grit, greywacke and conglomerate, quartzite, limestone and other rocks, together with epidiorites, chlorite-schists, hornblende schists and other allied varieties, which probably mark sills, lava-sheets or beds of tuff, intercalated among the sediments. The total thickness of this assemblage of rocks must be many thousand feet.” The Dalradian series includes the “Eastern or Younger schists” of eastern Sutherland, Ross-shire and Inverness-shire—the Moine gneiss, &c.—as well as the

metamorphosed sedimentary and eruptive rocks of the central, eastern and south-western Highlands. The series has been traced into the north-western counties of Ireland. The whole of the Dalradian complex has suffered intense crushing and thrusting.

See PRE-CAMBRIAN; also J. B. Hill, *Q.J.G.S.*, 1899, 55, and G. Barrow, *loc. cit.*, 1901, 57, and the *Annual Reports and Summaries of Progress of the Geological Survey of the United Kingdom* from 1893 onwards.

DALRIADA, the name of two ancient Gaelic kingdoms, one in Ireland and the other in Scotland. The name means the home of the descendants of Riada. Irish Dalriada was the district which now forms the northern part of county Antrim, and from which about A.D. 500 some emigrants crossed over to Scotland, and founded in Argyllshire the Scottish kingdom of Dalriada. For a time Scottish Dalriada appears to have been dependent upon Irish Dalriada, but about 575 King Aidan secured its independence. One of Aidan's successors, Kenneth, became king of the Picts about 843, and gradually the name Dalriada both in Ireland and Scotland fell into disuse.

See W. F. Skene, *Celtic Scotland* (Edinburgh, 1876-1880).

DALRY (Gaelic, "the field of the king"), a mining and manufacturing town of Ayrshire, Scotland, on the Garnock, 23¼ m. S.W. of Glasgow, by the Glasgow & South-Western railway. Pop. (1901) 5316. The public buildings include the library and reading-room, the assembly rooms, Davidshill hospital, Temperance hall and night asylum. There is a public park. The industries consist of woollen factories, worsted spinning, box-, cabinet-, coke- and brick-making, machine-knitting, currying and the manufacture of aerated waters. Coal and iron are found, but mining is not extensively pursued. In the vicinity are the iron works of Blair and Glengarnock, and a curious stalactite cave, known as Elf House, 30 ft. high and about 200 ft. long, offering some resemblance to a pointed aisle. Rye Water flows into the Garnock close to the town. Captain Thomas Crawford of Jordanhill (1530-1603), the captor of Dumbarton Castle, spent the closing years of his life at Dalry, where a considerable estate had been granted to him.

DALTON, JOHN (1766-1844), English chemist and physicist, was born about the 6th of September 1766 at Eaglesfield, near Cockermouth in Cumberland. His father, Joseph Dalton, was a weaver in poor circumstances, who, with his wife (Deborah Greenup), belonged to the Society of Friends; they had three children—Jonathan, John and Mary. John received his early education from his father and from John Fletcher, teacher of the Quakers' school at Eaglesfield, on whose retirement in 1778 he himself started teaching. This youthful venture was not successful, the amount he received in fees being only about five shillings a week, and after two years he took to farm work. But he had received some instruction in mathematics from a distant relative, Elihu Robinson, and in 1781 he left his native village to become assistant to his cousin George Bewley who kept a school at Kendal. There he passed the next twelve years, becoming in 1785, through the retirement of his cousin, joint manager of the school with his elder brother Jonathan. About 1790 he seems to have thought of taking up law or medicine, but his projects met with no encouragement from his relatives and he remained at Kendal till, in the spring of 1793, he moved to Manchester, where he spent the rest of his life. Mainly through John Gough (1757-1825), a blind philosopher to whose aid he owed much of his scientific knowledge, he was appointed teacher of mathematics and natural philosophy at the New College in Moseley Street (in 1880 transferred to Manchester College, Oxford), and that position he retained until the removal of the college to York in 1799, when he became a "public and private teacher of mathematics and chemistry."

During his residence in Kendal, Dalton had contributed solutions of problems and questions on various subjects to the *Gentlemen's* and *Ladies' Diaries*, and in 1787 he began to keep a meteorological diary in which during the succeeding fifty-seven years he entered more than 200,000 observations. His first separate publication was *Meteorological Observations and Essays* (1793), which contained the germs of several of his later discoveries; but in spite of the originality of its matter, the book met with only a limited sale. Another work by him, *Elements of English Grammar*, was published in 1801. In 1794 he was elected a member of the Manchester Literary and Philosophical Society, and a few weeks after election he communicated his first paper on "Extraordinary facts relating to the vision of colours," in which he gave the earliest account of the optical peculiarity known as Daltonism or colour-blindness, and summed up its characteristics as observed in himself and others. Besides the blue and purple of the spectrum he was able to recognize only one colour, yellow, or, as he says in his paper, "that part of the image which others call red appears to me little more than a shade or defect of light; after that the orange, yellow and green seem one colour which descends pretty uniformly from an intense to a rare yellow, making what I should call different shades of yellow." This paper was followed by many others on diverse topics—on rain and dew and the origin of springs, on heat, the colour of the sky, steam, the auxiliary verbs and participles of the English language and the reflection and refraction of light. In 1800 he became a secretary of the society, and in the following year he presented the important paper or series of papers, entitled "Experimental Essays on the constitution of mixed gases; on the force of steam or vapour of water and other liquids in different temperatures, both in Torricellian vacuum and in air; on evaporation; and on the expansion of gases by heat." The second of these essays opens with the striking remark, "There can scarcely be a doubt entertained respecting the reducibility of all elastic fluids of whatever kind, into liquids; and we ought not to despair of effecting it in low temperatures and by strong pressures exerted upon the unmixed gases"; further, after describing experiments to ascertain the tension of aqueous vapour at different points between 32° and 212° F., he concludes, from observations on the vapour of six different liquids, "that the variation of the force of vapour from all liquids is the same for the same variation of temperature, reckoning from vapour of any given force." In the fourth essay he remarks, "I see no sufficient reason why we may not conclude that all elastic fluids under the same pressure expand equally by heat and that for any given expansion of mercury, the corresponding expansion of air is proportionally something less, the higher the temperature.... It seems, therefore, that general laws respecting the absolute quantity and the nature of heat are more likely to be derived from elastic fluids than from other substances." He thus enunciated the law of the expansion of gases, stated some months later by Gay-Lussac. In the two or three years following the reading of these essays, he published several papers on similar topics, that on the "Absorption of gases by water and other liquids" (1803), containing his "Law of partial pressures."

But the most important of all Dalton's investigations are those concerned with the Atomic Theory in chemistry, with which his name is inseparably associated. It has been supposed that this theory was suggested to him either by researches on olefiant gas and carburetted hydrogen or by analysis of "protoxide and deutoxide of azote," both views resting on the authority of Dr Thomas Thomson (1773-1852), professor of chemistry in Glasgow university. But from a study of Dalton's own MS. laboratory notebooks, discovered in the rooms of the Manchester society, Roscoe and Harden (*A New View of the Origin of Dalton's Atomic Theory*, 1896) conclude that so far from Dalton being led to the idea that chemical combination consists in the approximation of atoms of definite and characteristic weight by his search for an explanation of the law of combination in multiple proportions, the idea of atomic structure arose in his mind as a purely physical conception, forced upon him by study of the physical properties of the atmosphere and other gases. The first published indications of this idea are to be found at the end of his paper on the "Absorption of gases" already mentioned, which was read on the 21st of October 1803 though not published till 1805. Here he says: "Why does not water admit its bulk of every kind of gas alike? This question I have duly considered, and though I am not able to satisfy myself completely I am nearly persuaded that the circumstance depends on the weight and number of the ultimate particles of the several gases." He proceeds to give what has been quoted as his first table of atomic weights, but on p. 248 of his laboratory notebooks for 1802-1804, under the date 6th of September 1803, there is an earlier one in which he sets forth the relative weights of the ultimate atoms of a number of substances, derived from analysis of water, ammonia, carbon-dioxide, &c. by chemists of the time. It appears, then, that, confronted with the "problem of ascertaining the relative diameter of the particles of which, he was convinced, all gases were made up, he had recourse to the results of chemical analysis. Assisted by the assumption that combination always takes place in the simplest possible way, he thus arrived at the idea that chemical combination takes place between particles of different weights, and this it was which differentiated his theory from the historic speculations of the Greeks. The extension of this idea to substances in general necessarily led him to the law of combination in multiple proportions, and the comparison with experiment brilliantly confirmed the truth of his deduction" (*A New View, &c.*, pp. 50, 51). It may be noted that in a paper on the "Proportion of the gases or elastic fluids constituting the atmosphere," read by him in November 1802, the law of multiple proportions appears to be anticipated in the words—"The elements of oxygen may combine with a certain portion of nitrous gas or with twice that portion, but with no intermediate quantity," but there is reason to suspect that this sentence was added some time after the reading of the paper, which was not published till 1805.

Dalton communicated his atomic theory to Dr Thomson, who by consent included an outline of it in the third edition of his *System of Chemistry* (1807), and Dalton gave a further account of it in the first part of the first volume of his *New System of Chemical Philosophy* (1808). The second part of this volume appeared in 1810, but the first part of the second volume was not issued till 1827, though the printing of it began in 1817. This delay is not explained by any excess of care in preparation, for much of the matter was out of date and the appendix giving the author's latest views is the only portion of special interest. The second part of vol. ii. never appeared.

Altogether Dalton contributed 116 memoirs to the Manchester Literary and Philosophical Society, of which from 1817 till his death he was the president. Of these the earlier are the most important. In one of them, read in 1814, he explains the principles of volumetric analysis, in which he was one of the earliest workers. In 1840 a paper on the phosphates and arsenates, which was clearly unworthy of him, was refused by the Royal Society, and he was so incensed that he published it himself. He took the same course soon afterwards with four other papers, two of which—"On the quantity of acids, bases and salts in different varieties of salts" and "On a new and easy method of analysing sugar," contain his discovery, regarded by him as second in importance only to the atomic theory, that certain anhydrous salts when dissolved in water cause no increase in its volume, his inference being that the "salt enters into the pores of the water."

As an investigator, Dalton was content with rough and inaccurate instruments, though better ones were readily attainable. Sir Humphry Davy described him as a "very coarse experimenter," who "almost always found the results he required, trusting to his head rather than his hands." In the preface to the second part of vol. i. of his *New System* he says he had so often been misled by taking for granted the results of others that he "determined to write as little as possible but what I can attest by my own experience," but this independence he carried so far that it sometimes resembled lack of receptivity. Thus he distrusted, and probably never fully accepted, Gay-Lussac's conclusions as to the combining volumes of gases; he held peculiar and quite unfounded views about chlorine, even after its elementary character had been settled by Davy; he persisted in using the atomic weights he himself had adopted, even when they had been superseded by the more accurate determinations of other chemists; and he always objected to the chemical notation devised by J. J. Berzelius, although by common consent it was much simpler and more convenient than his cumbersome system of circular symbols. His library, he was once heard to declare, he could carry on his back, yet he had not read half the books it contained.

Before he had propounded the atomic theory he had already attained a considerable scientific reputation. In 1804 he was chosen to give a course of lectures on natural philosophy at the Royal Institution in London, where he delivered another course in 1809-1810. But he was deficient, it would seem, in the qualities that make an attractive lecturer, being harsh and indistinct in voice, ineffective in the treatment of his subject, and "singularly wanting in the language and power of illustration." In 1810 he was asked by Davy to offer himself as a candidate for the fellowship of the Royal Society, but declined, possibly for pecuniary reasons; but in 1822 he was proposed without his knowledge, and on election paid the usual fee. Six years previously he had been made a corresponding member of the French Academy of Sciences, and in 1830 he was elected as one of its eight foreign associates in place of Davy. In 1833 Lord Grey's government conferred on him a pension of £150, raised in 1836 to £300. Never married, though there is evidence that he delighted in the society of women of education and refinement, he lived for more than a quarter of a century with his friend the Rev. W. Johns (1771-1845), in George Street, Manchester, where his daily round of laboratory work and tuition was broken only by annual excursions to the Lake district and occasional visits to London, "a surprising place and well worth one's while to see once, but the most disagreeable place on earth for one of a contemplative turn to reside in constantly." In 1822 he paid a short visit to Paris, where he met many of the distinguished men of science then living in the French capital, and he attended several of the earlier meetings of the British Association at York, Oxford, Dublin and Bristol. Into society he rarely went, and his only amusement was a game of bowls on Thursday afternoons. He died in Manchester in 1844 of paralysis. The first attack he suffered in 1837, and a second in 1838 left him much enfeebled, both physically and mentally, though he remained able to make experiments. In May 1844 he had another stroke; on the 26th of July he recorded with trembling hand his last meteorological observation, and on the 27th he fell from his bed and was found lifeless by his attendant. A bust of him, by Chantrey, was publicly subscribed for in 1833 and placed in the entrance hall of the Manchester Royal Institution.

See Henry, *Life of Dalton*, Cavendish Society (1854); Angus Smith, *Memoir of John Dalton and History of the Atomic Theory* (1856), which on pp. 253-263 gives a list of Dalton's publications; and Roscoe and Harden, *A New View of the Origin of Dalton's Atomic Theory* (1896); also Atom.

DALTON, a city and the county-seat of Whitfield county, Georgia, U.S.A., in the N.W. part of the state, 100 m. N.N.W. of

Atlanta. Pop. (1890) 3046; (1900) 4315 (957 negroes); (1910) 5324. Dalton is served by the Southern, the Nashville, Chattanooga & St Louis, and the Western & Atlanta (operated by the Nashville, Chattanooga & St Louis) railways. The city is in a rich agricultural region; ships cotton, grain, fruit and ore; and has various manufactures, including canned fruit and vegetables, flour and foundry and machine shop products. It is the seat of Dalton Female College. Dalton was founded by Duff Green and others in 1848, and was incorporated in 1874. Hither General Braxton Bragg retreated after his defeat at Chattanooga in the last week of November 1863. Three weeks afterwards Bragg, in command of the army in northern Georgia in winter quarters here, was replaced by General Joseph E. Johnston, who, with his force of 54,400, adopted defensive tactics to meet Sherman's invasion of Georgia, with his 99,000 or 100,000 men in the Army of the Cumberland (60,000) under General G. H. Thomas, the Army of the Tennessee (25,000) under General J. B. M'Pherson, and the Army of the Ohio (14,000) under General J. M. Schofield. The Federal forces stretched for 20 m. in a position south of Ringgold and between Ringgold and Dalton. Johnston's line of defences included Rocky Face Ridge, a wall of rock through which the railway passes about 5 m. north-west of the city, Mill Creek (1 m. north-north-west of Dalton), which he dammed so that it could not be forded, and earthworks north and east of the city. On the 7th of May General M'Pherson started for Resaca, 18 m. south of Dalton, to occupy the railway there in Johnston's rear, but he did not attack Resaca, thinking it too strongly protected; Thomas, with Schofield on his left, on the 7th forced the Confederates through Buzzard's Roost Gap (the pass at Mill Creek) north-west of Dalton; at Dug Gap, 4 m. south-west of Dalton, on the 8th a fierce Federal assault under Brigadier-General John W. Geary failed to dislodge the Confederates from a quite impregnable position. On the 11th the main body of Sherman's army followed M'Pherson toward Resaca, and Johnston, having evacuated Dalton on the night of the 12th, was thus forced, after five days' manœuvring and skirmishing, to march to Resaca and to meet Sherman there.

See J. D. Cox, *The Atlanta Campaign* (New York, 1882); Johnson and Buel, *Battles and Leaders of the Civil War* (4 vols., New York, 1887); and *Official Records of the War of the Rebellion*, series 1, vols. 32, 38, 39, 45, 49; series ii., vol. 8.

DALTON-IN-FURNESS, a market town in the North Lonsdale parliamentary division of Lancashire, England, 4 m. N.E. by N. of Barrow-in-Furness by the Furness railway. Pop. of urban district (1901) 13,020. The church of St Mary is in the main a modern reconstruction, but retains ancient fragments and a font believed to have belonged to Furness Abbey. This fine ruin lies 3 m. south of Dalton (see Furness). St Mary's churchyard contains the tomb of the painter George Romney, a native of the town. Of Dalton Castle there remains a square tower, showing decorated windows. Here was held the manorial court of Furness Abbey. There are numerous iron-ore mines in the parish, and ironworks at Askam-in-Furness, in the northern part of the district.

DALY, AUGUSTIN (1838-1899), American theatrical manager and playwright, was born in Plymouth, North Carolina, on the 20th of July 1838. He was dramatic critic for several New York papers from 1859, and he adapted or wrote a number of plays, *Under the Gaslight* (1867) being his first success. In 1869 he was the manager of the Fifth Avenue theatre, and in 1879 he built and opened Daly's theatre in New York, and, in 1893, Daly's theatre in London. At the former he gathered a company of players, headed by Miss Ada Rehan, which made for it a high reputation, and for them he adapted plays from foreign sources, and revived Shakespearean comedies in a manner before unknown in America. He took his entire company on tour, visiting England, Germany and France, and some of the best actors on the American stage have owed their training and first successes to him. Among these were Clara Morris, Sara Jewett, John Drew, Fanny Davenport, Maude Adams, Mrs Gilbert and many others. Daly was a great book-lover, and his valuable library was dispersed by auction after his death, which occurred in Paris on the 7th of June 1899. Besides plays, original and adapted, he wrote *Woffington: a Tribute to the Actress and the Woman* (1888).

DALYELL (or Dalziell or Dalzell), **THOMAS** (d. 1685), British soldier, was the son of Thomas Dalyell of Binns, Linlithgowshire, a cadet of the family of the earls of Carnwath, and of Janet, daughter of the 1st Lord Bruce of Kinloss, master of the rolls in England. He appears to have accompanied the Rochelle expedition in 1628, and afterwards, becoming colonel, served under Robert Munro, the general in Ireland. He was taken prisoner at the capitulation of Carrickfergus in August 1650, but was given a free pass, and having been banished from Scotland remained in Ireland. He was present at the battle of Worcester (3rd of September 1651), where his men surrendered, and he himself was captured and imprisoned in the Tower. In May he escaped abroad, and in 1654 took part in the Highland rebellion and was excepted from Cromwell's act of grace, a reward of £200 being offered for his capture, dead or alive. The king's cause being now for the time hopeless, Dalyell entered the service of the tsar of Russia, and distinguished himself as general in the wars against the Turks and Tatars. He returned to Charles in 1665, and on the 19th of July 1666 he was appointed commander-in-chief in Scotland to subdue the Covenanters. He defeated them at Rullion Green and exercised his powers with great cruelty, his name becoming a terror to the peasants. He obtained several of the forfeited estates. On the 3rd of January 1667 he was made a privy councillor, and from 1678 till his death represented Linlithgow in the Scottish parliament. He was incensed by the choice of the duke of Monmouth as commander-in-chief in June 1679, and was confirmed in his original appointment by Charles, but in consequence did not appear at Bothwell Bridge till after the close of the engagement. On the 25th of November 1681, a commission was issued authorizing him to enrol the regiment afterwards known as the Scots Greys. He was continued in his appointment by James II., but died soon after the latter's accession in August 1685. He married Agnes, daughter of John Ker of Cavers, by whom he had a son, Thomas, created a baronet in 1685, whose only son and heir, Thomas, died unmarried. The baronetage apparently became extinct, but it was assumed about 1726 by James Menteith, a son of the sister of the last baronet, who took the name of Dalyell; his last male descendant, Sir Robert Dalyell, died unmarried in 1886.

DAM. (1) (A common Teutonic word, cf. Swed. and Ger. *damm*, and the Gothic verb *faurdammjan*, to block up), a barrier

of earth or masonry erected to restrain, divert or contain a body of water, particularly in order to form a reservoir. (2) (Fr. *dame*, dame; Lat. *domina*, feminine of *dominus*, lord, master), the mother of an animal, now chiefly used of the larger quadrupeds, and particularly of a mare, the mother of a foal.

DAMAGES (through O. Fr. *damage*, mod. Fr. *dommage*, from Lat. *damnum*, loss), the compensation which a person who has suffered a legal wrong is by law entitled to recover from the person responsible for the wrong. Loss caused by an act which is not a legal wrong (*damnum sine injuria*) is not recoverable, e.g. where a father loses a young child by the negligence of a third party.

The principle of compensation in law makes its first appearance as a substitute for personal retaliation. In primitive law something of the nature of the Anglo-Saxon *wer-gild*, or the ποινή of the *Iliad*, appears to be universal. It marks out with great minuteness the measure of the compensation appropriate to each particular case of personal injury. And there is a resemblance between the legal compensation, as it may be called, and the compensation which an injured person, seeking his own remedy, would be likely to exact for himself. In such a system the two entirely different objects of personal satisfaction and criminal punishment are not clearly separated, and in fact, criminal and civil remedies were administered in the same proceeding.

Under modern systems of law, the object of legal compensation is to place the injured person as nearly as possible in the situation in which he would have been but for the injury; and the controlling principle is that compensation should be determined so far as possible by the actual amount of the loss sustained. In England, civil proceedings for reparation and criminal proceedings for punishment are with few exceptions carefully kept separate. In Scotland, pursuit of the two kinds of remedies in the same proceeding is possible but very rare; but in France and other European states it is lawful and usual in the case of those delicts which are also punishable criminally.

In the law of England the two historical systems of common law and equity viewed compensation or reparation from two different points of view. The principle of the common law was that the amount of every injury might be estimated by pecuniary valuation. The idea was no doubt derived from the old tariffs of *were*, *bot* and *wite*, in which the valuations were elaborate. Until 1858 (Cairns' Act) courts of equity had no direct jurisdiction to award damages, and their business was to place the injured party in the actual position to which he was entitled (*restitutio ad integrum*). This difference comes out most clearly in cases of breach of contract. The common law, with a few partial exceptions, could do no more than compel the defaulter to make good the loss of the other party, by paying him an ascertained sum of money as damages. Equity, recognizing the fact that complete satisfaction was not in all cases to be obtained by mere money payment, compelled those who broke certain classes of contracts specifically to perform them, and in the case of acts or defaults not amounting to breach of contract, on satisfactory proof that a wrong was contemplated, would interfere to prevent it by injunction; while at common law no action could be brought until the injury was accomplished, and then only pecuniary damages could be obtained. Since the Judicature Acts this distinction has ceased and the appropriate remedy may be awarded in any division of the High Court of Justice.

Under the common law damages were always assessed by a jury. Under the existing procedure in England they may be assessed (1) by a jury under the directions of a judge; (2) by a judge alone or sitting with assessors; (3) by a referee, official or special, or officer of the courts with or without the assistance of mercantile or other assessors; (4) by a consensual tribunal such as an arbitrator or valuer selected by the parties. Whatever the mode of assessment, it is subject to review if the assessors have clearly mistaken the proper measure of damage.

In the case of assessment by a jury, the verdict may be set aside because the damages are clearly excessive or palpably insufficient, or arrived at by some irregular conduct, e.g. by setting down the sum which each juryman would give and dividing the result by twelve. The appellate court, however, cannot, without the consent of the parties, itself fix the amount of damages in a case which has been submitted to a jury (*Watt* v. *Watt*, 1905, Appeal Cases 115).

The courts have gradually evolved certain rules or principles for the proper assessment of damages, although extreme difficulty is found in their application to concrete cases. A distinction is drawn between *general* and *special* damages. (1) General damage is that *implied by law* as necessarily flowing from the breach of right, and requiring no proof. (2) Special damage is that *in fact* caused by the wrong. Under existing practice this form of damage cannot be recovered unless it has been specifically claimed and proved, or unless the best available particulars or details have been before trial communicated to the party against whom it is claimed.

Measure of damages.

Contracts.—"The law imposes or implies a term that upon breach of contract damages must be paid." The general tendency of legal decisions in cases of contract is (i.) to make the amount of damages which may be awarded a matter of legal certainty, (ii.) to leave to a jury or like tribunal little more to do than find the facts, (iii.) and to revise the assessment if it is clear that it has been made in disregard of the terms of the contract or of the natural and direct consequences of the breach. The measure of damage, general speaking, is the sum necessary to place the aggrieved party in the same position so far as money will do it as if the contract had been performed. If the breach is proved, but the person complaining has suffered no real damage, he is entitled to have his legal right recognized by an award of what are called *nominal damages*, i.e. a sum just sufficient to carry a judgment in his favour on the infraction of his rights. Nominal damages, it will therefore be seen, are not the same as "small damages." He is, however, also entitled to prove and recover the special or particular damage lawfully attributable to the breach. Where the contract is to pay a fixed sum of money or liquidated amount, the measure of damages for non-payment is the sum agreed to be paid and interest thereon at the rate stipulated in the contract or recognized by law.

The law is the same in Scotland and in France (Civil Code, art. 1153). In some contracts the parties themselves fix the sum to be paid as damages if the contract is not fulfilled. These damages are described as *liquidated*, in Scots law *stipulated* or *estimated*. It would be supposed that the sum thus fixed would be the proper damages to be awarded. And under the French Civil Code (arts. 1152, 1153, 1780) the stipulation of the parties as to the damages to be paid for breach of a stipulation other than for paying a sum of money is binding on the courts. But in England, Scotland and the United States, courts disregard the words used, and inquire into the real nature of the transaction in order to see whether the sum fixed is to be treated as ascertained damage or as a penalty to be held *in terrorem* over the defaulter, and in the latter case, notwithstanding the stipulation, will require proof of the actual loss. In *Kemble* v. *Farren* (1829, 6 Bingham, 141), a contract between a manager and an actor provided that for a breach of any of the stipulations therein, the sum of £1000 should be payable by the defaulter, not as a penalty, but as liquidated and ascertained damages. Yet, the court, observing that under the stipulations of the contract the sum of £1000, if it were taken to be liquidated damages, might become payable for mere non-payment of a trifling sum, held that it was not fixed as damages, but as a penalty only. The case in which an agreed sum is most usually treated as a penalty is a bond to pay a fixed sum containing a condition that it shall be void if certain acts are done or a certain smaller sum paid. Another case is where a single lump sum is fixed as the liquidated amount of damage to be paid for doing or failing to do a number of different things of very varying degrees of

importance (*Elphinstone* v. *Monkland Iron Co.*, 1887, 11 A.C. 333). But the courts have accepted as creating a contractual measure of damage a stipulation to finish sewerage works by a given day (*Law* v. *Redditch Local Board*, 1892, 1 Q.B. 127); or to complete torpedo boats within a limited time for a foreign government (*Clydebank Engineering Co.* v. *Yzquierda*, 1905, A.C. 6). In this last case the law lords indicated that the provision of an agreed sum was peculiarly appropriate in view of the difficulty of showing the exact damage which a state sustains by non-delivery of a warship. Where the damage is not liquidated or agreed it is assessed to upon evidence as to the actual loss naturally and directly flowing from the breach of contract.

In contracts for the sale of goods the measure of damages is fixed by statute. Where the buyer wrongfully refuses or neglects to accept and pay for, or the seller wrongfully neglects or refuses to deliver the goods, the measure is the estimated loss directly and naturally resulting in the ordinary course of events from the buyer's or seller's breach of contract. Where there is an available market for the goods in question, the measure of damages is prima facie to be ascertained by the difference between the contract price and the market or current price at the time or times when the goods ought to have been accepted or delivered, or if no such time was fixed for acceptance or delivery, then at the time of refusal to accept or deliver (Sale of Goods Act 1893, §§ 50, 51).

Where there is no market, the value is fixed by the price of the nearest available substitute. Where the sufferer, at the request of the person in default, postpones purchase or sale, any increased loss thereby caused falls on the defaulter. If the buyer, before the time fixed for delivery, has resold the goods to a sub-vendor, he cannot claim against his own vendor any damages which the sub-vendor may recover against him for breach of contract, because he ought to have gone into the market and purchased other goods. But this is subject to modification in cases falling within the rule in *Hadley* v. *Baxendale* (1854, 9 Exchequer, 341). But trouble and expense incurred by the seller of finding a new purchaser or other goods may be taken account of in assessing the damages.

Where the goods delivered are not as contracted the buyer may as a rule sue the seller for a breach of warranty, or set it up as reduction of price. Where the warranty is of quality the loss is prima facie the difference between the value of the goods delivered when delivered and the value which they would have then had if they had answered to the warranty (Sale of Goods Act 1893, § 53). In an American case, where a person had agreed with a boarding-house keeper for a year, and quitted the house within the time, it was held that the measure of damages was not the price stipulated to be paid, but only the loss caused by the breach of contract. In contracts to marry, a special class of considerations is recognized, and the jury in assessing damages will take notice of the conduct of the parties. The social position and means of the defendant may be given in evidence to show what the plaintiff has lost by the breach of contract.

On a breach of contract to replace stock lent, the measure of damages is the price of the stock on the day when it ought to have been delivered, or on the day of trial, at the plaintiff's option.

In contracts for the sale of realty, the measure of damage for breach by the vendor is the amount of any deposit paid by the would-be purchaser and of the expenses thrown away. But the purchaser may, in a proper case, obtain specific performance, and if he has been cheated may obtain damages in an action for deceit.

Breaches of trust are in a sense distinct from breaches of contract, as they fell under the jurisdiction of courts of equity and not of the common law courts. The rule applied was to require a defaulting trustee to make good to the beneficiaries any loss flowing from a breach of trust and not to allow him to set off against this liability any gain to the trust fund resulting from a different breach of trust or from good management (Lewin on *Trusts*, ed. 1904, 1146).

In estimating the proper amount to be assessed as damages for a breach of contract, it is not permissible to include every loss caused by the act or default upon which the claim for damages is based. The damage to be awarded must be that fairly and naturally arising from the breach under ordinary circumstances or the special circumstances of the particular contract, or in other words, which may reasonably be supposed to have been in the contemplation of the parties at the time of making the contract. The chief authority for this rule is the case of *Hadley* v. *Baxendale* (1854, 9 Exch. 341), which has been accepted in Scotland and the United States and throughout the British empire, and often differs little, if at all, from the rule adopted in the French civil code (art. 1150). In that case damages were sought for the loss of profits caused by a steam mill being kept idle, on account of the delay of the defendants in sending a new shaft which they had contracted to make. The court held the damage to be too remote, and stated the proper rule as follows:—

> "Where two parties have made a contract which one of them has broken, the damages which the other party ought to receive in respect of such breach of contract should be such as may fairly and reasonably be considered either arising naturally, i.e. according to the usual course of things, from such breach of contract itself, or such as may reasonably be supposed to have been in the contemplation of both parties at the time they made the contract as the probable result of the breach of it. Now if the special circumstances under which the contract was actually made were communicated by the plaintiffs to the defendants, and thus known to both parties, the damages resulting from such contract which they would reasonably contemplate would be the amount of injury which would ordinarily flow from a breach of contract under these special circumstances so known and communicated. But on the other hand, if those special circumstances were wholly unknown to the party breaking the contract, he at the most could only be supposed to have had in his mind the amount of injury which would arise generally, and in the great multitude of cases not affected by any special circumstances, from such breach of contract."[1]

The rule is, however, only a general guide, and does not obviate the necessity of inquiring in each case what are the natural or contemplated damages. In an action by the proprietor of a theatre, it was alleged that the defendant had written a libel on one of the plaintiff's singers, whereby she was deterred from appearing on the stage, and the plaintiff lost his profits; such loss was held to be too remote to be the ground of an action for damages. In *Smeed* v. *Foord* (1 Ellis and Ellis, 602), the defendant contracted to deliver a threshing-machine to the plaintiff, a farmer, knowing that it was needed to thresh the wheat in the field. Damages were sought for injury done to the wheat by rain in consequence of the machine not having been delivered in time, and also for a fall in the market before the grain could be got ready. It was held that the first claim was good, as the injury might have been anticipated, but that the second was bad. When, through the negligence of a railway company in delivering bales of cotton, the plaintiffs, having no cotton to work with, were obliged to keep their workmen unemployed, it was held that the wages paid and the profits lost were too remote for damages. On the other hand, where the defendant failed to keep funds on hand to meet the drafts of the plaintiff, so that a draft was returned dishonoured, and his business in consequence was for a time suspended and injured, the plaintiff was held entitled to recover damage for such loss.

The rule that the contract furnishes the measure of the damages does not prevail in the case of unconscionable, i.e. unreasonable, absurd or impossible contracts. The old school-book juggle in geometrical progression has more than once been before the courts as the ground of an action. Thus, when a man agreed to pay for a horse a barley-corn per nail, doubling it every nail, and the amount calculated as 32 nails was 500 quarters of barley, the judge directed the jury to disregard the contract, and give as damages the value of the horse. And when a defendant had agreed for £5 to give the plaintiff two grains of rye on Monday, four on the next Monday,[2] and so on doubling it every Monday, it was contended that the contract was impossible, as all the rye in the world would not suffice for it; but one of the judges said that, though foolish, it would hold in law, and the defendant ought to pay something for his folly. And when a man had promised £1000 to the plaintiff if he should find his owl, the jury were directed to mitigate the damages.

Interest is recoverable as damages at common law only upon mercantile securities, such as bills of exchange and promissory notes or where a promise to pay interest has been made in express terms or may be implied from the usage of trade or other circumstances [Mayne, *Damages* (7th ed.) 166]. Under the Civil Procedure Act 1833, the jury is allowed to give interest by way of damages on debts or sums payable at a certain time, or if not so payable, from the date of demand in writing, and in actions on policies of insurance, and in actions of tort arising out of conversion or seizure of goods.

In the United States, interest is in the discretion of the court, and is made to depend on the equity of the case. In both England and America compound interest, or interest on interest, appears to have been regarded with the horror that formerly attached to usury. Lord Eldon would not recognize as valid an agreement to pay compound interest. And Chancellor Kent held that compound interest could not be taken except upon a special agreement made after the simple interest became due.

In Scotland compound interest is not allowed by way of damages.

Torts.—In actions arising otherwise than from breach of contract (i.e. of tort, delict or quasi-delict), the principles applied to the assessment of damage in cases arising *ex contractu* are generally applicable (*The Notting Hill*, 1884, 9 P.D. 105); but from the nature of the case less precision in assessment is attainable. The remoteness of the damage claimed is a ground for excluding it from the assessment. In some actions of tort the damages can be calculated with exactness just as in cases of contract, e.g. in most cases of interference with rights of property or injury to property. Thus, for wrongful dispossession from a plantation (in Samoa) it was held that the measure of damage was the annual value of the produce of the lands when wrongfully seized, less the cost of management, and that the wilful character of the seizure did not justify the infliction of a penalty over and above the loss to the plaintiff (*McArthur* v. *Cornwall*, 1892, A.C. 75). Where minerals are wrongfully severed and carried away, the damage is assessed by calculating the value of the mineral as a chattel and deducting the reasonable expense of getting it. But where the interference with property, whether real or personal, is attended by circumstances of aggravation such as crime or fraud or wanton insult, it is well established that additional damages may be awarded which in effect are penal or vindictive. In actions for injuries to the person or to reputation, it is difficult to make the damages a matter for exact calculation, and it has been found impossible or inexpedient by the courts to prevent juries from awarding amounts which operate as a punishment of the delinquent rather than as a true assessment of the reparation due to the sufferer. And while a bad motive (malice) is seldom enough to give a cause of action, proof of its existence is a potent inducement to a jury to swell the assessment of damages, as evidence of bad character may induce them to reduce the damages to a derisory amount. In the case of injuries to the person caused by negligence, the tribunal considers, as part of the general damage, the actual pain and suffering, including nervous shock (but not wounded feelings) and the permanent or temporary character of the injury, and as special damage the loss of time and employment during recovery and the cost of cure. It is difficult by any arithmetical calculation to value pain and suffering; nor is it easy to value the effect of a permanent injury; and in the Workmen's Compensation Act and Employers' Liability Act, an attempt has been made in the case of workmen to assess by reference to the earnings of the injured person.

In the case of such wrongs as assault, arrest or prosecution, the motives of the defendant naturally affect the amount of general damage awarded, even when not essential elements in the case, and the damages are "at large." Any other rule would enable a man to distribute blows as he can utter curses at a statutory tariff of so much a curse, according to his rank. This position was strongly asserted in the cases arising out of the celebrated "General Warrants" (1763) in the time of Lord Camden, who is reported in one case to have said, "damages are designed not only as a satisfaction to the injured person, but as a punishment to the guilty, and as a proof of the detestation in which the wrongful act is held by the jury." In another case he mentioned the importance of the question at issue, the attempt to exercise arbitrary power, as a reason why the jury might give exemplary damages. Another judge, in another case, said "I remember a case when the jury gave £500 damages for knocking a man's hat off; and the court refused a new trial." And he urged that exemplary damages for personal insult would tend to prevent the practice of duelling.

The right to give exemplary or punitive or (as they are sometimes called) vindictive damages is fully recognized both in England and in the United States, and especially in the following cases. (1) Against the co-respondent in a divorce suit. This right is the same as that recognized at common law in the abolished action of criminal conversation, but the damages awarded may by the court be applied for the maintenance and education of the children of the marriage or the maintenance of the offending wife. (2) In actions of trespass to land where the conduct of the defendant has been outrageous. (3) In actions of defamation spoken or written, attended by circumstances of aggravation, and the analogous action of malicious prosecution. (4) In the anomalous actions of seduction and breach of promise of marriage.

In actions for wrongs, as in those *ex contractu*, the damages may be general or special. In a few cases of tort, the action fails wholly if special damage is not proved, e.g. slander by imputing to a man vicious, unchaste or immoral conduct, slander of title to land or goods or nuisance.

In theory, English law does not recognize "moral or intellectual" damage, such as was claimed by the South African Republic after the Jameson Raid. The law of Scotland allows a solatium for wounded feelings, as does French law under the name of *dommage moral, éprouvé par la partie lésée dans sa liberté, sa sûreté, son honneur, sa considération, ses affections légitimes ou dans la jouissance de son patrimoine*. Under this head compensation is awarded to widow, child or sister, for the loss of husband, parent or brother, in addition to the actual pecuniary loss (Dalloz, *Nouveau Code civil*, art. 1382). Claims of damage for negligence are defeated by proof of what is known as contributory negligence (*faute commune*). In other claims of tort, as already stated, the conduct of the claimant may materially reduce the amount of his damages.

In cases of damages to ships or cargo by collision at sea, the rule of the old court of admiralty (derived from the civil law and preserved by the Judicature Acts) is that when both or all vessels are to blame, the whole amount of the loss is divided between them. The rule appears not to apply to cases where death or personal injury results from the collision ("Vera Cruz," 1884, 14 A.C. 59. "Bernina," 1888, 13 A.C. 1).

Costs.—The costs of a legal proceeding are no longer treated as damages to be assessed by the jury, nor do they depend on any act of the jury. The right to receive them depends on the court, and they are taxed or assessed by its officers (see Costs). In a few cases where costs cannot be given, e.g. on compulsory acquisition of land in London, the assessing tribunal is invited to add to the compensation price the owner's expense in the compensation proceedings.

Death.—In English law a right to recover damages for a tort as a general rule was lost on the death of the sufferer or of the delinquent. The cause of action was considered not to survive. This rule differs from that of Scots law (under which the claim for damages arises at the moment of injury and is not affected by the death of either party). The English rule has been criticized as barbarous, and has been considerably broken in upon by legislation, in cases of taking the goods of another (4 Edw. III., c. 7, 1330), and injuries to real or personal property (3 & 4 Will. IV., c. 42, 1833), but continues in force as to such matters as defamation, malicious prosecution and trespass to the person. By the Fatal Accidents Act 1846 (commonly called Lord Campbell's Act), it is enacted that wherever a wrongful act would have entitled the injured person to recover damages (if death had not ensued), the person who in such case would have been liable "shall be liable to an action for damages for the pecuniary loss which the death has caused to certain persons, and although the death shall have been caused under such circumstances as amount in law to felony." The only persons by whom or for whose benefit

such an action may be brought are the husband, wife, parent and child (including grandchild and stepchild, but not illegitimate child) of the deceased. The right of action and the measure of damages are statutory and distinct from the right which the deceased had till he died. It was held in *Osborne* v. *Gillett*, 1873, L.R. 8 Ex. 88, and has since been approved (*Clark* v. *London General Omnibus Co.*, 1906, 2 K.B. 648), that no person can recover damages for the death of another wrongfully killed by the act of a third person, unless he claims through or represents the person killed, and unless that person in case of an injury short of death would have had a good claim to recover damages.

In Scotland the law of compensation for breach of contract is substantially the same as in England. In cases of delict or quasi-delict, the measure of reparation is a fair and reasonable compensation for the advantage which the sufferer would, but for the wrong, have enjoyed and has lost as a natural and proximate result of the wrong, coupled with a solatium for wounded feelings. The claim for reparation vests as a debt when it arises and survives to the representatives of the sufferer, and against the representatives of the delinquent. In other words, the maxim *actio personalis moritur cum persona* does not apply in Scots law; and even in cases of murder there has always been recognized a right to "assythement."

See also Mayne on *Damages*, 7th ed.; Sedgwick on *Damage*; Bell, *Principles of Law of Scotland*.

(W. F. C.)

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1 In the Indian Contracts Code (Act xii. of 1872), the rule is thus summarized:—

"When a contract has been broken, the party who suffers by such breach is entitled to receive from the party who has broken the contract, compensation for any loss or damage caused to him thereby, which naturally arose in the usual course of things from such breach, or which the parties knew when they made the contract to be likely to result from the breach of it. Such compensation is not to be given for any remote or indirect loss or damage sustained by reason of the breach.... In estimating the loss or damage arising from a breach of contract, the means of remedying the inconvenience caused by the non-performance must be taken into account" (§ 73).

2 *Quolibet alio die lunae*, which was translated by some *every Monday*, and by others *every other Monday*. The amount in the latter case would have been 125 quarters, in the former 524,288,000 quarters.

DAMANHŪR, a town of Lower Egypt, 38 m. E.S.E. of Alexandria by rail, capital of the richly-cultivated province of Behera. It is the ancient Timenhōr, "town of Horus," which in Ptolemaic times was capital of a nome and lay on the Canopic branch of the Nile. Its name and other circumstances imply that Horus (= Apollo) was worshipped there in the same form as at Edfu (Brugsch, *Dictionnaire géographique*, p. 521), but its Greek name, Hermopolis Parva, should indicate Thoth as the local god. This apparent contradiction is perhaps due to some early misunderstanding that held its ground after the Greeks knew Egypt better. A much frequented fair is held at Damanhūr three times a year, and there are several cotton manufactories. Population (1907) 38,752.

DAMARALAND, a region of south-western Africa, bounded W. by the Atlantic, E. by the Kalahari, N. by Ovampoland, and S. by Great Namaqualand. It forms the central portion of German South-West Africa. Damaraland is alternatively known as Hereroland, both names being derived from the tribes inhabiting the region. The so-called Damara consist of two probably distinct peoples. They are known respectively as "the Hill Damara" and "the Cattle Damara," i.e. those who breed cattle in the plains. The Hill Damara are Negroes with much Hottentot blood, and have adopted the Hottentot tongue, while the Cattle Damara are of distinct Bantu-Negro descent and speak a Bantu language. The term Damara ("Two Dama Women") is of Hottentot origin, and is not used by the people, who call themselves Ova-herero, "the Merry People" (see HOTTENTOTS and HERERO).

DAMASCENING, or DAMASKEENING, a term sometimes applied to the production of damask steel, but properly the art of in-crusting wire of gold (and sometimes of silver or copper) on the surface of iron, steel or bronze. The surface upon which the pattern is to be traced is finely undercut with a sharp instrument, and the gold thread by hammering is forced into and securely held by the minute furrows of the cut surface. This system of ornamentation is peculiarly Oriental, having been much practised by the early goldsmiths of Damascus, and it is still eminently characteristic of Persian metal work.

DAMASCIUS, the last of the Neoplatonists, was born in Damascus about A.D. 480. In his early youth he went to Alexandria, where he spent twelve years partly as a pupil of Theon, a rhetorician, and partly as a professor of rhetoric. He then turned to philosophy and science, and studied under Hermeias and his sons, Ammonius and Heliodorus. Later on in life he migrated to Athens and continued his studies under Marinus, the mathematician, Zenodotus, and Isidore, the dialectician. He became a close friend of Isidore, succeeded him as head of the school in Athens, and wrote his biography, part of which is preserved in the *Bibliotheca* of Photius (see appendix to the Didot edition of Diogenes Laërtius). In 529 Justinian closed the school, and Damascius with six of his colleagues sought an asylum, probably in 532, at the court of Chosroes I., king of Persia. They found the conditions intolerable, and in 533, in a treaty between Justinian and Chosroes, it was provided that they should be allowed to return. It is believed that Damascius settled in Alexandria and there devoted himself to the writing of his works. The date of his death is not known.

His chief treatise is entitled *Difficulties and Solutions of First Principles* (Ἀπορίαι καὶ χύσεις περὶ τῶν πρώτων ἀρχῶν). It examines into the nature and attributes of God and the human soul. This examination is, in two respects, in striking contrast to that of certain other Neoplatonist writers. It is conspicuously free from that Oriental mysticism which stultifies so much of the later pagan philosophy of Europe. Secondly, it contains no polemic against Christianity, to the doctrines of which, in fact, there is no allusion. Hence the charge of impiety which Photius brings against him. His main result is that

God is infinite, and as such, incomprehensible; that his attributes of goodness, knowledge and power are credited to him only by inference from their effects; that this inference is logically valid and sufficient for human thought. He insists throughout on the unity and the indivisibility of God, whereas Plotinus and Porphyry had admitted not only a Trinity, but even an Ennead (nine-fold personality).

Interesting as Damascius is in himself, he is still more interesting as the last in the long succession of Greek philosophers. (See Neoplatonism.)

Bibliography.—The Ἀπορίαι was partly edited by J. Kopp (1826), and in full by C. E. Ruelle (Paris, 1889). French trans. by Chaignet (1898). See T. Whittaker, *The Neo-platonists* (Cambridge, 1901); E. Zeller, *History of Greek Philosophy*; C. E. Ruelle, *Le Philosophe Damascius* (1861); Ch. Levêque, "Damascius" (*Journal des savants*, February 1891). See also works quoted under Neoplatonism and Alexandrian School.

DAMASCUS, the chief town of Syria, and the capital of a government province of the same name, 57 m. from Beirut, situated in 33° 30′ N., and 36° 18′ E.

History.—The origin of the city is unknown, and the popular belief that it is the oldest city in the world still inhabited has much to recommend it. It has been suggested that the ideogram by which it is indicated in Babylonian monuments literally means "fortress of the Amorites"; could this be proved it would be valuable testimony to its antiquity if not its origin. The city is mentioned in the document that describes the battle of the four kings against five, inserted in the book of Genesis (ch. xiv.): Abram (Abraham) is reported to have pursued the routed kings to Hobah *north of Damascus* (v. 15). The name of the steward of Abram's establishment is given in Genesis xv. 2, as *Dammesek Eliezer*, which is explained in the Aramaic and Syriac versions as "Eliezer of Damascus." This reading is adopted by the authorized version, but the Hebrew, as it stands, will not support it. There is probably here some textual corruption.

In the period of the Egyptian suzerainty over Palestine in the eighteenth dynasty Damascus (whose name frequently appears in the Tell el-Amarna tablets) was capital of the small province of Ubi. The name of the city in the Tell el-Amarna correspondence is Dimashḳa. Towards the end of that period the overrunning of Palestine and Syria by the Khabiri and Suti, the forerunners of the Aramaean immigration, changed the conditions, language and government of the country. One of the first indications of this change that has been traced is the appearance of the Aramaean Darmesek for Damascus in an inscription of Rameses III.

The growth of an independent kingdom with Damascus as centre must date from very early in the Aramaean occupation. It had reached such strength that though Tiglath-Pileser I. reduced the whole of northern Syria, and by the fame of his victories induced the king of Egypt to send him presents, yet he did not venture to attack Kadesh and Damascus, so that this kingdom acted as a "buffer" between the king of Assyria and the rising kingdom of Saul.

David, however, after his accession made an expedition against Damascus as a reprisal for the assistance the city had given his enemy Hadadezer, king of Zobah. The expedition was successful; David smote of the Syrians 22,000 men, and took and garrisoned the city; "and the Syrians became servants to David, and brought gifts" (2 Sam. viii. 5, 6; 1 Chron. xviii. 5). This statement, it should be noticed, has been questioned by some modern historical and textual critics, who believe that "Syria" (Hebrew *Aram*) is here a corruption for "Edom." There is no other evidence—save the corrupt passage, 2 Sam. xxiv. 6, where "Tahtim-hodshi" is explained as meaning "the land of the Hittites to Kadesh"—that David's kingdom was so far extended northward. However this may be, it is evident that the Israelite possession of Syria did not last long. A subordinate of Hadadezer named Rezon (Rasun) succeeded in establishing himself in Damascus and in founding there a royal dynasty. Throughout the reign of Solomon (1 Kings xi. 23, 24) this Rezon seems to have been a constant enemy to the kingdom of Israel.

It is inferred from 1 Kings xv. 19 that Abijah, son of Rehoboam, king of Judah, made a league with Tab-Rimmon of Damascus to assist him in his wars against Israel, and that afterwards Tab-Rimmon's son Ben-Hadad came to terms with the second successor of Jeroboam, Baasha. Asa, son of Abijah, followed his father's policy, and bought the aid of Syria, whereby he was enabled to destroy the border fort that Baasha had erected (1 Kings xv. 22).

Hostilities between Israel and Syria lasted to the days of Ahab. From Omri the king of Syria took cities and the right to establish a quarter for his merchants in Samaria (1 Kings xx. 34). His son Ben-Hadad made an unsuccessful attack on Israel at Aphek, and was allowed by Ahab to depart on a reversal of these terms (*loc. cit.*). This was the cause of a prophetic denunciation (1 Kings xx. 42). According to the Assyrian records Ahab fought as Ben-Hadad's ally at the battle of Karkar against Shalmaneser in 854. This seems to indicate an intermediate defeat and vassalage of Ahab, of which no direct record remains; and it was probably in the attempt to throw off this vassalage in 853, the year after the battle of Karkar, that Ahab met his death in battle with the Syrians (1 Kings xxii. 34-40). In the reign of Jehoram, Naaman, the Syrian general, came and was cleansed by the prophet Elisha of leprosy (2 Kings v.).

In 843 Hazael assassinated Ben-Hadad and made himself king of Damascus. The states which Ben-Hadad had brought together into a coalition against the advancing power of Assyria all revolted; and Shalmaneser, king of Assyria, took advantage of this in 842 and attacked Syria. He wasted the country, but could not take the capital. Jehu, king of Israel, paid tribute to Assyria, for which Hazael afterwards revenged himself, during the time when Shalmaneser was distracted by his Armenian wars, by attacking the borders of Israel (2 Kings x. 32).

Adad-nirari IV. invaded Syria and besieged Damascus in 806. Taking advantage of this and similar succeeding events, Jehoash, king of Israel, recovered the cities that his father had lost to Hazael.

In 734 Ahaz became king of Judah, and Rezon (Raṣun, Rezin), the king of Damascus at the time, came up against him; at the same time the Edomites and the Philistines revolted. Ahaz appealed to Tiglath-Pileser III., king of Assyria, sent him gifts, and besought his protection. Tiglath-Pileser invaded Syria, and in 732 succeeded in reducing Damascus (see also Babylonia and Assyria, *Chronology*, § 5, and Jews, §§ 10 sqq.).

Except for the abortive rising under Sargon in 720, we hear nothing more of Damascus for a long period. In 333 B.C., after the battle of Issus, it was delivered over by treachery to Parmenio, the general of Alexander the Great; the harem and treasures of Darius had here been lodged. It had a chequered history during the wars of the successors of Alexander, being occasionally in Egyptian hands. In 112 B.C. the empire of Syria was divided by Antiochus Grypus and Antiochus Cyzicenus; the city of Damascus fell to the share of the latter. Hyrcanus took advantage of the disputes of these rulers to advance his own kingdom. Demetrius Eucaerus, successor of Cyzicenus, invaded Palestine in 88 B.C., and defeated Alexander Jannaeus at Shechem. On his dethronement and captivity by the Parthians, Antiochus Dionysus, his brother, succeeded him, but was slain in battle by Hāritha (Aretas) the Arab—the first instance of Arab interference with Damascene politics. Hāritha yielded to Tigranes, king of Armenia, who in his turn was driven out by Q. Caecilius Metellus (son of Scipio Nasica), the Roman general. In 63 Syria was made a Roman province.

In the New Testament Damascus appears only in connexion with the miraculous conversion of St Paul (Acts ix., xxii., xxvi.), his escape from Aretas the governor by being lowered in a basket over the wall (Acts ix. 25; 2 Cor. xi. 32, 33), and his return thither after his retirement in Arabia (Gal. i. 17).

In 150, under Trajan, Damascus became a Roman provincial city.

On the establishment of Christianity Damascus became the seat of a bishop who ranked next to the patriarch of Antioch. The great temple of Damascus was turned by Arcadius into a Christian church.

In 635 Damascus was captured for Islam by Khālid ibn Walīd, the great general of the new religion, being the first city to yield after the battle of the Yarmuk (Hieromax). After the murder of Ali, the fourth caliph, his successor Moawiya transferred the seat of the Caliphate (q.v.) from Mecca to Damascus and thus commenced the great dynasty of the Omayyads, whose rule extended from the Atlantic to India. This dynasty lasted about ninety years; it was supplanted by that of the Abbasids, who removed the seat of empire to Mesopotamia; and Damascus passed through a period of unrest in 785
which it was captured and ravaged by Egyptians, Carmathians and Seljuks in turn. The crusaders attacked Damascus in 1126, but never succeeded in keeping a firm hold of it, even during their brief domination of the country. It was the headquarters of Saladin in the wars with the Franks. Of its later history we need only mention the Mongolian capture in 1260; its Egyptian recapture by the Mameluke Kotuz; the ferocious raid of Timur (Tamerlane) in 1399; and the conquest by the Turkish sultan Selim, whereby it became a city of the Ottoman empire (1516). In its more recent history the only incidents that need be mentioned are its capture by Ibrahim Pasha, the Egyptian general, in 1832, when the city was first opened to the representatives of foreign powers; its revolt against Ibrahim's tyranny in 1834, which he crushed with the aid of the Druses; the return of the city to Turkish domination, when the Egyptians were driven out of Syria in 1840 by the allied powers; and the massacre of July 1860, when the Moslem population rose against the Christians, burnt their quarter, and slaughtered about 3000 adult males.

Modern City.—Damascus is a city with a population estimated at from 154,000 (35,000 Christians and Jews) to 225,000 (55,000 Christians and Jews), situated near the northern edge of a plain called the Ghutah, at the foot of Anti-Lebanon, 2250 ft. above the sea. The river Barada (the *Abanah* of 2 Kings v. 12) rises in the Anti-Lebanon, runs for about 10 m. in a narrow channel, and then spreads itself fan-wise over the plain. About 18 m. east of the city it loses itself in the marshlands known as the Meadow Lakes. A second river, the 'Awaj (possibly the *Pharpar* of 2 Kings), pursues a similar course. The plain is thus exceptionally well irrigated, and its consequent fertility is proverbial over the East. Damascus is situated on both banks of the Barada, about 2 m. from the exit of the river from the gorge. On the right bank is all the older part of the city, and a long suburb called El-Meidān extending about a mile along the Hajj Road. On the left bank are the suburbs El 'Amāara and El-Salihia. The waters of the river are carried by channels and conduits to all the houses of the city. The orchards, gardens, vineyards and fields of Damascus are said to extend over a circuit of at least 60 m. In the surrounding plain are one hundred and forty villages, occupied in all by about 50,000 persons (1000 Christians, 2000 Druses).

The rough mud walls in the private houses give poor promise of splendour within. The entrance is usually by a low door, and through a narrow winding passage which leads to the outer court, where the master has his reception room. From this another winding passage leads to the harem, which is the principal part of the house. The plan of all is the same—an open court, with a tesselated pavement, and one or two marble fountains; orange and lemon trees, flowering shrubs, and climbing plants give freshness and fragrance. All the apartments open into the court; and on the south side is an open alcove, with a marble floor, and raised dais round three sides, covered with cushions; the front wall is supported by an ornamented Saracenic arch. The decoration of some of the rooms is gorgeous, the walls being covered in part with mosaics and in part with carved work, while the ceilings are rich in arabesque ornaments, elaborately gilt. A few of the modern Jewish houses have been embellished at an enormous cost, but they are wanting in taste.

Antiquities.—Considering the great age of Damascus, its comparative poverty in antiquities is remarkable. The walls of the city seem to be Seleucid in origin; some of the Roman gateways being still in good order. The *Derb el-Mistakīim*, or "Straight Street," still runs through the city from the eastern to the western gate. At the north-west corner is a large castle built in A.D. 1219, by El-Malik el-Ashraf, on the site of an earlier palace. It is quadrangular, surrounded by a moat filled by the Barada. The outer walls are in good preservation, but the interior is ruined.

The church of St John the Baptist constructed by Arcadius on the site of the temple was turned by Caliph Walid I. (705-717) to a mosque which was the most important building of Damascus. It was a structure 431 ft. by 125 ft. interior dimensions, extending along the south side of a quadrangle 163 yds. by 108 yds. Except the famous inscription over the door—"Thy kingdom, O Christ, is an everlasting kingdom, and thy dominion endureth throughout all generations"—every trace of Christianity was effaced from the church at its conversion. It was destroyed by fire on the 14th of October 1893, and though it was subsequently rebuilt, much that was of archaeological and historical interest perished. It is estimated that there are over two hundred mosques in Damascus.

Products, Manufactures, &c.—Damascus occupies an important commercial position, being the market for the whole of the desert; it also is of great importance religiously, as being the starting-point for the Hajj pilgrimage from Syria to Mecca, which leaves on the 15th of the lunar month of Shawwal each year. This of course brings much trade to the city. Its chief manufactures are silk work, cloths and cloaks, gold and silver ornaments, &c., brass and copper work, furniture and ornamental woodwork. The bazaars of Damascus are among the most famous of their kind. It is connected with Beirut and Mezerib by railway, and at the end of the past century the great undertaking of running a line to Mecca was commenced. In the surrounding gardens and fields walnuts, apricots, wheat, barley, maize, &c. are grown. Its commercial importance is referred to by Ezekiel (xxvii. 18), who mentions its trade in wines and wool. The climate is good; in winter there is often hard frost and much snow, and even in summer, with a day temperature of 100° F., the nights are always cool. Fever, dysentery and ophthalmia, chiefly due to exposure to heavy dews and cold nights, are prevalent. Though still the market of the nomads, the surer and cheaper sea route has almost destroyed the transit trade to which it once owed its wealth, and has even diminished the importance of the annual pilgrim caravan to Mecca. The Damascene, however, still retains his skill as a craftsman and tiller of the soil. The chief imports are cloths, prints, muslins, raw silk, sugar, rice, &c.

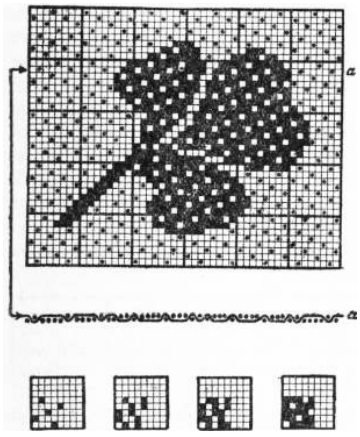
The value of exports and imports in certain specified years is shown in the following table:—

	1890.	1894.	1898.	1905.
Exports	£325,660	£400,830	£302,050	£386,000
Imports	525,710	614,490	675,080	872,400

Most of the Christians belong to the Orthodox and Roman Catholic (United) Greek Churches; and there are also communities of Melchites, Jacobites, Maronites, Nestorians, Armenians and Protestants. There are Protestant missions, founded 1843, and a British hospital.

AUTHORITIES.—Lortet, *La Syrie d'aujourd'hui*, p. 567 f. (Paris, 1884); Von Oppenheim, *Vom Mittelmeer zum Persischen Golf*, i. 49 f. (Berlin, 1899); G. A. Smith, *Historical Geography of the Holy Land*; *Encyclopaedia Biblica*, art. "Damascus"; Consular Reports; Baedeker-Socin, *Handbook to Syria and Palestine*. For the Great Mosque see Dickie, Phené Spiers, and Sir C. W. Wilson in *Palestine Exploration Fund Quarterly Statement*, Oct. 1897.

DAMASK, the technical term applied to certain distinct types of fabric. The term owes its origin to the ornamental silk fabrics of Damascus, fabrics which were elaborately woven in colours, sometimes with the addition of gold and other metallic threads. At the present day it denotes a linen texture richly figured in the weaving with flowers, fruit, forms of animal life, and other types of ornament. “China, no doubt,” says Dr Rock (*Catalogue of Textile Fabrics*, Victoria and Albert Museum), “was the first country to ornament its silken webs with a pattern. India, Persia, and Syria, then Byzantine Greece followed, but at long intervals between, in China’s footsteps. Stuffs so figured brought with them to the West the name ‘diaspron’ or diaper, bestowed upon them at Constantinople. But about the 12th century the city of Damascus, even then long celebrated for its looms, so far outstripped all other places for beauty of design, that her silken textiles were in demand everywhere; and thus, as often happens, traders fastened the name of damascen or damask upon every silken fabric richly wrought and curiously designed, no matter whether it came or not from Damascus.” The term is perhaps now best known in reference to damask table-cloths, a species of figured cloth usually of flax or tow yarns, but sometimes made partly of cotton. The finer qualities are made of the best linen yarn, and, although the latter is of a brownish colour during the weaving processes, the ultimate fabric is pure white. The high lights in these cloths are obtained by long floats of warp and weft, and, as these are set at right angles, they reflect the light differently according to the angle of the rays of light; the effect changes also with the position of the observer. Subdued effects are produced by shorter floats of yarn, and sometimes by special weaves. Any subject, however intricate, can be copied by this method of weaving, provided that expense is no object. The finest results are obtained when the so-called double damask weaves are used. These weaves are shown under Die, and it will be seen that each weave gives a maximum float of seven threads. (In some special cases a weave is used which gives a float of nine.) The small figure here shown to illustrate a small section of a damask design is composed of the two single damask weaves; these give a maximum float of four threads or picks. No shading is shown in the design, and this for two reasons—(1) the single damask weaves do not permit of elaborate shading, although some very good effects are obtainable; (2) the available space is not sufficiently large to show the method to advantage. The different single damask weaves used in the shading of these cloths appear, however, at the bottom of the figure, while between these and the design proper there is an illustration of the thirty-first pick interweaving with all the forty-eight threads.



The principal British centres for fine damasks are Belfast and Dunfermline, while the medium qualities are made in several places in Ireland, in a few places in England, and in the counties of Fife, Forfar and Perth in Scotland. Cotton damasks, which are made in Paisley, Glasgow, and several places in Lancashire, are used for toilet covers, table-cloths, and similar purposes. They are often ornamented with colours and sent to the Indian and West Indian markets. Silk damasks for curtains and upholstery decoration are made in the silk-weaving centres.

DAMASK STEEL, or Damascus Steel, a steel with a peculiar watered or streaked appearance, as seen in the blades of fine swords and other weapons of Oriental manufacture. One way of producing this appearance is to twist together strips of iron and steel of different quality and then weld them into a solid mass. A similar but inferior result may be obtained by etching with acid the surface of a metal; parts of which are protected by some greasy substance in such a way as to give the watered pattern desired. The art of producing damask steel has been generally practised in Oriental countries from a remote period, the most famous blades having come from Isfahan, Khorasan, and Shiraz in Persia.

DAMASUS, the name of two popes.

Damasus I. was pope from 366 to 384. At the time of the banishment of Pope Liberius (355), the deacon Damasus, like all the Roman clergy, made energetic protest. When, however, the emperor Constantius sent to Rome an anti-pope in the person of Felix II., Damasus, with the other clergy, rallied to his cause. When Liberius returned from exile and Felix was expelled from Rome, Damasus again took his place among the adherents of Liberius. On the death of Liberius (366) a considerable party nominated Damasus successor; but the irreconcilables of the party of Liberius refused to pardon his trimming, and set up against him another deacon, Ursinus. A serious conflict ensued between the rival factions, which quickly led to rioting and hand-to-hand fighting. In one of these encounters the then new basilica, called the Liberian Basilica (S. Maria Maggiore), was partially destroyed, and 137 dead bodies were left in the building. On several occasions the secular arm had to intervene, although the government of the emperor Valentinian was averse from involving itself in ecclesiastical affairs. From the outset the prefect of Rome recognized the claims of Damasus, and exerted himself to support him. Ursinus and the leading men of his faction were expelled from Rome, and afterwards from central Italy, or even interned in Gaul. They, however, persisted obstinately in their opposition to Damasus, combating him at first by riots, and then by calumnious law-suits, such as that instituted by one Isaac, a converted and relapsed Jew.

To the official support, which never failed him, Damasus endeavoured to join the popular sympathy. From before his election he had been in high favour with the Roman aristocracy, and especially with the great ladies. At that period the urban masses, but recently converted to Christianity, sought in the worship of the martyrs a sort of substitute for polytheism. Damasus showed great zeal in discovering the tombs of martyrs, adorning them with precious marbles and monumental inscriptions. The inscriptions he composed himself, in mediocre verse, full of Virgilian reminiscences. Several have come down to us on the original marbles, entire or in fragments; others are known from old copies. In the interior of Rome he erected or embellished the church which still bears his name (S. Lorenzo in Damaso), near which his father’s house appears to have stood.

The West was recovering gradually from the troubles caused by the Arian crisis. Damasus took part, more or less effectually, in the efforts to eliminate from Italy and Illyria the last champions of the council of Rimini. In spite of his declaration at the council convened by him in 372, he did not succeed in evicting Auxentius from Milan. But Auxentius died soon afterwards, and his successor, Ambrose, undertook to bring these hitherto abortive efforts to a successful conclusion, and to complete the return of Illyria to the confessions of Nicaea. The bishops of the East, however, under the direction of St Basil, were involved in a struggle with the emperor Valens, whose policy was favourable to the council of Rimini. Damasus, to whom they appealed for help, was unable to be of much service to them, the more so because that episcopal group, viewed askance by St Athanasius and his successor Peter, was incessantly combated at the papal court by the inveterate hatred of Alexandria. The Eastern bishops triumphed in the end under Theodosius, at the council of Constantinople (381), in which the pope and the Western church took no part. They were invited to a council of wider convocation, held at Rome in 382, but very few attended.

This council had brought to Rome the learned monk Jerome, for whom Damasus showed great esteem. To him Damasus entrusted the revision of the Latin text of the Bible and other works of religious erudition. A short time before, the pope had received a visit from the Priscillianists after their condemnation in Spain, and had dismissed them. Damasus died in 384, on the 11th of December, the day on which his memory is still celebrated.

Damasus II., pope from the 17th of July to the 9th of August 1048, was the ephemeral successor of Clement II. His original name was Poppo, and he was bishop of Brixen when the emperor Henry III. raised him to the papacy.

(L. D.*)

DAMAUN or Daman, a town of Portuguese India, capital of the settlement of Damaun, situated on the east side of the entrance of the Gulf of Cambay within the Bombay Presidency. The area of the settlement is 82 sq. m. Pop. (1900) 41,671. The settlement is divided into two parts, Damaun proper, and the larger *pargana* of Nagar Havili, the two being separated by a narrow strip of British territory. The soil is fertile, and rice, wheat and tobacco are the chief crops. The teak forests are valuable. Weaving is an industry less important than formerly; mats and baskets are manufactured, and deep-sea fishing is an important industry. The shipbuilding business at the town of Damaun is important. Early in the 19th century a large transit trade in opium between Karachi and China was carried on at Damaun, but it ceased in 1837, when the British prohibited it after their conquest of Sind. The settlement is administered as a unit, and has a municipal chamber.

Damaun town was sacked and burnt by the Portuguese in 1531. It was subsequently rebuilt, and in 1558 was again taken by the Portuguese, who made a permanent settlement and converted the mosque into a Christian church. From that time it has remained in their hands. The territory of Damaun proper was conquered by the Portuguese in 1559; that of Nagar Havili was ceded to them by the Mahrattas in 1780 in indemnification for piracy.

DAME (through the Fr. from Lat. *domina*, mistress, lady, the feminine of *dominus*, master, lord), properly a name of respect or a title equivalent to “lady,” now surviving in English as the legal designation of the wife or widow of a baronet or knight and prefixed to the Christian name and surname. It has also been used in modern times by certain societies or orders, e.g. the Primrose League, as the name of a certain rank among the lady members, answering to the male rank of knight. The ordinary use of the word by itself is for an old woman. As meaning “mistress,” i.e. teacher, “dame” was used of the female keepers of schools for young children, which have become obsolete since the advance of public elementary education. At Eton College boarding-houses kept by persons other than members of the teaching staff of the school were known as “Dames’ Houses,” though the head might not necessarily be a lady. As a term of address to ladies of all ranks, from the sovereign down, “madam,” shortened to “ma’am,” represents the French *madame*, my lady.

“Damsel,” a young girl or maiden, now only used as a literary word, is taken from the Old French *dameisele*, formed from *dame*, and parallel with the popular *dansele* or *doncele* from the medieval Latin *domicella* or *dominicella*, diminutive of *domina*. The French *damoiselle* and *demoiselle* are later formations. The English literary form “damosel” was another importation from France in the 15th century. In the early middle ages *damoiseau*, medieval Latin *domicellus*, *dameicele*, *damoiselle*, *domicella*, were used as titles of honour for the unmarried sons and daughters of royal persons and lords (*seigneurs*). Later the *damoiseau* (in the south *donzel*, in Béarn *domengar*) was specifically a young man of gentle birth who aspired to knighthood, equivalent to *écuyer*, esquire, or valet (q.v.). The *damoiseau* performed certain functions and received training in knightly accomplishments in the domestic service of his lord. Later again the name was also used of nobles who had not been knighted. In certain *seigneuries* in France, notably in that of Commercy, in Lorraine, *damoiseau* became the permanent title of the holder. In England the title, when used by the French-speaking nobility and members of the court, was only applied to the son or grandson of the king; thus in the *Laws of Edward the Confessor*, quoted in Du Cange (*Glossarium, s.v. Domicellus*), we find “Rex vero Edgarum ... pro filio nutrivit et quia cogitavit ipsum heredem facere, nominavit *Ethelinge*, quod nos Domicellum, id, *Damisell*; sed nos indiscrete de pluribus dicimus, quia Baronum filios vocamus domicellos, Angli vero nullos nisi natos regum.” Froissart calls Richard II. during the lifetime of his father the Black Prince, *le jeune Demoisel*. The use of *damoiselle* followed much the same development; it was first applied to the unmarried daughters of royal persons and *seigneurs*, then to the wife of a *damoiseau*, and also to the young ladies of gentle birth who performed for the wives of the *seigneurs* the same domestic services as the *damoiseaus* for their husbands. Hence the later form *demoiselle* became merely the title of address of a young unmarried lady, the *mademoiselle* of modern usage, the English “miss.” At the court of France, after the 17th century, *Mademoiselle*, without the name of the lady, was a courtesy title given to the eldest daughter of the eldest brother of the king, who was known as *Monsieur*. To distinguish the daughter of Gaston d’Orléans, brother of Louis XIII., from the daughter of Philippe d’Orléans, brother of Louis XIV., the former, Anne Marie Louise, duchesse de Montpensier, was called *La Grande Mademoiselle*, by which title she is known to history (see Montpensier, A. M. L., Duchesse de).

DAME’S VIOLET, the English name for *Hesperis matronalis*, a herbaceous plant belonging to the natural order Cruciferae, and closely allied to the wallflower and stock. It has an erect stout leafy stem 2 to 3 ft. high, with irregularly toothed short-stalked leaves and white or lilac flowers, ¾ in. across, which are scented in the evening (hence the name of

the genus, from the Gr. ἕσπερος, evening). The slender pods are constricted between the seeds. The plant is a native of Europe and temperate Asia, and is found in Britain as an escape from gardens, in meadows and plantations.

DAMGHAN, a town of Persia in the province of Semnan va Damghan, 216 m. from Teheran on the high-road thence to Khorasan, at an elevation of 3770 ft. and in 36° 10′ N., 54° 20′ E. Pop. about 10,000. There are post and telegraph offices, and a great export trade is done in pistachios and almonds, the latter being of the kind called *Kaghazi* ("of paper") with very thin shells, famous throughout the country. Damghan was an important city in the middle ages, but only a ruined mosque with a number of massive columns and some fine wood carvings and two minarets of the 11th century remain of that period. Near the city, a few miles south and south-west, are the remains of Hecatompylos, extending from Frat, 16 m. south of Damghan, to near Gúsheh, 20 m. west. Damghan was destroyed by the Afghans in 1723. On an eminence in the western part of the city are the ruins of a large square citadel with a small white-washed building, called *Molūd Khaneh* (the house of birth), in which Fath Ali Shah was born (1772).

DAMIANI, PIETRO (*c.* 1007-1072), one of the most celebrated ecclesiastics of the 11th century, was born at Ravenna, and after a youth spent in hardship and privation, gained some renown as a teacher. About 1035, however, he deserted his secular calling and entered the hermitage of Fonte Avellana, near Gubbio; and winning sound reputation through his piety and his preaching, he became the head of this establishment about 1043. A zealot for monastic and clerical reform, he introduced a more severe discipline, including the practice of flagellation, into the house, which, under his rule, quickly attained celebrity, and became a model for other foundations. Extending the area of his activities, he entered into communication with the emperor Henry III., addressed to Pope Leo IX. in 1049 a writing denouncing the vices of the clergy and entitled *Liber Gomorrhianus*; and soon became associated with Hildebrand in the work of reform. As a trusted counsellor of a succession of popes he was made cardinal bishop of Ostia, a position which he accepted with some reluctance; and presiding over a council at Milan in 1059, he courageously asserted the authority of Rome over this province, and won a signal victory for the principles which he advocated. He rendered valuable assistance to Pope Alexander II. in his struggle with the anti-pope, Honorius II.; and having served the papacy as legate to France and to Florence, he was allowed to resign his bishopric in 1067. After a period of retirement at Fonte Avellana, he proceeded in 1069 as papal legate to Germany, and persuaded the emperor Henry IV. to give up his intention of divorcing his wife Bertha. During his concluding years he was not altogether in accord with the political ideas of Hildebrand. He died at Faenza on the 22nd of February 1072. Damiani was a determined foe of simony, but his fiercest wrath was directed against the married clergy. He was an extremely vigorous controversialist, and his Latin abounds in denunciatory epithets. He was specially devoted to the Virgin Mary, and wrote an *Officium Beatae Virginis*, in addition to many letters, sermons, and other writings.

His works were collected by Cardinal Cajetan, and were published in four volumes at Rome (1606-1615), and then at Paris in 1642, at Venice in 1743, and there are other editions. See A. Vogel, *Peter Damiani* (Jena, 1856); A. Capecelatro, *Storia di S. Pier Damiani e del suo tempo* (Florence, 1862); F. Neukirch, *Das Leben des Peter Damiani* (Göttingen, 1875); L. Guerrier, *De Petro Damiano* (Orleans, 1881); W. von Giesebrecht, *Geschichte der deutschen Kaiserzeit* (Leipzig, 1885-1890); and Herzog-Hauck, *Realencyklopädie*, Band iv. (Leipzig, 1898).

DAMIEN, FATHER, the name in religion of Joseph de Veuster (1840-1889), Belgian missionary, was born at Tremeloo, near Louvain, on the 3rd of January 1840. He was educated for a business career, but in his eighteenth year entered the Church, joining the Society of the Sacred Heart of Jesus and Mary (also known as the Picpus Congregation), and taking Damien as his name in religion. In October 1863, while he was still in minor orders, he went out as a missionary to the Pacific Islands, taking the place of his brother, who had been prevented by an illness. He reached Honolulu in March 1864, and was ordained priest in Whitsuntide of that year. Struck with the sad condition of the lepers, whom it was the practice of the Hawaian government to deport to the island of Molokai, he conceived an earnest desire to mitigate their lot, and in 1873 volunteered to take spiritual charge of the settlement at Molokai. Here he remained for the rest of his life, with occasional visits to Honolulu, until he became stricken with leprosy in 1885. Besides attending to the spiritual needs of the lepers, he managed, by the labour of his own hands and by appeals to the Hawaian government, to improve materially the water-supply, the dwellings, and the victualling of the settlement. For five years he worked alone; subsequently other resident priests from time to time assisted him. He succumbed to leprosy on the 15th of April 1889. Some ill-considered imputations upon Father Damien by a Presbyterian minister produced a memorable tract by Robert Louis Stevenson (*An Open Letter to the Rev. Dr Hyde*, 1890).

See also lives by E. Clifford (1889) and Fr. Pamphile (1889).

(J. M'F.)

DAMIENS, ROBERT FRANÇOIS (1715-1757), a Frenchman who attained notoriety by his attack on Louis XV. of France in 1757, was born in a village near Arras in 1715, and early enlisted in the army. After his discharge, he became a menial in the college of the Jesuits in Paris, and was dismissed from this as well as from other employments for misconduct, his conduct earning for him the name of Robert le Diable. During the disputes of Clement XI. with the parlement of Paris the mind of Damiens seems to have been excited by the ecclesiastical disorganization which followed the refusal of the clergy to grant the sacraments to the Jansenists and Convulsionnaires; and he appears to have thought that peace would be restored by the death of the king. He, however, asserted, perhaps with truth, that he only intended to frighten the king without wounding him severely. On the 5th of January 1757, as the king was entering his carriage, he rushed forward and stabbed him with a knife, inflicting only a slight wound. He made no attempt to escape, and was at once seized. He was condemned as a regicide, and sentenced to be torn in pieces by horses in the Place de Grève. Before

being put to death he was barbarously tortured with red-hot pincers, and molten wax, lead, and boiling oil were poured into his wounds. After his death his house was razed to the ground, his brothers and sisters were ordered to change their names, and his father, wife, and daughter were banished from France.

See *Pièces originales et procédures du procès fait à Robert François Damiens* (Paris, 1757).

DAMIETTA, a town of Lower Egypt, on the eastern (Damietta or Phatnitic) branch of the Nile, about 12 m. above its mouth, and 125 m. N.N.E. of Cairo by rail. Pop. (1907) 29,354. The town is built on the east bank of the river between it and Lake Menzala. Though in general ill-built and partly ruinous, the town possesses some fine mosques, with lofty minarets, public baths and busy bazaars. Along the river-front are many substantial houses furnished with terraces, and with steps leading to the water. Their wooden lattices of saw-work are very graceful. After Cairo and Alexandria, Damietta was for centuries the largest town in Egypt, but the silting up of the entrance to the harbour, the rise of Port Said, and the remarkable development of Alexandria have robbed Damietta of its value as a port. It has still, however, a coasting trade with Syria and the Levant. Ships over 6 ft. draught cannot enter the river, but must anchor in the offing. Lake Menzala yields large supplies of fish, which are dried and salted, and these, with rice, furnish the chief articles of trade.

Damietta is a Levantine corruption of the Coptic name *Tamiati*, Arabic *Dimyāt*. The original town was 4 m. nearer the sea than the modern city, and first rose into importance on the decay of Pelusium. When it passed into the hands of the Saracens it became a place of great wealth and commerce, and, as the eastern bulwark of Egypt, was frequently attacked by the crusaders. The most remarkable of these sieges lasted eighteen months, from June 1218 to November 1219, and ended in the capture of the town, which was, however, held but for a brief period. In June 1249 Louis IX. of France occupied Damietta without opposition, but being defeated near Mansura in the February following, and compelled (6th April) to surrender himself prisoner, Damietta was restored to the Moslems as part of the ransom exacted. To prevent further attacks from the sea the Mameluke sultan Bibars blocked up the Phatnitic mouth of the Nile (about 1260), razed old Damietta to the ground, and transferred the inhabitants to the site of the modern town. It continued to be a place of commercial importance for a considerable period, until in fact Port Said gave the eastern part of the Delta a better port. Damietta gives its name to dimity, a kind of striped cloth, for which the place was at one time famous. Cotton and silk goods are still manufactured here.

DAMIRI, the common name of Kamāl ud-Dīn Muhammad ibn Mūsā ud-Damīrī (1344-1405), Arabian writer on canon law and natural history, belonged to one of the two towns called Damīra near Damietta and spent his life in Egypt. Of the Shafi'ite school of law, he became professor of tradition in the *Ruknīyya* at Cairo, and also at the mosque el-Azhar; in connexion with this work he wrote a commentary on the *Minhāj ut-Tālibin* of Nawāwi (q.v.). He is, however, better known in the history of literature for his *Life of Animals* (*Hayāt ul-Hayawān*), which treats in alphabetic order of 931 animals mentioned in the Koran, the traditions and the poetical and proverbial literature of the Arabs. The work is a compilation from over 500 prose writers and nearly 200 poets. The correct spelling of the names of the animals is given with an explanation of their meanings. The use of the animals in medicine, their lawfulness or unlawfulness as food, their position in folk-lore are the main subjects treated, while occasionally long irrelevant sections on political history are introduced.

The work exists in three forms. The fullest has been published several times in Egypt; a mediate and a short recension exist in manuscript. Several editions have been made at various times of extracts, among them the poetical one by Suyūti (q.v.), which was translated into Latin by A. Ecchelensis (Paris, 1667). Bochartus in his *Hierozoicon* (1663) used Damīrī's work. There is a translation of the whole into English by Lieutenant-Colonel Jayakar (Bombay, 1906-1908).

(G. W. T.)

DAMIRON, JEAN PHILIBERT (1794-1862), French philosopher, was born at Belleville. At nineteen he entered the normal school, where he studied under Burnouf, Villemain, and Cousin. After teaching for several years in provincial towns, he came to Paris, where he lectured on philosophy in various institutions, and finally became professor in the normal school, and titular professor at the Sorbonne. In 1824 he took part with P. F. Dubois and Th. S. Jouffroy in the establishment of the *Globe*; and he was also a member of the committee of the society which took for its motto *Aide-toi, le ciel t'aidera*. In 1833 he was appointed chevalier of the Legion of Honour, and in 1836 member of the Academy of Moral Sciences. Damiron died at Paris on the 11th of January 1862.

The chief works of Damiron, of which the best are his accounts of French philosophers, are the following:—An edition of the *Nouveaux mélanges philosophiques de Jouffroy* (1842), with a notice of the author, in which Damiron softened and omitted several expressions used by Jouffroy, which were opposed to the system of education adopted by the Sorbonne, an article which gave rise to a bitter controversy, and to a book by Pierre Leroux, *De la mutilation des manuscrits de M. Jouffroy* (1843); *Essai sur l'histoire de la philosophie en France au XIX^e^ siècle* (1828, 3rd ed. 1834); *Essai sur l'histoire de la philosophie en France au XVII. siècle* (1846); *Mémoires à servir pour l'histoire de la philosophie en France au XVIII. siècle* (1858-1864); *Cours de la philosophie*; *De la Providence* (1849, 1850).

See A. Franck, *Moralistes et philosophes* (1872).

DAMJANICH, JÁNOS (1804-1849), Hungarian soldier, was born at Stása in the Banat. He entered the army as an officer in the 61st regiment of foot, and on the outbreak of the Hungarian war of independence was promoted to be a major in the third Honvéd regiment at Szeged. Although an orthodox Serb, he was from the first a devoted adherent of the Magyar liberals. He won his colonelcy by his ability and valour at the battles of Alibunár and Lagerdorf in 1848. At the beginning of 1849 he was appointed commander of the 3rd army corps in the middle Theiss, and quickly gained the

reputation of being the bravest man in the Magyar army, winning engagement after engagement by sheer dash and daring. At the beginning of March 1849 he annihilated a brigade at Szolnók, perhaps his greatest exploit. He was elected deputy for Szolnók to the Hungarian diet, but declined the honour. Damjanich played a leading part in the general advance upon the Hungarian capital under Görgei. He was present at the engagements of Hort and Hatvan, converted the doubtful fight of Tápió-Bicsk into a victory, and fought with irresistible *élan* at the bloody battle of Isaszeg. At the ensuing review at Gödöllö, Kossuth expressed the sentiments of the whole nation when he doffed his hat as Damjanich's battalions passed by. Always a fiery democrat, Damjanich uncompromisingly supported the extremist views of Kossuth, and was appointed commander of one of the three divisions which, under Görgei, entered Vācz in April 1849. His fame reached its culmination when, on the 19th of April, he won the battle of Nagysarló, which led to the relief of the hardly-pressed fortress of Komárom. At this juncture Damjanich broke his leg, an accident which prevented him from taking part in field operations at the most critical period of the war, when the Magyars had to abandon the capital for the second time. He recovered sufficiently, however, to accept the post of commandant of the fortress of Arad. After the Vilagós catastrophe, Damjanich, on being summoned to surrender, declared he would give up the fortress to a single company of Cossacks, but would defend it to the last drop of his blood against the whole Austrian army. He accordingly surrendered to the Russian general Demitrius Buturlin (1790-1849), by whom he was handed over to the Austrians, who shot him in the market-place of Arad a few days later.

See Ödön Hamvay, *Life of János Damjanich* (Hung.), (Budapest, 1904).

(R. N. B.)

DAMMAR, or Dammer (Hind, *damar* = resin, pitch), a resin, or rather series of resins, obtained from various coniferous trees of the genus *Dammara* (*Agathis*). East Indian dammar or cat's eye resin is the produce of *Dammara orientalis*, which grows in Java, Sumatra, Borneo and other eastern islands and sometimes attains a height of 80-100 ft. It oozes in large quantities from the tree in a soft viscous state, with a highly aromatic odour, which, however, it loses as it hardens by exposure. The resin is much esteemed in oriental communities for incense-burning. Dammar is imported into England by way of Singapore; and as found in British markets it is a hard, transparent, brittle, straw-coloured resin, destitute of odour. It is readily soluble in ether, benzol and chloroform, and with oil of turpentine it forms a fine transparent varnish which dries clear, smooth and hard. The allied kauri gum, or dammar of New Zealand (Australian dammar), is produced by *Dammara australis*, or kauri-pine, the wood of which is used for wood paving. Much of the New Zealand resin is found fossil in circumstances analogous to the conditions under which the fossil copal of Zanzibar is obtained. Dammar is besides a generic Indian name for various other resins, which, however, are little known in western commerce. Of these the principal are black dammar (the Hindustani *kala-damar*), yielded by *Canarium strictum*, and white dammar, Indian copal, or piney varnish (*sufed-damar*), the produce of *Vateria indica*. Sal dammar (*damar*) is obtained from *Shorea robusta*; *Hopea micrantha* is the source of rock dammar (the Malay *dammer-batu*); and other species yield resins which are similarly named and differ little in physical properties.

DAMMARTIN, a small town of France, in the department of Seine et Marne, 22 m. N.E. of Paris. It is well situated on a hill forming part of the plateau of la Goële, and is known as Dammartin-en-Goële to distinguish it from Dammartin-sous-Tigeaux, a small commune in the same department. Dammartin is historically important as the seat of a countship of which the holders played a considerable part in French history. The earliest recorded count of Dammartin was a certain Hugh, who made himself master of the town in the 10th century; but his dynasty was replaced by another family in the 11th century. Reynald I. (Renaud), count of Dammartin (d. 1227), who was one of the coalition crushed by King Philip Augustus at the battle of Bouvines (1214), left two co-heiresses, of whom the elder, Maud (Matilda or Mahaut), married Philip Hurepel, son of Philip Augustus, and the second, Alix, married Jean de Trie, in whose line the countship was reunited after the death of Philip Hurepel's son Alberic. The countship passed, through heiresses, to the houses of Fayel and Nanteuil, and in the 15th century was acquired by Antoine de Chabannes (d. 1488), one of the favourites of King Charles VII., by his marriage with Marguerite, heiress of Reynald V. of Nanteuil-Aci and Marie of Dammartin. This Antoine de Chabannes, count of Dammartin in right of his wife, fought under the standard of Joan of Arc, became a leader of the *Écorcheurs*, took part in the war of the public weal against Louis XI., and then fought for him against the Burgundians. The collegiate church at Dammartin was founded by him in 1480, and his tomb and effigy are in the chancel. His son, Jean de Chabannes, left three heiresses, of whom the second left a daughter who brought the countship to Philippe de Boulainvilliers, by whose heirs it was sold in 1554 to the dukes of Montmorency. In 1632 the countship was confiscated by Louis XIII. and bestowed on the princes of Condé.

DAMME, a decayed city of Belgium, 5 m. N.E. of Bruges, once among the most important commercial ports of Europe. It is situated on the canal from Bruges to Sluys (Ecluse), but in the middle ages a navigable channel or river called the Zwyn gave ships access to it from the North Sea. The great naval battle of Sluys, in which Edward III. destroyed the French fleet and secured the command of the channel, was fought in the year 1340 at the mouth of the Zwyn. About 1395 this channel began to show signs of silting up, and during the next hundred years the process proved rapid. In 1490 a treaty was signed at Damme between the people of Bruges and the archduke Maximilian, and very soon after this event the channel became completely closed up, and the foreign merchant gilds or "nations" left the place for Antwerp. This signified the death of the port and was indirectly fatal to Bruges as well. The marriage of Charles the Bold and Margaret of York, sister of Edward IV., was celebrated at Damme on the 2nd of July 1468. It will give some idea of the importance of the town to mention that it had its own maritime law, known as *Droit maritime de Damme*. The new ship canal from Zeebrugge will not revive the ancient port, as it follows a different route, leaving Damme and Ecluse quite untouched. Damme, although long neglected, preserves some remains of its former prosperity, thanks to its remoteness from the area of international strife in the Low Countries. The tower of Notre Dame, dating from 1180, is a landmark across the dunes, and the church behind it, although a shell, merits inspection. Out of a portion of the ancient markets a hôtel-de-ville of modest dimensions has been constructed, and in the hospital of St Jean are a few pictures. Camille Lemonnier has given in one of his *Causeries* a striking picture of this faded scene of former greatness, now a solitude in which the few residents seem spectres rather than living figures.

DAMOCLES, one of the courtiers of the elder Dionysius of Syracuse. When he spoke in extravagant terms of the happiness of his sovereign, Dionysius is said to have invited him to a sumptuous banquet, at which he found himself seated under a naked sword suspended by a single hair (Cicero, *Tusc.* v. 21; Horace, *Odes*, iii. 1, 17; Persius iii. 40).

DAMOH, a town and district of British India, in the Jubbulpore division of the Central Provinces. The town has a railway station, 48 m. E. of Saugor. Pop. (1901) 13,355. It has a considerable cattle-market, and a number of small industries, such as weaving, dyeing and pottery-making.

The District of Damoh has an area of 2816 sq. m. Except on the south and east, where the offshoots from the surrounding hills and patches of jungle break up the country, the district consists of open plains of varying degrees of fertility, interspersed with low ranges and isolated heights. The richest tracts lie in the centre. The gentle declivity of the surface and the porous character of the prevailing sandstone formation render the drainage excellent. All the streams flow from south to north. The Sunar and the Bairma, the two principal rivers, traverse the entire length of the district. Little use has been made of any of the rivers for irrigation, though in many places they offer great facilities for the purpose. Damoh was first formed into a separate district in 1861. In 1901 the population was 285,326, showing a decrease of 12% in one decade due to famine. Damoh suffered severely from the famine of 1896-1897. Fortunately the famine of 1900 was little felt. A branch of the Indian Midland railway was opened throughout from Saugor to Katni in January 1899.

DAMON, of Syracuse, a Pythagorean, celebrated for his disinterested affection for Phintias (not, as commonly given, Pythias), a member of the same sect. Condemned to death by Dionysius the Elder (or Younger) of Syracuse, Phintias begged to be set at liberty for a short time that he might arrange his affairs. Damon pledged his life for the return of his friend; and Phintias faithfully returned before the appointed day of execution. The tyrant, to express his admiration of their fidelity, released both the friends and begged to be admitted to their friendship (Diod. Sic. x. 4; Cicero, *De Off.* iii. 10). Hyginus (*Fab.* 257, who is followed by Schiller in his ballad, *Die Bürgschaft*) tells a similar story, in which the two friends are named Moerus and Selinuntius.

DAMOPHON, a Greek sculptor of Messene, who executed many statues for the people of Messene, Megalopolis, Aegium and other cities of Peloponnesus. Considerable fragments, including three colossal heads from a group by him representing Demeter, Persephone, Artemis and the giant Anytus, have been discovered on the site of Lycosura in Arcadia, where was a temple of the goddess called “The Mistress.” They are preserved in part in the museum at Athens and partly on the spot. Hence there has arisen a great controversy as to the date of the artist, who has been assigned to various periods, from the 4th century B.C. to the 2nd A.D. A good account of the whole matter will be found in Frazer’s *Pausanias*, iv. 372-379. Frazer wisely inclines to an early date; it is in fact difficult to find any period, when the cities mentioned were in a position to found temples, later than the time of Alexander.

DAMP, a common Teutonic word, meaning vapour or mist (cf. Ger. *Dampf*, steam), and hence moisture. In its primitive sense the word persists in the vocabulary of coal-miners. Their “firedamp” (formerly fulminating damp) is marsh gas, which, when mixed with air and exploded, produced “choke damp,” “after damp,” or “suffocating damp” (carbon dioxide). “Black damp” consists of accumulations of irrespirable gases, mostly nitrogen, which cause the lights to burn dimly, and the term “white damp” is sometimes applied to carbon monoxide. As a verb, the word means to stifle or check; hence damped vibrations or oscillations are those which have been reduced or stopped, instead of being allowed to die out naturally; the “dampers” of the piano are small pieces of felt-covered wood which fall upon the strings and stop their vibrations as the keys are allowed to rise; and the “damper” of a chimney or flue, by restricting the draught, lessens the rate of combustion.

DAMPIER, WILLIAM (1652-1715), English buccaneer, navigator and hydrographer, was born at East Coker, Somersetshire, in 1652 (baptized 8th of June). Having early become an orphan, he was placed with the master of a ship at Weymouth, in which he made a voyage to Newfoundland. On his return he sailed to Bantam in the East Indies. He served in 1673 in the Dutch War under Sir Edward Sprague, and was present at two engagements (28th of May; 4th of June); but then fell sick and was put ashore. In 1674 he became an under-manager of a Jamaica estate, but continued only a short time in this situation. He afterwards engaged in the coasting trade, and thus acquired an accurate knowledge of all the ports and bays of the island. He made two voyages to the Bay of Campeachy (1675-1676), and remained for some time with the logwood-cutters, varying this occupation with buccaneering. In 1678 he returned to England, again visiting Jamaica in 1679 and joining a party of buccaneers, with whom he crossed the Isthmus of Darien, spent the year 1680 on the Peruvian coast, and sacking, plundering and burning, made his way down to Juan Fernandez Island. After serving with another privateering expedition in the Spanish Main, he went to Virginia and engaged with a captain named Cook for a

privateering voyage against the Spaniards in the South Seas. They sailed in August 1683, touched at the Guinea coast, and then proceeded round Cape Horn into the Pacific. Having touched at Juan Fernandez, they made the coast of South America, cruising along Chile and Peru. They took some prizes, and with these they proceeded to the Galapagos Islands and to Mexico, which last they fell in with near Cape Blanco. While they lay here Captain Cook died, and the command devolved on Captain Davis, who, with several other pirate vessels, English and French, raided the west American shores for the next year, attacking Guayaquil, Puebla Nova, &c. At last Dampier, leaving Davis, went on board Swan's ship, and proceeded with him along the northern parts of Mexico as far as southern California. Swan then proposed, as the expedition met with "bad success" on the Mexican coast, to run across the Pacific and return by the East Indies. They started from Cape Corrientes on the 31st of March 1686, and reached Guam in the Ladrones on the 20th of May; the men, having almost come to an end of their rations, had decided to kill and eat their leaders next, beginning with the "lusty and fleshy" Swan. After six months' drunkenness and debauchery in the Philippines, the majority of the crew, including Dampier, left Swan and thirty-six others behind in Mindanao, cruised (1687-1688) from Manila to Pulo Condore, from the latter to China, and from China to the Spice Islands and New Holland (the Australian mainland). In March 1688 they were off Sumatra, and in May off the Nicobars, where Dampier was marooned (at his own request, as he declares, for the purpose of establishing a trade in ambergris) with two other Englishmen, a Portuguese and some Malays. He and his companions contrived to navigate a canoe to Achin in Sumatra; but the fatigues and distress of the voyage proved fatal to several and nearly carried off Dampier himself. After making several voyages to different places of the East Indies (Tongking, Madras, &c.), he acted for some time, and apparently somewhat unwillingly, as gunner to the English fort of Benkulen. Thence he ultimately contrived to return to England in 1691.

In 1699 he was sent out by the English admiralty in command of the "Roebuck," especially designed for discovery in and around Australia. He sailed from the Downs, the 14th of January, with twenty months' provisions, touched at the Canaries, Cape Verdes and Bahia, and ran from Brazil round the Cape of Good Hope direct to Australia, whose west coast he reached on the 26th of July, in about 26° S. lat. Anchoring in Shark's Bay, he began a careful exploration of the neighbouring shore-lands, but found no good harbour or estuary, no fresh water or provisions. In September, accordingly, he left Australia, recruited and refitted at Timor, and thence made for New Guinea, where he arrived on the 3rd of December. By sailing along to its easternmost extremity, he discovered that it was terminated by an island, which he named New Britain (now Neu Pommern), whose north, south and east coasts he surveyed. That St George's Bay was really St George's Channel, dividing the island into two, was not perceived by Dampier; it was the discovery of his successor, Philip Carteret. Nor did Dampier visit the west coast of New Britain or realize its small extent on that side. He was prevented from prosecuting his discoveries by the discontent of his men and the state of his ship. In May 1700 he was again at Timor, and thence he proceeded homeward by Batavia (4th July-17th October) and the Cape of Good Hope. In February 1701 he arrived off Ascension Island, when the vessel foundered (21st-24th February), the crew reaching land and staying in the island till the 3rd of April, when they were conveyed to England by some East Indiamen and warships bound for home. In 1703-1707 Dampier commanded two government privateers on an expedition to the South Seas with grievous unsuccess; better fortune attended him on his last voyage, as pilot to Woodes Rogers in the circumnavigation of 1708-1711. On the former venture Alexander Selkirk, the master of one of the vessels, was marooned at Juan Fernandez; on the latter Selkirk was rescued and a profit of nearly £200,000 was made. But four years before the prize-money was paid Dampier died (March 1715) in St Stephen's parish, Coleman Street, London. Dampier's accounts of his voyages are famous. He had a genius for observation, especially of the scientific phenomena affecting a seaman's life; his style is usually admirable—easy, clear and manly. His knowledge of natural history, though not scientific, appears surprisingly accurate and trustworthy.

See Dampier's *New Voyage Round the World* (1697); his *Voyages and Descriptions* (1699), a work supplementary to the *New Voyage*; his *Voyage to New Holland in ... 1699* (1703, 1709); also Funnell's Narrative of the Voyage of 1703-1707; Dampier's *Vindication of his Voyage* (1707); Welbe's *Answer to Captain Dampier's Vindication*; Woodes Rogers, *Cruising Voyage Round the World* (1712).

(C. R. B.)

DAN (from a Hebrew word meaning "judge"), a tribe of Israel, named after a son of Jacob and Bilhah, the maid of Rachel. The meaning of the name (referred to in Gen. xxx. 5 seq., xlix. 16) connects Dan with Dinah ("judgment"), the daughter of Leah, whose story in Gen. xxxiv. (cf. xlix. 5 seq.) seems to point to an Israelite occupation of Shechem, a treacherous massacre of its Canaanite inhabitants by Simeon and Levi, and the subsequent scattering of the latter. But, historically, the occupation of Shechem, whether by conquest (Gen. xlviii. 22) or purchase (xxxiii. 19), is as obscure as the conquest of central Palestine itself (see Joshua), and the true relation between Dan and Dinah is uncertain. The earliest seats of Dan lay at Zorah, Eshtaol and Kirjath-jearim, west of Jerusalem, whence they were forced to seek a new home, and a valuable narrative detailing some of the events of the move is preserved in the story of the sanctuary of the Ephraimite Micah (q.v.). Laish (Leshem) was taken with the sword and re-named Dan (see below). Here a sanctuary was founded under the guardianship of Jonathan, the grandson of Moses, which survived until the "captivity of the land" (by Tiglath-Pileser IV. in 733-732), or, according to another notice, until the fall of Shiloh (Judg. xviii. 30 seq.). Dan formed the northern limit of the land,[1] and with Abel (-beth-Maacah) was an old place renowned for Israelite lore (2 Sam. xx. 18; on the text see the commentaries). Little can be made of Dan's history. The reference to it as a seafaring folk (Judg. v. 17) is difficult, and it is uncertain whether its character as represented in Gen. xlix. 17, Deut. xxxiii. 22, refers to its earlier or later seat. The post-exilic accounts of its southern border would make it part of Judah, and both of them are in tradition the greatest of the tribes in the wanderings in the wilderness. Dan was subsequently either regarded as the embodiment of wickedness or entirely ignored; late speculation that the Antichrist should spring from it appears to be based upon an interpretation of Gen. xlix. 17 (see further R. H. Charles, *Testaments of the Twelve Patriarchs*, pp. 128 seq.).

A brief record of the Danite migration is found in some old detached fragments which K. Budde (*Richter und Samuel*) ingeniously arranges thus:—Judg. i. 34 (Amorite pressure); Josh. xix. 47*a* (see the Septuagint), 47*b*; Judg. i. 35. The position of Judg. xvii. seq. (after the stories of Samson) may imply that the Philistines, not the Amorites, caused the migration (cf. 1 Sam. vii. 14, where the two ethnical terms interchange). The Mosaic priesthood and the reference to Shiloh suggest that the story of Eli may have belonged to this cycle of narratives; and the spoliation of the unknown sanctuary of the Ephraimite Micah and the character of the fierce Puritan tribesmen connect Dan with the problems of the tribes of Simeon and Levi. Dan's northern home lay near Beth-rehob, which appears to have been Aramean in David's time (2 Sam. x. 6), and it is possible that the migration has been antedated (cf. similarly the case of Jair, Num. xxxii. 41, Judg. x. 3-5). The Tyrian artificer sent to Solomon by Hiram was partly of Danite descent (2 Chron. ii. 13 seq.; but of Naphtali, so 1 Kings vii. 14); and of the two workers in brass who took part in the building of the tabernacle in the desert, one was Danite (Oholiab, Ex. xxxi. 6), while the other appears to have been Calebite (Bezalel, *ib.*, *v.* 2; 1 Chron. ii. 20). The Kenites, too, have been regarded as a race of metal-workers (see Cain, Kenites), and there is evidence which would show that Danites, Calebites and Kenites were once closely associated in tradition.

See S. A. Cook, *Critical Notes*, Index, *s.v.*: E. Meyer, *Israeliten*, pp. 525 seq.

1 On the late phrase “Dan to Beersheba” as the extreme points of religious life in Israel, see H. W. Hogg, *Expositor*, viii. 411-421 (1898); and for a complete discussion of the tribe, his art. “Dan” in *Encyc. Bib.*

DAN, a town of ancient Israel, near the head-waters of the Jordan, inhabited before its conquest by the Danites by a peaceful commercial population who called their city Laish or Leshem (Josh. xix. 47, Judg. xviii.). It appears to have been even at this early period a sacred city, the shrine of Micah being removed hither, and it was chosen by Jeroboam as the site of one of his calf-shrines. It makes the north limit of Palestine in the proverbial expression “from Dan to Beersheba.” The town was plundered by Benhadad of Damascus, and appears from that time to have gradually declined. Its site is sought in the mound called Tell-el-Kadi, “the hill of the judge” (Dan = “judge” in Hebrew), though weighty authorities incline to place it 4 m. east of this, at Banias, the old Caesarea Philippi. (See above.)

DANA, CHARLES ANDERSON (1819-1897), American journalist, was born in Hinsdale, New Hampshire, on the 8th of August 1819. At the age of twelve he became a clerk in his uncle’s general store at Buffalo, which failed in 1837. In 1839 he entered Harvard, but the impairment of his eyesight in 1841 forced him to leave college, and caused him to abandon his intention of entering the ministry and of studying in Germany. From September 1841 until March 1846 he lived at Brook Farm, where he was made one of the trustees of the farm, was head waiter when the farm became a Fourierite phalanx, and was in charge of the phalanstery’s finances when its buildings were burned in 1846. He had previously written for (and managed) the *Harbinger*, the Brook Farm organ, and had written as early as 1844 for the Boston *Chronotype*. In 1847 he joined the staff of the New York *Tribune*, and in 1848 he wrote from Europe letters to it and other papers on the revolutionary movements of that year. Returning to the *Tribune* in 1849, he became its managing-editor, and in this capacity actively promoted the anti-slavery cause, seeming to shape the paper’s policy at a time when Greeley was undecided and vacillating. In 1862 his resignation was asked for by the board of managers of the *Tribune*, apparently because of wide temperamental differences between him and Greeley. Secretary of War Stanton immediately made him a special investigating agent of the war department; in this capacity Dana discovered frauds of quartermasters and contractors, and as the “eyes of the administration,” as Lincoln called him, he spent much time at the front, and sent to Stanton frequent reports concerning the capacity and methods of various generals in the field; he went through the Vicksburg campaign and was at Chickamauga and Chattanooga, and urged the placing of General Grant in supreme command of all the armies in the field. Dana was second assistant-secretary of war in 1864-1865, and in 1865-1866 conducted the newly-established and unsuccessful Chicago *Republican*. He became the editor and part-owner of the New York *Sun* in 1868, and remained in control of it until his death at Glen Cove, Long Island, New York, on the 17th of October 1897. Under Dana’s control the *Sun* opposed the impeachment of President Johnson; it supported Grant for the presidency in 1868; it was a sharp critic of Grant as president; and in 1872 took part in the Liberal Republican revolt and urged Greeley’s nomination. It favoured Tilden, the Democratic candidate for the presidency, in 1876, opposed the Electoral Commission and continually referred to Hayes as the “fraud president.” In 1884 it supported Benjamin F. Butler, the candidate of Greenback-Labor and Anti-Monopolist parties, for the presidency, and opposed Blaine (Republican) and even more bitterly Cleveland (Democrat); it supported Cleveland and opposed Harrison in 1888, although it had bitterly criticized Cleveland’s first administration, and was to criticize nearly every detail of his second, with the exception of Federal interference in the Pullman strike of 1894; and in 1896, on the free-silver issue, it opposed Bryan, the Democratic candidate for the presidency. Dana’s literary style came to be the style of the *Sun*—simple, strong, clear, “boiled down.” *The Art of Newspaper Making*, containing three lectures which he wrote on journalism, was published in 1900. With George Ripley he edited *The New American Cyclopaedia* (15 vols., 1857-1863), reissued as the *American Cyclopaedia* in 1873-1876. He had excellent taste in the fine arts and edited an anthology, *The Household Book of Poetry* (1857). He was a very good linguist, published several versions from the German, and read the Romance and Scandinavian languages; he was an art connoisseur and left a remarkable collection of Chinese porcelain. Dana’s *Reminiscences of the Civil War* was published in 1898, as was his *Eastern Journeys, Notes of Travel*. He also edited a campaign *Life of U. S. Grant*, published over his name and that of General James H. Wilson in 1868.

See James Wilson, *The Life of Charles A. Dana* (New York, 1907).

DANA, FRANCIS (1743-1811), American jurist, was born in Charlestown, Massachusetts, on the 13th of June 1743. He was the son of Richard Dana (1699-1772), a leader of the Massachusetts provincial bar, and a vigorous advocate of colonial rights in the pre-revolutionary period. Francis Dana graduated at Harvard in 1762, was admitted to the bar in 1767, and, being an opponent of the British colonial policy, became a leader of the Sons of Liberty, and in 1774 was a member of the first provincial congress of Massachusetts. During a two years’ visit to England he sought earnestly to gain friends to his colony’s cause, but returned to Boston in April 1776 convinced that a friendly settlement of the dispute was impossible. He was a member of the Massachusetts executive council from 1776 to 1780, and a delegate to the Continental Congress from 1776 to 1778. As a member of the latter body he became chairman in January 1778 of the committee appointed to visit Washington at Valley Forge, and confer with him concerning the reorganization of the army. This committee spent about three months in camp, and assisted Washington in preparing the plan of reorganization which Congress in the main adopted. In this year he was also a member of a committee to consider Lord North’s offer of conciliation, which he vigorously opposed. In the autumn of 1779 he was appointed secretary to John Adams, who had been selected as minister plenipotentiary to negotiate treaties of peace and commerce with Great Britain, and in December 1780 he was appointed diplomatic representative to the Russian government. He remained at St Petersburg from 1781 to 1783, but was never formally received by the empress Catherine. In February 1784 he was again chosen a delegate to Congress, and in January 1785 he became a justice of the Massachusetts supreme court. He was chief justice of this court from 1791 to 1806, and presided with ability and rare distinction. He was an earnest advocate of the adoption of the Federal constitution, was a member of the Massachusetts convention which ratified that instrument, and was one of the most influential advisers of the leaders of the Federalist party. His tastes were scholarly, and he was one of the founders of the American Academy of Arts and Sciences. He died at Cambridge, Massachusetts, on the 25th of April 1811.

His son, Richard Henry Dana (1787-1879), was born in Cambridge, Massachusetts, on the 15th of November 1787. He was educated at Harvard in the class of 1808. Subsequently he studied law and in 1811 was admitted to practice. But all other interests were early subordinated to his love of literature, to which the greater part of his long life was devoted. He became in 1814 a member of a literary society in Cambridge, known as the Anthology Club. This club began the publication of a monthly magazine, *The Monthly Anthology*, which gave way in 1815 to *The North American Review*. In the editorial control of this periodical he was associated with Jared Sparks and Edward T. Channing (1790-1856) until 1821, contributing essays and criticisms which attracted wide attention. In 1821-1822 he edited in New York a short-lived literary magazine, *The Idle Man*. He published his first volume of *Poems* in 1827, and in 1833 appeared his *Poems and Prose Writings*, republished in 1850 in two volumes, in which were included practically all of his poems and of his prose contributions to periodical literature. Although the bulk of his published writings was not large, his influence on American literature during the first half of the 19th century was surpassed by that of few of his contemporaries.

Richard Henry Dana (1815-1882), son of the last-mentioned, was born in Cambridge, Massachusetts, on the 1st of August 1815. He entered Harvard in the class of 1835, but at the beginning of his junior year an illness affecting his sight necessitated a suspension of his college work, and in August 1834 he shipped before the mast for California, returning in September 1836. The rough experience of this voyage did more than endow him with renewed health; it changed him from a dreamy, sensitive boy, hereditarily disinclined to any sort of active career, into a self-reliant, energetic man, with broad interests and keen sympathies. He re-entered Harvard in December 1836 and graduated in June 1837. He was a student at the Harvard law school from 1837 to 1840, and from January 1839 to February 1840 he was also an instructor in elocution in the college. In 1840 the notes of his sea-trip were published under the title *Two Years Before the Mast*. The book attained an almost unprecedented popularity both in America and in Europe, where it was translated into several languages; and it came to be considered a classic. Immediately after the appearance of this book Dana began the practice of law, which brought him a large number of maritime cases. In 1841 he published *The Seaman's Friend*, republished in England as *The Seaman's Manual*, which was long the highest authority on the legal rights and duties of seamen. After gaining recognition as one of the most prominent members of the Suffolk bar, he became associated in 1848 with the Free Soil movement, and took a prominent part in the Buffalo convention of that year. This step, which caused him to be ostracized for a time from the Boston circles in which he had been reared, brought him the cases of the fugitive slaves, Shadrach, Sims and Burns, and of the rescuers of Shadrach. On the night following the surrender of Burns (May 1854) Dana was brutally assaulted on the Boston streets. In 1853 he took a prominent part in the state constitutional convention. He allied himself with the Republican party on its organization, but his inborn dislike for political manœuvring prevented his ever becoming prominent in its councils. In 1857 he became a regular attendant at the meetings of the famous Boston Saturday Club, to the members of which he dedicated his account of a vacation trip, *To Cuba and Back* (1857). He returned to America from a trip round the world in time to participate in the presidential campaign of 1860, and after Lincoln's inauguration he was appointed United States district attorney for Massachusetts. In this office in 1863 he won before the Supreme Court of the United States the famous prize case of the "Amy Warwick," on the decision in which depended the right of the government to blockade the Confederate ports, without giving the Confederate States an international status as belligerents. He brought out in 1865 an edition of *Wheaton's International Law*, his notes constituting a most learned and valuable authority on international law and its bearings on American history and diplomacy; but immediately after its publication Dana was charged by the editor of two earlier editions, William Beach Lawrence, with infringing his copyright, and was involved in litigation which was continued for thirteen years. In such minor matters as arrangement of notes and verification of citations the court found against Dana, but in the main Dana's notes were vastly different from Lawrence's. In 1865 Dana declined an appointment as a United States district judge. During the Reconstruction period he favoured the congressional plan rather than that of President Johnson, and on this account resigned the district-attorneyship. In 1867-1868 he was a member of the Massachusetts House of Representatives, and in 1867 was retained with William M. Evarts to prosecute Jefferson Davis, whose admission to bail he counselled. In 1877 he was one of the counsel for the United States before the commission which in accordance with the treaty of Washington met at Halifax, N.S., to arbitrate the fisheries question between the United States and Great Britain. In 1878 he gave up his law practice and devoted the rest of his life to study and travel. He died in Rome, Italy, on the 9th of January 1882.

See Charles Francis Adams, *Richard Henry Dana: a Biography* (2 vols., Boston, Mass., 1891).

DANA, JAMES DWIGHT (1813-1895), American geologist, mineralogist and zoologist, was born in Utica, New York, on the 12th of February 1813. He early displayed a taste for science, which had been fostered by Fay Edgerton, a teacher in the Utica high school, and in 1830 he entered Yale College, in order to study under Benjamin Silliman the elder. Graduating in 1833, for the next two years he was teacher of mathematics to midshipmen in the navy, and sailed to the Mediterranean while engaged in his duties. In 1836-1837 he was assistant to Professor Silliman in the chemical laboratory at Yale, and then, for four years, acted as mineralogist and geologist of a United States exploring expedition, commanded by Captain Charles Wilkes, in the Pacific ocean (see Wilkes, Charles). His labours in preparing the reports of his explorations occupied parts of thirteen years after his return to America in 1842. In 1844 he again became a resident of New Haven, married the daughter of Professor Silliman, and in 1850, on the resignation of the latter, was appointed Silliman Professor of Natural History and Geology in Yale College, a position which he held till 1892. In 1846 he became joint editor and during the later years of his life he was chief editor of the *American Journal of Science and Arts* (founded in 1818 by Benjamin Silliman), to which he was a constant contributor, principally of articles on geology and mineralogy. A bibliographical list of his writings shows 214 titles of books and papers, beginning in 1835 with a paper on the conditions of Vesuvius in 1834, and ending with the fourth revised edition (finished in February 1895) of his *Manual of Geology*. His reports on *Zoophytes*, on the *Geology of the Pacific Area*, and on *Crustacea*, summarizing his work on the Wilkes expedition, appeared in 1846, 1849 and 1852-1854, in quarto volumes, with copiously illustrated atlases; but as these were issued in small numbers, his reputation more largely rests upon his *System of Mineralogy* (1837 and many later editions in 1892); *Manual of Geology* (1862; ed. 4, 1895); *Manual of Mineralogy* (1848), afterwards entitled *Manual of Mineralogy and Lithology* (ed. 4, 1887); and Corals and Coral Islands (1872; ed. 2, 1890). In 1887 Dana revisited the Hawaiian Islands, and the results of his further investigations were published in a quarto volume in 1890, entitled *Characteristics of Volcanoes*. By the Royal Society of London he was awarded the Copley medal in 1877; and by the Geological Society the Wollaston medal in 1874. His powers of work were extraordinary, and in his 82nd year he was occupied in preparing a new edition of his *Manual of Geology*, the 4th edition being issued in 1895. He died on the 14th of April 1895.

His son Edward Salisbury Dana, born at New Haven on the 16th of November 1849, is author of *A Textbook of Mineralogy* (1877; new ed. 1898) and a *Text Book of Elementary Mechanics* (1881). In 1879-80 he was professor of natural philosophy and then became professor of physics at Yale.

See *Life of J. D. Dana*, by Daniel C. Gilman (1899).

DANAE, in Greek legend, daughter of Acrisius, king of Argos. Her father, having been warned by an oracle that she would bear a son by whom he would be slain, confined Danae in a brazen tower. But Zeus descended to her in a shower of gold, and she gave birth to Perseus, whereupon Acrisius placed her and her infant in a wooden box and threw them into the sea. They were finally driven ashore on the island of Seriphus, where they were picked up by a fisherman named Dictys. His brother Polydectes, who was king of the island, fell in love with Danae and married her. According to another story, her son Perseus, on his return with the head of Medusa, finding his mother persecuted by Polydectes, turned him into stone, and took Danae back with him to Argos. Latin legend represented her as landing on the coast of Latium and marrying Pilumnus or Picumnus, from whom Turnus, king of the Rutulians, was descended. Danae formed the subject of tragedies by Aeschylus, Sophocles, Euripides, Livius Andronicus and Naevius. She is the personification of the earth suffering from drought, on which the fertilizing rain descends from heaven.

Apollodorus ii. 4; Sophocles, *Antigone*, 944; Horace, *Odes*, iii. 16; Virgil, *Aeneid*, vii. 410. See also P. Schwarz, *De Fabula Danaeia* (1881).

DANAO, a town of the province of Cebú, island of Cebú, Philippine Islands, on the E. coast, at the mouth of the Danao river, 17 m. N.N.E. of Cebú, the capital. Pop. (1903) 16,173. Danao has a comparatively cool and healthy climate, is the centre of a rich agricultural region producing rice, Indian corn, sugar, copra and cacao, and coal is mined in the vicinity. The language is Cebú-Visayan.

DANAUS, in Greek legend, son of Belus, king of Egypt, and twin-brother of Aegyptus. He was born at Chemmis (Panopolis) in Egypt, but having been driven out by his brother he fled with his fifty daughters to Argos, the home of his ancestress Io. Here he became king and taught the inhabitants of the country to dig wells. In the meantime the fifty sons of Aegyptus arrived in Argos, and Danaus was obliged to consent to their marriage with his daughters. But to each of these he gave a knife with injunctions to slay her husband on the marriage night. They all obeyed except Hyperm(n)estra, who spared Lynceus. She was brought to trial by her father, acquitted and afterwards married to her lover. Being unable to find suitors for the other daughters, Danaus offered them in marriage to the youths of the district who proved themselves victorious in racing contests (Pindar, *Pythia*, ix. 117). According to another story, Lynceus slew Danaus and his daughters and seized the throne of Argos (schol. on Euripides, *Hecuba*, 886). By way of expiation for their crime the Danaïdes were condemned to the endless task of filling with water a vessel which had no bottom. This punishment, originally inflicted on those who neglected certain mystic rites, was transferred to those who, like the Danaïdes, despised the mystic rite of marriage; cf. the water-bearing figure (λουτροφόρος) on the grave of unmarried persons. The murder of the sons of Aegyptus by their wives is supposed to represent the drying up of the rivers and springs of Argolis in summer by the agency of the nymphs.

Apollodorus ii. 1; Horace, *Odes*, iii. 11; O. Waser, in *Archiv für Religionswissenschaft*, ii. Heft 1, 1899; articles in Pauly-Wissowa's *Realencyclopädie* and W. H. Roscher's *Lexikon der Mythologie*; Campbell Bonner, in *Harvard Studies*, xiii. (1902).

DANBURITE, a rare mineral species consisting of calcium and boron orthosilicate, $CaB_2(SiO_4)_2$, crystallizing in the orthorhombic system. It was discovered by C.U. Shepard in 1839 at Danbury, Connecticut, U.S.A., and named by him after this locality. The crystals are prismatic in habit, and closely resemble topaz in form and interfacial angles. There is an imperfect cleavage parallel to the basal plane. Crystals are transparent to translucent, and colourless to pale yellow; hardness 7; specific gravity 3.0. At Danbury the mineral occurs with microcline and oligoclase embedded in dolomite. Large crystals, reaching 4 in. in length, have been found with calcite in veins traversing granite at Russell in St Lawrence county, New York. Smaller but well-developed crystals have been found on gneiss at Mt. Scopi and Petersthal (the valley of the Vals Rhine) in Switzerland. Splendid crystals have recently been obtained from Japan.

DANBURY, a city and one of the county-seats of Fairfield county, Connecticut, U.S.A., in Danbury township, in the south-west part of the state, on the Still river, a tributary of the Housatonic. Pop. (1890) 16,552; (1900) 16,537 (3702 foreign-born); (1910) 20,234. In 1900 the population of the township, including that of the city, was 19,474, and in 1910, 23,502. Danbury is served by three divisions of the New York, New Haven & Hartford railway; by the Danbury & Harlem electric railway, which connects at Goldens Bridge, New York, with the Harlem division of the New York Central; and by an electric line to Bethel, Connecticut. Lake Kenosia, about 2½ m. from the centre of the city, is a pleasure resort. A state normal school was opened in Danbury in 1904, and there is a home for destitute and homeless children under private (unsectarian) control. The city has good water-power, and the municipality owns the water works. The principal industry is the manufacture of felt hats, begun in 1780, and in 1905 engaging about thirty factories, with a product for the year valued at $5,798,107 (71.9% of the value of all the factory products of the city, and 15.8% of the value of all the felt hats produced in the United States). The city ranked first among the cities of the country in this industry in 1900 and second in 1905, and in 1905 no other city showed so high a degree of specialization in it. Silver-plated ware (mostly manufactured by Rogers Bros.) is another important product. At Danbury is held annually the well-known agricultural Danbury Fair. The township was settled in 1684 by emigrants from Norwalk, and received its present name in 1687. When the War of Independence opened, Enoch Crosby, believed to be the original of Harvey Birch, the hero of J. F. Cooper's *The Spy*, was a resident of Danbury. A depot of military supplies was established in the village of Danbury in 1776; in April 1777 Governor William Tryon, of New York, raided the place, destroying the military stores and considerable private property. During his retreat he was attacked (April 26th) at Ridgefield (about 9 m. south by east of Danbury) by the Americans under General David Wooster (1710-1777), who was fatally wounded in the conflict (being succeeded by General Benedict Arnold), and to

whose memory a monument was erected in Danbury in 1854. Danbury was chartered as a borough in 1832 and as a city in 1880. In 1870 the *Danbury News* was established by the consolidation of the *Jeffersonian* and the *Times*, by James Montgomery Bailey (1841-1894), from 1865 to 1870 proprietor of the *Times*. He wrote for the *News* humorous sketches, which made him and the paper famous, Bailey being known as the "Danbury News Man"; among his books are *Life in Danbury* (1873), *The Danbury News Man's Almanac* (1873), *They All Do It* (1877), *England from a Back Window* (1878), *Mr Philip's Goneness* (1879), *The Danbury Boom* (1880), and *History of Danbury* (1896).

DANBY, FRANCIS (1793-1861), English painter, was born in the south of Ireland on the 16th of November 1793. His father farmed a small property he owned near Wexford, but his death caused the family to remove to Dublin, while Francis was still a schoolboy. He began to practice drawing at the Royal Dublin Society's schools; and under an erratic young artist named O'Connor he began painting landscape. Danby also made acquaintance with George Petrie, and all three left for London together in 1813. This expedition, undertaken with very inadequate funds, quickly came to an end, and they had to get home again by walking. At Bristol they made a pause, and Danby, finding he could get trifling sums for water-colour drawings, remained there working diligently and sending to the London exhibitions pictures of importance. There his large pictures in oil quickly attracted attention. "The Upas Tree" (1820) and "The Delivery of the Israelites" (1825) brought him his election as an associate of the Royal Academy. He left Bristol for London, and in 1828 exhibited his "Opening of the Sixth Seal" at the British Institution, receiving from that body a prize of 200 guineas; and this picture was followed by two others from the Apocalypse. He suddenly left London, declaring that he would never live there again, and that the Academy, instead of aiding him, had, somehow or other, used him badly. Some insurmountable domestic difficulty overtook him also, and for eleven or twelve years he lived on the Lake of Geneva, a Bohemian with boat-building fancies, painting only now and then. He returned to England in 1841, when his sons, James and Thomas, both artists, were growing up. Other pictures by him were "The Golden Age" and "The Evening Gun," the first begun before he left England, the second painted after his return; he had taken up his abode at Exmouth, where he died on the 9th of February 1861.

DANCE, the name of an English family distinguished in architecture, art and the drama. George Dance, the elder (1700-1768), obtained the appointment of architect to the city of London, and designed the Mansion House (1739); the churches of St Botolph, Aldgate (1741), St Luke's, Old Street; St Leonard, Shoreditch; the old excise office; Broad Street; and other public works of importance. He died on the 8th of February 1768. His eldest son, James Dance (1722-1744), was born on the 17th of March 1722, and educated at the Merchant Taylors' School and St John's College, Oxford, which he left before graduating. He took the name of Love, and became an actor and playwright of no great merit. In the former capacity he was for twelve years connected with Drury Lane theatre. He wrote "an heroic poem" on *Cricket*, about 1740, and a volume of *Poems on Several Occasions* (1754), and a number of comedies—the earliest *Pamela* (1742).

George Dance's third son, Sir Nathaniel Dance-Holland, Bart. (1735-1811), was born on the 18th of May 1735, and studied art under Francis Hayman, and in Italy, where he met Angelica Kauffmann, to whom he was devotedly and hopelessly attached. From Rome he sent home "Dido and Aeneas" (1763), and he continued to paint occasional historical pictures of the same quasi-classic kind throughout his career. On his return to England he took up portrait-painting with great success, and contributed to the first exhibition of the Royal Academy, of which he was a foundation member, full-length portraits of George III. and his queen. These, and his portraits of Captain Cook and of Garrick as Richard III., engraved by Dixon, are his best-known works. Himself a rich man, in 1790 he married a widow with £15,000 a year, dropped his profession, and became M.P. for East Grinstead, taking the additional name of Holland. He was made a baronet in 1800. He died on the 15th of October 1811, leaving a fortune of £200,000.

George Dance's fifth and youngest son, George Dance, the younger (1741-1825), succeeded his father as city surveyor and architect in 1768. He was then only twenty-seven, had spent several years abroad, chiefly in Italy with his brother Nathaniel, and had already distinguished himself by designs for Blackfriars Bridge sent to the 1761 exhibition of the Incorporated Society of Artists. His first important public work was the rebuilding of Newgate prison in 1770. The front of the Guildhall was also his. He, too, was a foundation member of the Royal Academy, and for a number of years the last survivor of the forty original academicians. His last years were devoted to art rather than to architecture, and after 1798 his Academy contributions consisted solely of chalk portraits of his friends, seventy-two of which were engraved and published (1808-1814). He resigned his office in 1815, and after many years of illness died on the 14th of January 1825, and was buried in St Paul's. His son, Charles Dance (1794-1863), was for thirty years registrar, taxing officer and chief clerk of the insolvent debtors' court, retiring, when it was abolished, on an allowance. In collaboration with J. R. Planché and others, or alone, he wrote a great number of extravaganzas, farces and comediettas. He was one of the first, if not the first, of the burlesque writers, and was the author of those produced so successfully by Madame Vestris for years at the Olympic. Of his farces, *Delicate Ground, Who Speaks First?*, *A Morning Call* and others are still occasionally revived. He died on the 6th of January 1863.

DANCE (Fr. *danse*; of obscure origin, connected with Old High Ger. *danson*, to stretch). The term "dancing" in its widest sense includes three things:—(1) the spontaneous activity of the muscles under the influence of some strong emotion, such as social joy or religious exultation; (2) definite combinations of graceful movements performed for the sake of the pleasure which the exercise affords to the dancer or to the spectator; (3) carefully trained movements which are meant by the dancer vividly to represent the actions and passions of other people. In the highest sense it seems to be for prose-gesture what song is for the instinctive exclamations of feeling. Regarded as the outlet or expression of strong feeling, dancing does not require much discussion, for the general rule applies that such demonstrations for a time at least sustain and do not exhaust the flow of feeling. The voice and the facial muscles and many of the organs are affected at the same time, and the result is a high state of vitality which among the spinning Dervishes or in the ecstatic worship of Bacchus and Cybele amounted to something like madness. Even here there is traceable an undulatory movement which, as Herbert Spencer says, is "habitually generated by feeling in its bodily discharge." But it is only in the advanced or volitional stage of dancing that we find developed the essential feature of *measure*, which has been said to consist in "the alternation of stronger muscular contractions with weaker ones," an alternation which, except in the cases of savages and children, "is

compounded with longer rises and falls in the degree of muscular excitement." In analysing the state of mind which this measured dancing produces, we must first of all allow for the pleasant glow of excitement caused by the excess of blood sent to the brain. But apart from this, there is an agreeable sense of uniformity in the succession of muscular efforts, and in the spaces described, and also in the period of their recurrence. If the steps of dancing and the intervals of time be not precisely equal, there is still a pleasure depending on the gradually increasing intensity of motion, on the undulation which uniformly rises in order to fall. As Florizel says to Perdita, "When you do dance, I wish you a wave of the sea" (*Winter's Tale*, iv. 3). The mind feels the beauty of emphasis and cadence in muscular motion, just as much as in musical notes. Then, the figure of the dance is frequently a circle or some more graceful curve or series of curves,—a fact which satisfies the dancer as well as the eye of the spectator. But all such effects are intensified by the use of music, which not only brings a perfectly distinct set of pleasurable sensations to dancer and spectator, but by the control of dancing produces an inexpressibly sweet harmony of sound and motion. This harmony is further enriched if there be two dancing together on one plan, or a large company of dancers executing certain evolutions, the success of which depends on the separate harmonies of all the couples. The fundamental condition is that throughout the dance all the dancers keep within their bases of gravity. This is not only required for the dancers' own enjoyment, but, as in the famous Mercury on tiptoe, it is essential to the beautiful effect for the spectator. The idea of much being safely supported by little is what proves attractive in the posturing ballet. But this is merely one condition of graceful dancing, and if it be made the chief object the dancer sinks into the acrobat.

Dancing is, in fact, the universal human expression, by movements of the limbs and body, of a sense of rhythm which is implanted among the primitive instincts of the animal world. The rhythmic principle of motion extends throughout the universe, governing the lapse of waves, the flow of tides, the reverberations of light and sound, and the movements of celestial bodies; and in the human organism it manifests itself in the automatic pulses and flexions of the blood and tissues. Dancing is merely the voluntary application of the rhythmic principle, when excitement has induced an abnormally rapid oxidization of brain tissue, to the physical exertion by which the overcharged brain is relieved. This is primitive dancing; and it embraces all movements of the limbs and body expressive of joy or grief, all pantomimic representations of incidents in the lives of the dancers, all performances in which movements of the body are employed to excite the passions of hatred or love, pity or revenge, or to arouse the warlike instincts, and all ceremonies in which such movements express homage or worship, or are used as religious exercises. Although music is not an essential part of dancing, it almost invariably accompanies it, even in the crudest form of a rhythm beaten out on a drum.

Primitive and Ancient Dancing.—In Tigrè the Abyssinians dance the *chassée* step in a circle, and keep time by shrugging their shoulders and working their elbows backwards and forwards. At intervals the dancers squat on the ground, still moving the arms and shoulders in the same way. The Bushmen dance in their low-roofed rooms supporting themselves by sticks; one foot remains motionless, the other dances in a wild irregular manner, while the hands are occupied with the sticks. The Gonds, a hill-tribe of Hindustan, dance generally in pairs, with a shuffling step, the eyes on the ground, the arms close to the body, and the elbows at an angle with the closed hand. Advancing to a point, the dancer suddenly erects his head, and wheels round to the starting point. The women of the Pultooah tribe dance in a circle, moving backwards and forwards in a bent posture. The Santal women, again, are slow and graceful in dance; joining hands, they form themselves into the arc of a circle, towards the centre of which they advance and then retire, moving at the same time slightly towards the right, so as to complete the circle in an hour. The Kukis of Assam have only the rudest possible step, an awkward hop with the knees very much bent. The national dance of the Kamchadale is one of the most violent known, every muscle apparently quivering at every movement. But there, and in some other cases where men and women dance together, there is a trace of deliberate obscenity; the dance is, in fact, a rude representation of sexual passion. It has been said that some of the Tasmanian *corrobories* have a phallic design. The Yucatan dance of *naual* may also be mentioned. The Andamans hop on one foot and swing the arms violently backwards and forwards. The Veddahs jump with both feet together, patting their bodies, or clapping their hands, and make a point of bringing their long hair down in front of the face. In New Caledonia the dance consists of a series of twistings of the body, the feet being lifted alternately, but without change of place. The Fijians jump half round from side to side with their arms akimbo. The only modulation of the Samoan dance is one of time—a *crescendo* movement, which is well-known in the modern ball-room. The Javans are perhaps unique in their distinct and graceful gestures of the hands and fingers. At a Mexican feast called Huitzilopochtli, the noblemen and women danced tied together at the hands, and embracing one another, the arms being thrown over the neck. This resembles the dance variously known as the Greek Bracelet or Brawl, Ὅρμος, or Bearsfeet; but all of them[1] probably are to a certain extent symbolical of the relations between the sexes. Actual contact of the partners, however, is quite intelligible as matter of pure dancing; for, apart altogether from the pleasure of the embrace, the harmony of the double rotation adds very much to the enjoyment. In a very old Peruvian dance of ceremony before the Inca, several hundreds of men formed a chain, each taking hold of the hand of the man beyond his immediate neighbour, and the whole body moving forwards and backwards three steps at a time as they approached the throne. In this, as in the national dance of the Coles of Lower Bengal, there was perhaps a suggestion of "l'union fait la force." In Yucatan stilts were occasionally used for dancing.

It seldom happens that dancing takes place without accompaniment, either by the dancers or by others. This is not merely because the feelings which find relief in dancing express themselves at the same time in other forms; in some cases, indeed, the vocal and instrumental elements largely predominate, and form the ground-work of the whole emotional demonstration. Whether they do so or not will of course depend on the intellectual advancement of the nation or tribe and upon the particular development of their aesthetical sensibility. A striking instance occurs among the Zulus, whose grand dances are merely the accompaniment to the colloquial war and hunting songs, in which the women put questions which are answered by the men. So also in Tahiti there is a set of national ballads and songs, referring to many events in the past and present lives of the people. The fisherman, the woodsman, the canoe-builder, has each his trade song, which on public occasions at least is illustrated by dancing. But the accompaniment is often consciously intended, by an appeal to the ear, to regulate and sustain the excitement of the muscles. And a close relation will be found always to exist between the excellence of a nation's dancing and the excellence or complexity of its music and poetry. In some cases the performer himself sings or marks time by the clanking of ornaments on his person. In others the accompaniment consists sometimes of a rude chant improvised by those standing round, or of music from instruments, or of mere clapping of the hands, or of striking one stick against another or on the ground, or of "marking time," in the technical sense. The Tasmanians beat on a rolled-up kangaroo-skin. The Kamchadales make a noise like a continuous hiccough all through the dance. The Andamans use a large hollow dancing-board, on which one man is set apart to stamp. Sometimes it is the privilege of the tribal chief to sing the accompaniment while his people dance. The savages of New Caledonia whistle and strike upon the hip.

The rude imitative dances of early civilization are of extreme interest. In the same way the dances of the Ostyak tribes (Northern Asiatic) imitate the habitual sports of the chase and the gambols of the wolf and the bear and other wild beasts, the dancing consisting mainly of sudden leaps and violent turns which exhaust the muscular powers of the whole body. The Kamchadales, too, in dancing, imitate bears, dogs and birds. The *Kru* dances of the Coast Negroes represent hunting scenes; and on the Congo, before the hunters start, they go through a dance imitating the habits of the gorilla and its movements when attacked. The Damara dance is a mimic representation of the movements of oxen and sheep, four men stooping with their heads in contact and uttering harsh cries. The canter of the baboon is the humorous part of the ceremony. The Bushmen dance in long irregular jumps, which they compare to the leaping of a herd of calves, and the Hottentots not only go on all-fours to counterfeit the baboon, but they have a dance in which the buzzing of a swarm of bees is represented. The Kennowits in Borneo introduce the mias and the deer for the same purpose. The Australians and

Tasmanians in their dances called *corrobories* imitate the frog and the kangaroo (both leaping animals). The hunt of the emu is also performed, a number of men passing slowly round the fire and throwing their arrows about so as to imitate the movements of the animal's head while feeding. The Gonds are fond of dancing the bison hunt, one man with skin and horns taking the part of the animal. Closely allied to these are the mimic fights, almost universal among tribes to which war is one of the great interests of life. The Bravery dance of the Dahomans and the Hoolee of the Bhil tribe in the Vindhya Hills are illustrations. The latter seems to have been reduced to an amusement conducted by professionals who go from village to village,—the battle being engaged in by women with long poles on the one side, and men with short cudgels on the other. There is here an element of comedy, which also appears in the Fiji club-dance. This, although no doubt originally suggested by war, is enlivened by the presence of a clown covered with leaves and wearing a mask. The monotonous song accompanying the club-dance is by way of commentary or explanation. So, also, in Guatemala there is a public *baile* or dance, in which all the performers, wearing the skins and heads of beasts, go through a mock battle, which always ends in the victory of those wearing the deer's head. At the end the victors trace in the sand with a pole the figure of some animal; and this exhibition is supposed to have some historical reference. But nearly all savage tribes have a regular war-dance, in which they appear in fighting costume, handle their weapons, and go through the movements of challenge, conflict, pursuit or defeat. The women generally supply the stimulus of music. There is one very picturesque dance of the Natal Kaffirs, which probably refers to the departure of the warriors for the battle. The women appeal plaintively to the men, who slowly withdraw, stamping on the ground and darting their short spears or *assegais* towards the sky. In Madagascar, when the men are absent on war, the women dance for a great part of the day, believing that this inspires their husbands with courage. In this, however, there may be some religious significance. These war-dances are totally distinct from the institution of military drill, which belongs to a later period, when social life has become less impulsive and more reflective.[2] There can be little doubt that some of the characteristic movements of these primitive hunting and war-dances survive in the smooth and ceremonious dances of the present day. But the early mimetic dance was not confined to these two subjects; it embraced the other great events of savage life—the drama of courtship and marriage, the funeral dance, the consecration of labour, the celebration of harvest or vintage;[3] sometimes, too, purely fictitious scenes of dramatic interest, while other dances degenerated into games. For instance, in Yucatan one man danced in a cowering attitude round a circle, while another followed, hurling at him *bohordos* or canes, which were adroitly caught on a small stick. Again, in Tasmania, the dances of the women describe their "clamber for the opossum, diving for shell-fish, digging for roots, nursing children and quarrelling with husbands." Another dance, in which a woman by gesture taunts a chieftain with cowardice, gives him an opportunity of coming forward and recounting his courageous deeds in dance. The funeral dance of the Todas (another Indian hill-tribe) consists in walking backwards and forwards, without variation, to a howling tune of "ha! hoo!" The meaning of this is obscure, but it can scarcely be solely an outburst of grief. In Dahomey the blacksmiths, carpenters, hunters, braves and bards, with their various tools and instruments, join in a dramatic dance. We may add here a form of dance which is almost precisely equivalent to the spoken incantation. It is used by the professional devil-dancer of the wild Veddahs for the cure of diseases. An offering of eatables is put on a tripod of sticks, and the dancer, decorated with green leaves, goes into a paroxysm of dancing, in the midst of which he receives the required information. This, however, rather belongs to the subject of religious dances.

It is impossible here to enumerate either the names or the forms of the sacred dances which formed so prominent a part of the worship of antiquity. A mystic philosophy found in them a resemblance to the courses of the stars. This Pythagorean idea was expanded by Sir John Davies, in his epic poem *Orchestra*, published in 1596. They were probably adapted to many purposes,—to thanksgiving, praise, supplication and humiliation. It is only one striking illustration of this widespread practice, that there was at Rome a very ancient order of priests especially named Salii, who struck their shields and sang *assamenta* as they danced. The practice reappeared in the early church, special provision being made for dancing in the choir. Scaliger, who astonished Charles V. by his dancing powers, says the bishops were called *Praesules*, because they led the dance on feast days. According to some of the fathers, the angels are always dancing, and the glorious company of the apostles is really a *chorus* of dancers. Dancing, however, fell into discredit with the feast of the *Agapae*. St Augustine says, "Melius est fodere quam saltare"; and the practice was generally prohibited for some time. No church or sect has raged so fiercely against the cardinal sin of dancing as the Albigenses of Languedoc and the Waldenses, who agreed in calling it the devil's procession. After the middle of the 18th century there were still traces of religious dancing in the cathedrals of Spain, Portugal and Roussillon—especially in the Mozarabic Mass of Toledo. An account of the numerous secular dances, public and private, of Greece and Rome will be found in the classical histories, and in J. Weaver's *Essay towards a History of Dancing*, (London, 1712), which, however, must be revised by more recent authorities. The Pyrrhic (derived from the Memphitic) in all its local varieties, the Bacchanalia and the Hymenaea were among the more important. The name of Lycurgus is also associated with the Trichoria. Among the stage dances of the Athenians, which formed interludes to the regular drama, one of the oldest was the Delian dance of the Labyrinth, ascribed to Theseus, and called Γέρανος, from its resemblance to the flight of cranes, and one of the most powerful was the dance of the Eumenides. A further development of the art took place at Rome, under Augustus, when Pylades and Bathyllus brought serious and comic pantomime to great perfection. The subjects chosen were such as the labours of Hercules, and the surprise of Venus and Mars by Vulcan. The state of public feeling on the subject is well shown in Lucian's amusing dialogue *De Saltatione*. Before this Rome had only very inferior buffoons, who attended dinner parties, and whose art traditions belonged not to Greece, but to Etruria.[4] Apparently, however, the Romans, though fond of ceremony and of the theatre, were by temperament not great dancers in private. Cicero says: "Nemo fere saltat sobrius, nisi forte insanit." But the Italic dance of the imperial theatre, supported by music and splendid dresses, supplanted for a time the older dramas. It was the policy of Augustus to cultivate other than political interests for the people; and he passed laws for the protection and privilege of the pantomimists. They were freed from the *jus virgarum*, and they used their freedom against the peace of the city. Tiberius and Domitian oppressed and banished them; Trajan and Aurelius gave them such titles as decurions and priests of Apollo; but the pantomime stage soon yielded to the general corruption of the empire.

Modern Dancing.—In modern civilized countries dancing has developed as an art and pastime, as an entertainment. Its direct application to arouse emotion or religious feeling tends to be obscured and finally dropped out.

Italy, in the 15th century, saw the renaissance of dancing, and France may be said to have been the nursery of the modern art, though comparatively few modern dances are really French in origin. The national dances of other countries were brought to France, studied systematically, and made perfect there. An English or a Bohemian dance, practised only amongst peasants, would be taken to France, polished and perfected, and would at last find its way back to its own country, no more recognizable than a piece of elegant cloth when it returns from the printer to the place from which as "grey" material it was sent. The fact that the terminology of dancing is almost entirely French is a sufficient indication of the origin of the rules that govern it. The earliest dances that bear any relation to the modern art are probably the *danses basses* and *danses hautes* of the 16th century. The *danse basse* was the dance of the court of Charles IX. and of good society, the steps being very grave and dignified, not to say solemn, and the accompaniment a psalm tune. The *danses hautes* or *baladines* had a skipping step, and were practised only by clowns and country people. More lively dances, such as the *Gaillarde* and *Volta*, were introduced into France from Italy by Catherine de' Medici, but even in these the interest was chiefly spectacular. Other dances of the same period were the *Branle* (afterwards corrupted to *Braule*, and known in England as the Brawle)—a kind of generic dance which was capable of an almost infinite amount of variety. Thus there were imitative dances—*Branles mimés*, such as the *Branles des Ermites*, *Branles des flambeaux* and the *Branles des lavandières*. The *Branle* in its original form had steps like the *Allemande*. Perhaps the most famous and stately dance of this period was the *Pavane* (of Spanish origin), which is very fully described in Tabouret's *Orchésographie*, the earliest

work in which a dance is found minutely described. The *Pavane*, which was really more a procession than a dance, must have been a very gorgeous and noble sight, and it was perfectly suited to the dress of the period, the stiff brocades of the ladies and the swords and heavily-plumed hats of the gentlemen being displayed in its simple and dignified measures to great advantage. The dancers in the time of Henry III. of France usually sang, while performing the *Pavane*, a *chanson*, of which this is one of the verses:

"Approche donc, ma belle,
Approche-toi, mon bien;
Ne me sois plus rebelle,
Puisque mon cœur est tien;
Pour mon âme apaiser,
Donne-moi un baiser."

In the *Pavane* and *Branle*, and in nearly all the dances of the 17th and 18th centuries, the practice of kissing formed a not unimportant part, and seems to have added greatly to the popularity of the pastime. Another extremely popular dance was the *Saraband*, which, however, died out after the 17th century. It was originally a Spanish dance, but enjoyed an enormous success for a time in France. Every dance at that time had its own tune or tunes, which were called by its own name, and of the *Saraband* the chevalier de Grammont wrote that "it either charmed or annoyed everyone, for all the guitarists of the court began to learn it, and God only knows the universal twanging that followed." Vauquelin des Yveteaux, in his eightieth year, desired to die to the tune of the *Saraband*, "so that his soul might pass away sweetly." After the *Pavane* came the *Courante*, a court dance performed on tiptoe with slightly jumping steps and many bows and curtseys. The *Courante* is one of the most important of the strictly modern dances. The minuet and the waltz were both in some degree derived from it, and it had much in common with the famous *Seguidilla* of Spain. It was a favourite dance of Louis XIV., who was an adept in the art, and it was regarded in his time as of such importance that a nobleman's education could hardly have been said to be begun until he had mastered the *Courante*.

The dance which the French brought to the greatest perfection—which many, indeed, regard as the fine flower of the art—was the *Minuet*. Its origin, as a rustic dance, is not less antique than that of the other dances from which the modern art has been evolved. It was originally a *branle* of Poitou, derived from the *Courante*. It came to Paris in 1650, and was first set to music by Lully. It was at first a gay and lively dance, but on being brought to court it soon lost its sportive character and became grave and dignified. It is mentioned by Beauchamps, the father of dancing-masters, who flourished in Louis XIV.'s reign, and also by Blondy, his pupil; but it was Pécour who really gave the minuet its popularity, and although it was improved and made perfect by Dauberval, Gardel, Marcel and Vestris, it was in Louis XV.'s reign that it saw its golden age. It was then a dance for two in moderate triple time, and was generally followed by the gavotte. Afterwards the minuet was considerably developed, and with the gavotte became chiefly a stage dance and a means of display; but it should be remembered that the minuets which are now danced on the stage are generally highly elaborated with a view to their spectacular effect, and have imported into them steps and figures which do not belong to the minuet at all, but are borrowed from all kinds of other dances. The original court minuet was a grave and simple dance, although it did not retain its simplicity for long. But when it became elaborated it was glorified and moulded into a perfect expression of an age in which deportment was most sedulously cultivated and most brilliantly polished. The "languishing eye and smiling mouth" had their due effect in the minuet; it was a school for chivalry, courtesy and ceremony; the hundred slow graceful movements and curtseys, the pauses which had to be filled by neatly-turned compliments, the beauty and bravery of attire—all were eloquent of graces and outward refinements which we cannot boast now. The fact that the measure of the minuet has become incorporated in the structure of the symphony shows how important was its place in the polite world. The *Gavotte*, which was often danced as a pendant to the minuet, was also originally a peasant's dance, a *danse des Gavots*, and consisted chiefly of kissing and capering. It also became stiff and artificial, and in the later and more prudish half of the 18th century the ladies received bouquets instead of kisses in dancing the gavotte. It rapidly became a stage dance, and it has never been restored to the ballroom. Grétry attempted to revive it, but his arrangement never became popular. Other dances which were naturalized in France were the *Écossaise*, popular in 1760; the *Cotillon*, fashionable under Charles X., derived from the peasant *branles* and danced by ladies in short skirts; the *Galop*, imported from Germany; the *Lancers*, invented by Laborde in 1836; the *Polka*, brought by a dancing-master from Prague in 1840; the *Schottische*, also Bohemian, first introduced in 1844; the *Bourrée*, or French clog-dance; the *Quadrille*, known in the 18th century as the *Contre-danse*; and the *Waltz*, which was danced as a *volte* by Henry III. of France, but only became popular in the beginning of the 19th century. We shall return to the history of some of these later dances in discussing the dances at present in use.

If France has been the nursery and school of the art of dancing, Spain is its true home. There it is part of the national life, the inevitable expression of the gay, contented, irresponsible, sunburnt nature of the people. The form of Spanish dances has hardly changed; some of them are of great antiquity, and may be traced back with hardly a break to the performances in ancient Rome of the famous dancing-girls of Cadiz. The connexion is lost during the period of the Arab invasion, but the art was not neglected, and Jovellanos suggests that it took refuge in the Asturias. At any rate, dances of the 10th and 12th centuries have been preserved uncorrupted. The earliest dances known were the *Turdion*, the *Gibidana*, the *Pié-de-gibao*, and (later) the *Madama Orleans*, the *Alemana* and the *Pavana*. Under Philip IV. theatrical dancing was in high popularity, and ballets were organized with extraordinary magnificence of decoration and costume. They supplanted the national dances, and the *Zarabanda* and *Chacona* were practically extinct in the 18th century. It is at this period that the famous modern Spanish dances, the *Bolero*, *Seguidilla* and the *Fandango*, first appear. Of these the *Fandango* is the most important. It is danced by two people in 6-8 time, beginning slowly and tenderly, the rhythm marked by the click of castanets, the snapping of the fingers and the stamping of feet, and the speed gradually increasing until a whirl of exaltation is reached. A feature of the *Fandango* and also of the *Seguidilla* is a sudden pause of the music towards the end of each measure, upon which the dancers stand rigid in the attitudes in which the stopping of the music found them, and only move again when the music is resumed. M. Vuillier, in his *History of Dancing*, gives the following description of the *Fandango*:—"Like an electric shock, the notes of the Fandango animate all hearts. Men and women, young and old, acknowledge the power of this air over the ears and soul of every Spaniard. The young men spring to their places, rattling castanets or imitating their sound by snapping their fingers. The girls are remarkable for the willowy languor and lightness of their movements, the voluptuousness of their attitudes—beating the exactest time with tapping heels. Partners tease and entreat and pursue each other by turns. Suddenly the music stops, and each dancer shows his skill by remaining absolutely motionless, bounding again into the full life of the Fandango as the orchestra strikes up. The sound of the guitar, the violin, the rapid tic-tac of heels (*taconeos*), the crack of fingers and castanets, the supple swaying of the dancers, fill the spectator with ecstasy. The measure whirls along in a rapid triple time. Spangles glitter; the sharp clank of ivory and ebony castanets beats out the cadence of strange, throbbing, deepening notes—assonances unknown to music, but curiously characteristic, effective and intoxicating. Amidst the rustle of silks, smiles gleam over white teeth, dark eyes sparkle and droop and flash up again in flame. All is flutter and glitter, grace and animation—quivering, sonorous, passionate, seductive."

The *Bolero* is a comparatively modern dance, having been invented by Sebastian Cerezo, a celebrated dancer of the time of King Charles III. It is remarkable for the free use made in it of the arms, and is said to be derived from the ancient *Zarabanda*, a violent and licentious dance, which has entirely disappeared, and with which the later Saraband has

practically nothing in common. The step of the *Bolero* is low and gliding but well marked. It is danced by one or more couples. The *Seguidilla* is hardly less ancient than the *Fandango*, which it resembles. Every province in Spain has its own *Seguidilla*, and the dance is accompanied by *coplas*, or verses, which are sung either to traditional melodies or to the tunes of local composers; indeed, the national music of Spain consists largely of these coplas. Baron Davillier, among several specimens of *Seguidillas*, gives this one

"Mi corazon volando
Se fué á tu pecho;
Le cortaste las alas,
Y quédo dentro.
Por atrevido
Se quedará por siempre
En el metido."[5]

M. Vuillier quotes a *copla* which he heard at Polenza, in the Balearic Islands. This verse is formed on the rhythm of the *Malagueña*:

"Una estrella se ha pardida
En el ciel y no parece;
En tu cara se ha metido;
Y en tu frente resplandece."[6]

The *Jota* is the national dance of Aragon, a lively and splendid, but withal dignified and reticent, dance derived from the 16th-century *Passacaille*. It is still used as a religious dance. The *Cachuca* is a light and graceful dance in triple time. It is performed by a single dancer of either sex. The head and shoulders play an important part in the movements of this dance. Other provincial dances now in existence are the *Jaleo de Jerez*, a whirling measure performed by gipsies, the *Palotéa*, the *Polo*, the *Gallegada*, the *Muyneria*, the *Habas Verdes*, the *Zapateado*, the *Zorongo*, the *Vito*, the *Tirano* and the *Tripola Trapola*. Most of these dances are named either after the places where they are danced or after the composers who have invented tunes for them. Many of them are but slight variations from the *Fandango* and *Seguidilla*.

The history of court dancing in Great Britain is practically the same as that of France, and need not occupy much of our attention here. But there are strictly national dances still in existence which are quite peculiar to the country, and may be traced back to the dances and games of the Saxon gleemen. The Egg dance and the Carole were both Saxon dances, the Carole being a Yule-tide festivity, of which the present-day Christmas carol is a remnant. The oldest dances which remain unchanged in England are the Morris dances, which were introduced in the time of Edward III. The name Morris or Moorish refers to the origin of these dances, which are said to have been brought back by John of Gaunt from his travels in Spain. The Morris dances are associated with May-day, and are danced round a maypole to a lively and capering step, some of the performers having bells fastened to their knees in the Moorish manner. They are dressed as characters of old English tradition, such as Robin Hood, Maid Marian, Friar Tuck, Little John and Tom the Piper. All the true country dances of Great Britain are of an active and lively measure; they may all, indeed, be said to be founded on the jig; and the hornpipe, which is a kind of jig, is the national dance of England. Captain Cook, on his voyages, made his sailors dance hornpipes in calm weather to keep them in good health. A characteristic of English dances was that they partook to a great extent of the nature of games; there was little variety in the steps, which were nearly all those of the jig or hornpipe, but these were incorporated into various games or plays, of which the Morris dances were the most elaborate. Richard Baxter wrote that "sometimes the Morris dancers would come into the church in all their linen and scarves and antic dresses, with Morris bells jingling at their legs; and as soon as Common Prayer was read, did haste and presently to their play again." May-day has always been celebrated in England with rustic dances and festivities. Before the Reformation there were no really national dances in use at court; but in the reign of Elizabeth the homely, domestic style of dancing reached the height of its popularity. Remnants of many of these dances remain to-day in the games played by children and country people; "Hunt the Slipper," "Kiss in the Ring," "Here we go round the Mulberry Bush," are examples. All the Tudor dances were kissing dances, and must have been the occasion of a great deal of merriment. Mrs Groves gives the following description of the Cushion dance:—"The dance is begun by a single person, man or woman, who, taking a cushion in hand, dances about the room, and at the end of a short time stops and sings: 'This dance it will no farther go,' to which the musician answers: 'I pray you, good sir, why say so?' 'Because Joan Sanderson will not come to.' 'She must come to whether she will or no,' returns the musician, and then the dancer lays the cushion before a woman; she kneels and he kisses her, singing 'Welcome, Joan Sanderson.' Then she rises, takes up the cushion, and both dance and sing 'Prinkum prankum is a fine dance, and shall we go dance it over again?' Afterwards the woman takes the cushion and does as the man did." Other popular dances—generally adapted to the tunes of popular songs, the nature of some of which may be guessed from their titles—were the Trenchmore, Omnium-gatherum, Tolly-polly, Hoite cum toite, Dull Sir John, Faine I would, Sillinger, All in a Garden Green, An Old Man's a Bed Full of Bones, If All the World were Paper, John, Come Kiss Me Now, Cuckholds All Awry, Green Sleeves and Pudding Pies, Lumps of Pudding, Under and Over, Up Tails All, The Slaughter House, Rub her Down with Straw, Have at thy Coat Old Woman, The Happy Marriage, Dissembling Love, Sweet Kate, Once I Loved a Maiden Fair. Dancing practically disappeared during the Puritan *régime*, but with the Restoration it again became popular. It underwent no considerable developments, however, until the reign of Queen Anne, when the glories of Bath were revived in the beginning of the 18th century, and Beau Nash drew up his famous codes of rules for the regulation of dress and manners, and founded the balls in which the polite French dances completely eclipsed the simpler English ones. An account of a dancing lesson witnessed by a fond parent at this time is worth quoting, as it shows how far the writer (but not his daughter) had departed from the jolly, romping traditions of the old English dances:—"As the best institutions are liable to corruption, so, sir, I must acquaint you that very great abuses are crept into this entertainment. I was amazed to see my girl handed by and handing young fellows with so much familiarity, and I could not have thought it had been my child. They very often made use of a most impudent and lascivious step called *setting* to partners, which I know not how to describe to you but by telling you that it is the very reverse of *back* to *back*. At last an impudent young dog bid the fiddlers play a dance called *Moll Patley*, and, after having made two or three capers, ran to his partner, locked his arms in hers, and whisked her round cleverly above ground in such a manner that I, who sat upon one of the lowest benches, saw farther above her shoe than I can think fit to acquaint you with. I could no longer endure these enormities, wherefore, just as my girl was going to be made a whirligig, I ran in, seized my child and carried her home." What we may call polite dancing, when it became fashionable, soon invaded London, its first home being Madame Cornely's famous Carlisle House in Soho Square. Ranelagh and Vauxhall and Almack's were all extensively patronized, and the rage for magnificent entertainment and dancing culminated in the erection of the palatial Pantheon in Oxford Street—a place so universally patronized that even Dr Johnson was to be found there. White's and Boodle's were also famous assembly rooms, but the most exclusive of all these establishments was Almack's, the original of Brooks's Club.

The only true national dances of Scotland are reels, strathspeys and flings, while in Ireland there is but one dance—the jig, which is there, however, found in many varieties and expressive of many shades of emotion, from the maddest gaiety to the wildest lament. Curiously enough, although the Welsh dance often, they have no strictly national dances.

Dancing in present-day society is a comparatively simple affair, as five-sixths of almost all ball programmes consists of

waltzes. The origin of the waltz is a much-debated subject, the French, Italians and Bavarians each claiming for their respective countries the honour of having given birth to it. As a matter of fact the waltz, as it is now danced, comes from Germany; but it is equally true that its real origin is French, since it is a development of the *Volte*, which in its turn came from the *Lavolta* of Provence, one of the most ancient of French dances. The *Lavolta* was fashionable in the 16th century and was the delight of the Valois court. The *Volte* danced by Henry III. was really a *Valse à deux pas*; and Castil-Blaze says that "the waltz which we took again from the Germans in 1795 had been a French dance for four hundred years." The change, it is true, came upon it during its visit to Germany, hence the theory of its German origin. The first German waltz tune is dated 1770—"Ach! du lieber Augustin." It was first danced at the Paris opera in 1793, in Gardel's ballet *La Dansomanie*. It was introduced to English ballrooms in 1812, when it roused a storm of ridicule and opposition, but it became popular when danced at Almack's by the emperor Alexander in 1816. The waltz *à trois temps* has a sliding step in which the movements of the knees play an important part. The *tempo* is moderate, so as to allow three distinct movements on the three beats of each bar; and the waltz is written in 3-4 time and in eight-bar sentences. Walking up and down the room and occasionally breaking into the step of the dance is not true waltzing, and the habit of pushing one's partner backwards along the room is an entirely English one. But the dancer must be able to waltz equally well in all directions, pivoting and crossing the feet when necessary in the reverse turn. It need hardly be said that the feet should never leave the floor in the true waltz. Gungl, Waldteufel and the Strauss family may be said to have moulded the modern waltz to its present form by their rhythmical and agreeable compositions. There are variations which include hopping and lurching steps; these are degradations, and foreign to the spirit of the true waltz.

The *Quadrille* is of some antiquity, and a dance of this kind was first brought to England from Normandy by William the Conqueror, and was common all over Europe in the 16th and 17th centuries. The term quadrille means a kind of card game, and the dance is supposed to be in some way connected with the game. A species of quadrille appeared in a French ballet in 1745, and since that time the dance has gone by that name. Like many other dances, it came from Paris to Almack's in 1815, and in its modern form was danced in England for the first time by Lady Jersey, Lady Harriet Butler, Lady Susan Ryder and Miss Montgomery, with Count Aldegarde, Mr Montgomery, Mr Harley and Mr Montague. It immediately became popular. It then consisted of very elaborate steps, which in England have been simplified until the degenerate practice has become common of walking through the dance. The quadrille, properly danced, has many of the graces of the minuet. It is often stated that the square dance is of modern French origin. This is incorrect, and probably arises from a mistaken identification of the terms quadrille and square dance. "Dull Sir John" and "Faine I would" were square dances popular in England three hundred years ago.

An account of the country-dance, with the names of some of the old dance-tunes, has been given above. The word is not, as has been supposed, an adaptation of the French *contre-danse*, neither is the dance itself French in origin. According to the *New English Dictionary*, *contre-danse* is a corruption of "country-dance," possibly due to a peculiar feature of many of such dances, like Sir Roger de Coverley, where the partners are drawn up in lines opposite to each other. The earliest appearance of the French word is in its application to English dances, which are contrasted with the French; thus in the *Memoirs of Grammont*, Hamilton says: "On quitta les danses françaises pour se mettre aux contre-danses." The English "country-dances" were introduced into France in the early part of the 18th century and became popular; later French modifications were brought back to England under the French form of the name, and this, no doubt, caused the long-accepted but confused derivation.

The *Lancers* were invented by Laborde in Paris in 1836. They were brought over to England in 1850, and were made fashionable by Madame Sacré at her classes in Hanover Square Rooms. The first four ladies to dance the lancers in England were Lady Georgina Lygon, Lady Jane Fielding, Mdlle. Olga de Lechner and Miss Berkeley.

The *Polka*, the chief of the Bohemian national dances, was adopted by Society in 1835 at Prague. Josef Neruda had seen a peasant girl dancing and singing the polka, and had noted down the tune and the steps. From Prague it readily spread to Vienna, and was introduced to Paris by Cellarius, a dancing-master, who gave it at the Odéon in 1840. It took the public by storm, and spread like an infection through England and America. Everything was named after the polka, from public-houses to articles of dress. Mr Punch exerted his wit on the subject weekly, and even *The Times* complained that its French correspondence was interrupted, since the polka had taken the place of politics in Paris. The true polka has three slightly jumping steps, danced on the first three beats of a four-quaver bar, the last beat of which is employed as a rest while the toe of the unemployed foot is drawn up against the heel of the other.

The *Galop* is strictly speaking a Hungarian dance, which became popular in Paris in 1830. But some kind of a dance corresponding to the galop was always indulged in after *Voltes* and *Contre-danses*, as a relief from their grave and constrained measures.

The *Washington Post* and several varieties of *Barn-dance* are of American origin, and became fashionable towards the end of the 19th century.

The *Polka-Mazurka* is extremely popular in Vienna and Budapest, and is a favourite theme with Hungarian composers. The six movements of this dance occupy two bars of 3-4 time, and consist of a mazurka step joined to the polka. It is of Polish origin.

The *Polonaise* and *Mazurka* are both Polish dances, and are still fashionable in Russia and Poland. Every State ball in Russia is opened with the ceremonious Polonaise.

The *Schottische*, a kind of modified polka, was "created" by Markowski, who was the proprietor of a famous dancing academy in 1850. The *Highland Schottische* is a fling. The Fling and Reel are Celtic dances, and form the national dances of Scotland and Denmark. They are complicated measures of a studied and classical order, in which free use is made of the arms and of cries and stampings. The *Strathspey* is a slow and grandiose modification of the Reel.

Sir Roger de Coverley is the only one of the old English social dances which has survived to the present day, and it is frequently danced at the conclusion of the less formal sort of balls. It is a merry and lively game in which all the company take part, men and women facing each other in two long rows. The dancers are constantly changing places in such a way that if the dance is carried to its conclusion everyone will have danced with everyone else. The music was first printed in 1685, and is sometimes written in 2-4 time, sometimes in 6-8 time, and sometimes in 3-9 time.

The *Cotillon* is a modern development of the French dance of the same name referred to above. It is an extremely elaborate dance, in which a great many toys and accessories are employed; hundreds of figures may be contrived for it, in which presents, toys, lighted tapers, biscuits, air-balloons and hurdles are used.

Ballet, &c.—The modern ballet (q.v.) seems to have been first produced on a considerable scale in 1489 at Tortona, before Duke Galeazzo of Milan. It soon became a common amusement on great occasions at the European courts. The ordinary length was five acts, each containing several *entrées*, and each *entrée* containing several quadrilles. The accessories of painting, sculpture and movable scenery were employed, and the representation often took place at night. The allegorical, moral and ludicrous ballets were introduced to France by Baïf in the time of Catherine de' Medici. The complex nature of these exhibitions may be gathered from the title of one played at Turin in 1634—*La verità nemica della apparenza, sollevata dal tempo.* Of the ludicrous, one of the best known was the Venetian ballet of *I a veritá raminga*. Now and then, however, a high political aim may be discovered, as in the "Prosperity of the Arms of France," danced before

Richelieu in 1641, or "Religion uniting Great Britain to the rest of the World," danced at London on the marriage of Princess Elizabeth to the elector Frederick. Outside the theatre, the Portuguese revived an ambulatory ballet which was played on the canonization of Carlo Borromeo, and to which they gave the name of the Tyrrhenic Pomp. During this time also the ceremonial ball (with all its elaborate detail of *courante*, minuet and saraband) was cultivated. The fathers of the church assembled at Trent gave a ball in which they took a part. Masked balls, too, resembling in some respects the Roman Saturnalia, became common towards the end of the 17th century. In France a ball was sometimes diversified by a masquerade, carried on by a limited number of persons in character-costume. Two of the most famous were named "au Sauvage" and "des Sorciers." In 1715 the regent of France started a system of public balls in the opera-house, which did not succeed. Dancing, also, formed a leading element in the Opéra Français introduced by Quinault. His subjects were chiefly marvellous, drawn from the classical mythologies; and the choral dancing was not merely *divertissement*, but was intended to assist and enrich the dramatic action of the whole piece.

Musical Gymnastics.—Dancing is an important branch of physical education. Long ago Locke pointed out (*Education*, §§ 67, 196) that the effects of dancing are not confined to the body; it gives to children, he says, not mere outward gracefulness of motion, but manly thoughts and a becoming confidence. Only lately, however, has the advantage been recognized of making gymnastics attractive by connecting it with what Homer calls "the sweetest and most perfect of human enjoyments." The practical principle against heavy weights and intense monotonous exertion of particular muscles was thus stated by Samuel Smiles (*Physical Education*, p. 148):—"The greatest benefit is derived from that exercise which calls into action the greatest number of muscles, and in which the action of these is intermitted at the shortest intervals." It required only one further step to see how, if light and changing movements were desirable, music would prove a powerful stimulus to gymnastics. It touches the play-impulse, and substitutes a spontaneous flow of energy for the mechanical effort of the will. The force of imitation or contagion, one of the most valuable forces in education, is also much increased by the state of exhilaration into which dancing puts the system. This idea was embodied by Froebel in his *Kindergarten* plan, and was developed by Jahn and Schreber in Germany, by Dio Lewis in the United States, and by Ling (the author of the *Swedish Cure Movement*) in Sweden.

AUTHORITIES.—For the old division of the *Ars Gymnastica* into *palaestrica* and *saltatoria*, and of the latter into *cubistica*, *sphaeristica* and *orchestica*, see the learned work of Hieronymus Mercurialis, *De arte Gymnastica* (Amsterdam, 1572). Cubistic was the art of throwing somersaults, and is described minutely by Tuccaro in his *Trois Dialogues* (Paris, 1599). Sphaeristic included several complex games at ball and tilting—the Greek κώρυκος, and the Roman *trigonalis* and *paganica*. Orchestic, divided by Plutarch into *latio*, *figura* and *indicatio*, was really imitative dancing, the "silent poetry" of Simonides. The importance of the χειρονομία or hand-movement is indicated by Ovid:—"Si vox est, canta; si mollia brachia, salta." For further information as to modern dancing, see Rameau's *Le maître à danser* (1726); Querlon's *Le triomphe des grâces* (1774); Cahousac, *La danse ancienne et moderne* (1754); Vuillier, *History of Dancing* (Eng. trans., 1897); Giraudet, *Traité de la danse* (1900).

(W. C. S.; A. B. F. Y.)

1 Compare the Chica of South America, the Fandango of Spain, and the Angrismene or la Fachée of modern Greece. See also *Romaunt de la rose*, v. 776.

2 The Greek καρπαία represented the surprise by robbers of a warrior ploughing a field. The gymnopaedic dances imitated the sterner sports of the palaestra.

3 The Greek Lenaea and Dionysia had a distinct reference to the seasons.

4 The Pantomimus was an outgrowth from the *canticum* or choral singing of the older comedies and *fabulae Atellanae*.

5 "My heart flew to thy breast. Thou didst cut its wings, so that it remained there. And now it has waxed daring, and will stay with thee for evermore."

6 "A star is lost and appears not in the sky; in thy face it has set itself; on thy brow it shines."

DANCOURT, FLORENT CARTON (1661-1725), French dramatist and actor, was born at Fontainebleau on the 1st of November 1661. He belonged to a family of rank, and his parents entrusted his education to Père de la Rue, a Jesuit, who made earnest efforts to induce him to join the order. But he had no religious vocation and proceeded to study law. He practised at the bar for some time, but his marriage to the daughter of the comedian François Lenoir de la Thorillière led him to become an actor, and in 1685, in spite of the strong opposition of his family, he appeared at the Théâtre Français. 801
His gifts as a comedian gave him immediate and marked success, both with the public and with his fellow actors. He was the spokesman of his company on occasions of state, and in this capacity he frequently appeared before Louis XIV., who treated him with great favour. One of his most famous impersonations was Alceste in the *Misanthrope* of Molière. His first play, *Le Notaire obligeant*, produced in 1685, was well received. *La Désolation des joueuses* (1687) was still more successful. *Le Chevalier à la mode* (1687) is generally regarded as his best work, though his claim to original authorship in this and some other cases has been disputed. In *Le Chevalier à la mode* appears the *bourgeoise* infatuated with the desire to be an aristocrat. The type is developed in *Les Bourgeoises à la mode* (1692) and *Les Bourgeoises de qualité* (1700). Dancourt was a prolific author, and produced some sixty plays in all. Some years before his death he terminated his career both as an actor and as an author by retiring to his château at Courcelles le Roi, in Berry, where he employed himself in making a poetical translation of the Psalms and in writing a sacred tragedy. He died on the 7th of December 1725. The plays of Dancourt are faithful descriptions of the manners of the time, and as such have real historical value. The characters are drawn with a realistic touch that led to his being styled by Charles Palissot the Teniers of comedy. He is very successful in his delineation of low life, and especially of the peasantry. The dialogue is sparkling, witty and natural. Many of the incidents of his plots were derived from actual occurrences in the "fast" and scandalous life of the period, and several of his characters were drawn from well-known personages of the day. Most of the plays incline to the type of farce rather than of pure comedy. Voltaire defined his talent in the words: "Ce que Regnard était à l'égard de Molière dans la haute comédie, le comédien Dancourt l'était dans la farce."

His two daughters, Manon and Marie Anne (Mimi), both obtained success on the stage of the Théâtre Français.

The complete works of Dancourt were published in 1760 (12 vols. 12mo). An edition of his *Théâtre choisi*, with a preface by F. Sarcey, appeared in 1884.

DANDELION (*Taraxacum officinale*), a perennial herb belonging to the natural order Compositae. The plant has a wide

range, being found in Europe, Central Asia, North America, and the Arctic regions, and also in the south temperate zone. The leaves form a spreading rosette on the very short stem; they are smooth, of a bright shining green, sessile, and tapering downwards. The name dandelion is derived from the French *dent-de-lion*, an appellation given on account of the tooth-like lobes of the leaves. The long tap-root has a simple or many-headed rhizome; it is black externally, and is very difficult of extirpation. The flower-stalks are smooth, brittle, leafless, hollow, and very numerous. The flowers bloom from April till August, and remain open from five or six in the morning to eight or nine at night. The flower-heads are of a golden yellow, and reach 1½ to 2 in. in width; the florets are all strap-shaped. The fruits are olive or dull yellow in colour, and are each surmounted by a long beak, on which rests a pappus of delicate white hairs, which occasions the ready dispersal of the fruit by the wind; each fruit contains one seed. The globes formed by the plumed fruits are nearly two inches in diameter. The involucre consists of an outer spreading (or reflexed) and an inner and erect row of bracts. In all parts of the plant a milky juice is contained, which has a somewhat complex composition. The chief constituent is taraxacin, a neutral principle. In addition the juice contains taraxacerin (derived from the former), asparagin, inulin, resins and salts. An extract (dose 5-15 grains), a liquid extract (dose ½-1 drachm) and a succus (dose 1-2 drachms) of the root are all used medicinally. For the purposes formerly recognized taraxacum is now never used, but it has been shown to possess definite cholagogue properties, and may therefore be prescribed along with ammonium chloride in cases of hepatic constipation, which it very constantly relieves. The root—which is the medicinal product—is most bitter from March to July, but the milky juice it contains is less abundant in the summer than in the autumn. For this reason, the extract and succus are usually prepared during the months of September and October. After a frost a change takes place in the root, which loses its bitterness to a large extent. In the dried state the root will not keep well, being quickly attacked by insects. Externally it is brown and wrinkled, internally white, with a yellow centre and concentric paler rings. It is two inches to a foot long, and about a quarter to half an inch in diameter. The leaves are bitter, but are sometimes eaten as a salad; they serve as food for silkworms when mulberry leaves are not to be had. The root is roasted as a substitute for coffee. Several varieties of the dandelion are recognized by botanists; they differ in the degree and mode of cutting of the leaf-margin and the erect or spreading character of the outer series of bracts. The variety *palustre*, which affects boggy situations, and flowers in late summer and autumn, has nearly entire leaves, and the outer bracts of its involucre are erect.

Dandelion (*Taraxacum officinale*).

1, Unopened head; 2, ripe head from which all the fruits except two have been removed; 3, one floret, enlarged; 4, one fruit.

DANDOLO, the name of one of the most illustrious patrician families of Venice, of which the earliest recorded member was one of the electors of the first doge (A.D. 697). The Dandolo gave to Venice four doges; of these the first and most famous was Enrico Dandolo (*c.* 1120-1205), elected on the 1st of January 1193 (*more Veneto*, 1192). He had distinguished himself in various military enterprises and diplomatic negotiations in the course of an active career, and although over seventy years old and of very weak sight (the story that he had been made blind by the emperor Manuel Comnenus while he was at Constantinople is a legend), he proved a most energetic and capable ruler. His first care was to re-establish Venetian authority over the Dalmatians who had rebelled with the king of Hungary’s protection, but he failed to capture Zara, owing to the arrival of the Pisan fleet, and although the latter was defeated by the Venetians, the undertaking was suspended. In the meanwhile the situation in the East was becoming critical. The Eastern emperor Isaac II. Angelus had been deposed, imprisoned, and blinded by his brother Alexius, who usurped the throne. The new emperor proved unfriendly to the Venetians and made difficulties about renewing their privileges. In the West a new crusade to the Holy Land was in preparation, and the crusaders sent ambassadors, one of whom was Villehardouin, the historian of the expedition, to ask the Venetians to give them passage and means of transport (1201). After much deliberation the republic agreed to transport 4500 horse and 29,000 foot to Palestine with provisions for one year, for a sum of 85,000 marks; in addition 50 Venetian galleys would be provided free of charge, while Venice was to receive half the conquests made by the crusaders. But as the time agreed upon for the departure approached, it appeared that the crusaders had not the money to pay the stipulated advance. Dandolo then proposed that if they helped him to reduce Zara payment might be deferred. Some of the crusaders disapproved of this attack on a Christian city, but the majority, only too glad of an opportunity for plunder, willingly agreed. The expedition sailed on the 8th of October 1202, three hundred sail in all, with the aged

Dandolo himself in command. Zara was taken and pillaged, for which the Venetians were severely reprimanded by the pope. But new possibilities of conquest were now opened up at the suggestion of Alexius, the son of the deposed emperor Isaac. He promised the crusaders that if they went first to Constantinople and re-instated Isaac, the latter would maintain them for a year, contribute 10,000 men and 200,000 marks for the expedition to Egypt, and subject the Eastern to the Western Church. The proposal was accepted, largely owing to the influence of Dandolo, who saw in it a means for further extending the dominions and commerce of the Venetians. After wintering at Zara the fleet set sail on the 7th of April 1203, and on the 23rd of June anchored in the Bosporus. After long parleys the city was attacked by land and sea on the 17th of July (the fleet being commanded by Dandolo) and taken by storm. The emperor Alexius fled, and Isaac reoccupied the throne, but, although grateful to the crusaders, he was not disposed to fulfil the promises made by his son. Tumults between crusaders and Greeks arose, and the people of the city, excited by a certain Alexis Murzuphlus, murmured at the new taxes which were imposed on them. A revolt broke out, and an officer named Nicholas Canabus was placed on the throne; Prince Alexius was strangled by order of Murzuphlus, Isaac died of the shock, Murzuphlus imprisoned Canabus and made himself emperor (Alexius V.). The crusaders thereupon attacked Constantinople a second time (12th of April 1204), and after a desperate struggle captured the city, which they subjected to hideous carnage. Immense booty was secured, the Venetians obtaining among other treasures the four bronze horses which adorn the façade of St Mark's. The Eastern empire was abolished, and a feudal Latin empire erected in its stead. The leaders of the crusaders then met to elect an emperor. Dandolo was one of the candidates, but Count Baldwin of Flanders was elected and crowned on the 23rd of May. The Venetians were given Crete and several other islands and ports in the Levant, which formed an uninterrupted chain from Venice to the Black Sea, a large part of Constantinople (whence the doge assumed the title of "lord of a quarter and a half of Romania"), and many valuable privileges. But hardly had the new state been established when various provinces rose in rebellion and the Bulgarians invaded Thrace. A Latin army was defeated by them at Adrianople (April 1205), and the emperor himself was captured and killed, the fragments of the force being saved only by Dandolo's prowess. But he was now old and ill, and on the 23rd of June 1205 he died. He certainly consolidated Venice's dominion in the East and increased its commercial prosperity to a very high degree. But the policy he pursued in turning the crusaders against Constantinople, in order to promote the interests of the republic, while serving to break up the Greek empire, created in its place a Latin state that was far too feeble to withstand the onslaught of Greek national feeling and Orthodox fanaticism; at the same time the Greeks were greatly weakened and their power of resisting the Turks consequently lessened. This paved the way for the Turkish invasion of Europe, which proved an unmixed calamity for all Christendom, Venice included.

Enrico Dandolo's sons distinguished themselves in the public service, and his grandson Giovanni was doge from 1280 to 1289. The latter's son Andrea commanded the Venetian fleet in the war against Genoa in 1294, and, having been defeated and taken prisoner, he was so overwhelmed with shame that he committed suicide by beating his head against the mast (according to Andrea Navagero). Francesco Dandolo, also known as Dandolo Cane, was doge from 1329 to 1339. During his reign the Venetians went to war with Martino della Scala, lord of Verona, with the result that they occupied Treviso and otherwise extended their possessions on the *terra firma*. Andrea Dandolo (1307/10-1354), the last doge of the family, reigned from 1343 to 1354. He had been the first Venetian noble to take a degree at the university of Padua, where he had also been professor of jurisprudence. The terrible plague of 1348, wars with Genoa, against whom the great naval victory of Lojera was won in 1353, many treaties, and the subjugation of the seventh revolt of Zara, are the chief events of his reign. The poet Petrarch, who was the doge's intimate friend, was sent to Venice on a peace mission by Giovanni Visconti, lord of Milan. "Just, incorruptible, full of zeal and of love for his country, and at the same time learned, of rare eloquence, wise, affable, and humane," is the poet's verdict on Andrea Dandolo (*Varior. epist.* xix.). Dandolo died on the 7th of September 1354. He is chiefly famous as a historian, and his *Annals* to the year 1280 are one of the chief sources of Venetian history for that period; they have been published by Muratori (*Rer. Ital. Script.* tom. xxi.). He also had a new code of laws compiled (issued in 1346) in addition to the statute of Jacopo Tiepolo.

Another well-known member of this family was Silvestro Dandolo (1796-1866), son of Girolamo Dandolo, who was the last admiral of the Venetian republic and died an Austrian admiral in 1847. Silvestro was an Italian patriot and took part in the revolution of 1848.

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(L. V.*)

DANDOLO, VINCENZO, COUNT (1758-1819), Italian chemist and agriculturist, was born at Venice, of good family, though not of the same house as the famous doges, and began his career as a physician. He was a prominent opponent of the oligarchical party in the revolution which took place on the approach of Napoleon; and he was one of the envoys sent to seek the protection of the French. When the request was refused, and Venice was placed under Austria, he removed to Milan, where he was made member of the great council. In 1799, on the invasion of the Russians and the overthrow of the Cisalpine republic, Dandolo retired to Paris, where, in the same year, he published his treatise *Les Hommes nouveaux, ou moyen d'opérer une régénération nouvelle*. But he soon after returned to the neighbourhood of Milan, to devote himself to scientific agriculture. In 1805 Napoleon made him governor of Dalmatia, with the title of *provéditeur général*, in which position Dandolo distinguished himself by his efforts to remove the wretchedness and idleness of the people, and to improve the country by draining the pestilential marshes and introducing better methods of agriculture. When, in 1809, Dalmatia was re-annexed to the Illyrian provinces, Dandolo returned to Venice, having received as his reward from the French emperor the title of count and several other distinctions. He died in his native city on the 13th of December 1819.

Dandolo published in Italian several treatises on agriculture, vine-cultivation, and the rearing of cattle and sheep; a work on silk-worms, which was translated into French by Fontanelle; a work on the discoveries in chemistry which were made in the last quarter of the 18th century (published 1796); and translations of several of the best French works on chemistry.

DANDY, a word of uncertain origin which about 1813-1816 became a London colloquialism for the exquisite or fop of the period. It seems to have been in use on the Scottish border at the end of the 18th century, its full form, it is suggested, being "Jack-a-Dandy," which from 1659 had a sense much like its later one. It is probably ultimately derived from the French *dandin*, "a ninny or booby," but a more direct derivation was suggested at the time of the uprise of the Regency

dandies. In *The Northampton Mercury*, under date of the 17th of April 1819, occurs the following: “Origin of the word ‘dandy.’ This term, which has been recently applied to a species of reptile very common in the metropolis, appears to have arisen from a small silver coin struck by King Henry VII., of little value, called a *dandiprat*; and hence Bishop Fleetwood observes the term is applied to worthless and contemptible persons.”

It was Beau Brummel, the high-priest of fashion, who gave dandyism its great vogue. But before his day foppery in dress had become something more than the personal eccentricity which it had been in the Stuart days and earlier. About the middle of the 18th century was founded the Macaroni Club. This was a band of young men of rank who had visited Italy and sought to introduce the southern elegances of manner and dress into England. The Macaronis gained their name from their introduction of the Italian dish to English tables, and were at their zenith about 1772, when their costume is described as “white silk breeches, very tight coat and vest with enormous white neckcloths, white silk stockings and diamond-buckled red-heeled shoes.” For some time the moving spirit of the club was Charles James Fox. It was with the advent of Brummel, however, that the cult of dandyism became a social force. Beau Brummel was supreme dictator in matters of dress, and the prince regent is said to have wept when he disapproved of the cut of the royal coat. Around the Beau collected a band of young men whose insolent and affected manners made them universally unpopular. Their chief glory was their clothes. They wore coats of blue or brown cloth with brass buttons, the coat-tails almost touching the heels. Their trousers were buckskin, so tight that it is said they “could only be taken off as an eel would be divested of his skin.” A pair of highly-polished Hessian boots, a waistcoat buttoned incredibly tight so as to produce a small waist, and opening at the breast to exhibit the frilled shirt and cravat, completed the costume of the true dandy. Upon the Beau’s disgrace and ruin, Lord Alvanley was regarded as leader of the dandies and “first gentleman in England.” Though in many ways a worthier man than Brummel, his vanity exposed him to much derision, and he fought a duel on Wimbledon Common with Morgan O’Connell, who, in the House of Commons, had called him a “bloated buffoon.” After 1825 “dandy” lost its invidious meaning, and came to be applied generally to those who were neat in dress rather than to those guilty of effeminacy.

See Barbey D’Aurevilly, *Du dandysme et de G. Brummel* (Paris, 1887).

DANEGELD, an English national tax originally levied by Æthelred II. (the Unready) as a means of raising the tribute which was the price of the temporary cessation of the Danish ravages. This expedient of buying off the invader was first adopted in 991 ou the advice of certain great men of the kingdom. It was repeated in 994, 1002, 1007 and 1012. With the accession of the Danish king Canute, the original *raison d’être* of the tax ceased to exist, but it continued to be levied, though for a different purpose, assuming now the character of an occasional war-tax. It was exceedingly burdensome, and its abolition by Edward the Confessor in 1051 was welcomed as a great relief. William the Conqueror revived it immediately after his accession, as a convenient method of national taxation, and it was with the object of facilitating its collection that he ordered the compilation of Domesday Book. It continued to be levied until 1163, in which year the name Danegeld appears for the last time in the Rolls. Its place was taken by other imposts of similar character but different name.

DANELAGH, the name given to those districts in the north and north-east of England which were settled by Danes and other Scandinavian invaders during the period of the Viking invasions. The real settlement of England by Danes began in the year 866 with the appearance of a large army in East Anglia, which turned north in the following year. The Danes captured York and overthrew the Northumbrian kingdom, setting up a puppet king of their own. They encamped in Nottingham in 868, and Northern Mercia was soon in their hands; in 870 Edmund, king of the East Anglians, fell before them. During the next few years they maintained their hold on Mercia, and we have at this time coins minted in London with the inscription “Alfdene rex,” the name of the Danish leader. In the winter of 874-875 they advanced as far north as the Tyne, and at the same time Cambridge was occupied. In the meantime the great struggle with Alfred the Great was being carried on. This was terminated by the peace of Wedmore in 878, when the Danes withdrew from Wessex and settled finally in East Anglia under their king Guthrum. This peace was finally and definitely ratified in the document known as the peace of Alfred and Guthrum, which is probably to be referred to the year 880. The peace determined the boundary of Guthrum’s East Anglian kingdom. According to the terms of the agreement the boundary was to run along the Thames estuary to the mouth of the Lea (a few miles east of London), then up the Lea to its source near Leighton Buzzard, then due north to Bedford, then eastwards up the Ouse to Watling Street somewhere near Fenny or Stony Stratford. From this point the boundary is left undefined, perhaps because the kingdoms of Alfred and Guthrum ceased to be conterminous here, though if Northamptonshire was included in the kingdom of Guthrum, as seems likely, the boundary must be carried a few miles along Watling Street. Thus Northern Mercia, East Anglia, the greater part of Essex and Northumbria were handed over to the Danes and henceforth constitute the district known as the Danelagh.

The three chief divisions of the Danelagh were (1) the kingdom of Northumbria, (2) the kingdom of East Anglia, (3) the district of the Five (Danish) Boroughs—lands grouped round Leicester, Nottingham, Derby, Stamford and Lincoln, and forming a loose confederacy. Of the history of the two Danish kingdoms we know very little. Guthrum of East Anglia died in 890, and later we hear of a king Eric or Eohric who died in 902. Another Guthrum was ruling there in the days of Edward the Elder. The history of the Northumbrian kingdom is yet more obscure. After an interregnum consequent on the death of Healfdene the kingdom passed in 883 to one Guthred, son of Hardicanute, who ruled till 894, when his realm was taken over by King Alfred, though probably only under a very loose sovereignty. It may be noted here that Northumbria north of the Tyne, the old Bernicia, seems never to have passed under Danish authority and rule, but to have remained in independence until the general submission to Edward in 924.

More is known of the history of the five boroughs. From 907 onwards Edward the Elder, working together with Æthelred of Mercia and his wife, worked for the recovery of the Danelagh. In that year Chester was fortified. In 911-912 an advance on Essex and Hertfordshire was begun. In 914 Buckingham was fortified and the Danes of Bedfordshire submitted. In 917 Derby was the first of the five boroughs to fall, followed by Leicester a few months later. In the same year after a keen struggle all the Danes belonging to the “borough” of Northampton, as far north as the Welland (i.e. the border of modern Northamptonshire), submitted to Edward and at the same time Colchester was fortified; a large portion of Essex submitted and the whole of the East Anglian Danes came in. Stamford was the next to yield, soon followed by Nottingham, and in 920 there was a general submission on the part of the Danes and the reconquest of the Danelagh was now complete.

Though the independent occupation of the Danelagh by Viking invaders did not last for more than fifty years at the outside, the Danes left lasting marks of their presence in these territories.

The divisions of the land are foreign not native. The grouping of shires round a county town as distinct from the old national shires is probably of Scandinavian origin, and so certainly is the division of Yorkshire and Lincolnshire into "ridings." In Derbyshire, Leicestershire, Lincolnshire, part of Northamptonshire, Nottinghamshire, Rutlandshire (of later formation) and Yorkshire we have the counties divided into "wapentakes" instead of "hundreds," again a mark of Danish influence.

When we turn to the social divisions we find in Domesday and other documents classes of society in these districts bearing purely Norse names, *dreng*, *karl*, *karlman*, *bonde*, *thrall*, *lysing*, *hold*; in the system of taxation we have an assessment by *carucates* and not by hides and *virgates*, and the duodecimal rather than the decimal system of reckoning.

The highly developed Scandinavian legal system has also left abundant traces in this district. We may mention specially the institution of the "lawmen," whom we find as a judicial body in several of the towns in or near the Danelagh. They are found at Cambridge, Stamford, Lincoln, York and Chester. There can be no doubt that these "lawmen," who can be shown to form a close parallel to and indeed the ultimate source of our jury, were of Scandinavian origin. Many other legal terms can be definitely traced to Scandinavian sources, and they are first found in use in the district of the Danelagh.

The whole of the place nomenclature of Yorkshire, Lincolnshire, Nottinghamshire and Northern Northamptonshire is Scandinavian rather than native English, and in the remaining districts of the Danelagh a goodly proportion of Danish place-names may be found. Their influence is also evident in the dialects spoken in these districts to the present day. It is probable that until the end of the 10th century Scandinavian dialects were almost the sole language spoken in the district of the Danelagh, and when English triumphed, after an intermediate bilingual state, large numbers of words were adopted from the earlier Scandinavian speech.

See *The Anglo-Saxon Chronicle*, edited by Earle and Plummer (Oxford, 1892-1899); J. C. H. R. Steenstrup, *Normannerne* (4 vols., 1876-1882); and A. Bugge, *Vikingerne* (2 vols.).

(A. Mw.)

DANGERFIELD, THOMAS (*c.* 1650-1685), English conspirator, was born about 1650 at Waltham, Essex, the son of a farmer. He began his career by robbing his father, and, after a rambling life, took to coining false money, for which offence and others he was many times imprisoned. False to everyone, he first tried to involve the duke of Monmouth and others by concocting information about a Presbyterian plot against the throne, and this having been proved a lie, he pretended to have discovered a Catholic plot against Charles II. This was known as the "Meal-tub Plot," from the place where the incriminating documents were hidden at his suggestion, and found by the king's officers by his information. Mrs Elizabeth Cellier,—in whose house the tub was,—almoner to the countess of Powis, who had befriended Dangerfield when he posed as a Catholic, was, with her patroness, actually tried for high treason and acquitted (1680). Dangerfield, when examined at the bar of the House of Commons, made other charges against prominent Papists, and attempted to defend his character by publishing, among other pamphlets, *Dangerfield's Narrative*. This led to his trial for libel, and on the 29th of June 1685 he received sentence to stand in the pillory on two consecutive days, be whipped from Aldgate to Newgate, and two days later from Newgate to Tyburn. On his way back he was struck in the eye with a cane by a barrister, Robert Francis, and died shortly afterwards from the blow. The barrister was, tried and executed for the murder.

DANIEL, the name given to the central figure[1] of the biblical Book of Daniel (see below), which is now generally regarded as a production dating from the time of Antiochus Epiphanes (175-164 B.C.). There are no means of ascertaining anything definite concerning the origin of the hero Daniel. The account of him in Dan. i. has been generally misunderstood. According to i. 3, the Babylonian chief eunuch was commanded to bring "certain of the children of Israel, and of the king's seed, and of the nobles" to serve in the court. Many commentators have considered this to mean that some of the children were of the royal Judaean line of Jewish noble families, an interpretation which is not justified by the wording of the passage, which contains nothing to indicate that the author meant to convey the idea that Daniel was either royal or noble. Josephus,[2] never doubting the historicity of Daniel, made the prophet a relative of Zedekiah and consequently of Jehoiakim, a conclusion which he apparently drew from the same passage, i. 3. Pseudo-Epiphanius,[3] again, probably having the same source in mind, thought that Daniel was a Jewish noble. The true Epiphanius[4] even gives the name of his father as Sabaan, and states that the prophet was born at Upper Beth-Horon, a village near Jerusalem. The after life and death of the seer are as obscure as his origin. The biblical account throws no light on the subject. According to the rabbis,[5] Daniel went back to Jerusalem with the return of the captivity, and is supposed to have been one of the founders of the mythical Great Synagogue. Other traditions affirm that he died and was buried in Babylonia in the royal vault, while the Jewish traveller Benjamin of Tudela (12th cent. A.D.) was shown his tomb in Susa, which is also mentioned by the Arab, Abulfaragius (Bar-hebraeus). The author of *Daniel* did not pretend to give any sketch of the prophet's career, but was content merely with making him the central figure, around which to group more or less disconnected narratives and accounts of visions. In view of these facts, and also of the generally inaccurate character of all the historical statements in the work, there is really no evidence to prove even the existence of the Daniel described in the book bearing his name.

The question at once arises as to where the Maccabaean author of *Daniel* could have got the name and personality of his Daniel. It is not probable that he could have invented both name and character. There is an allusion in the prophet Ezekiel (xiv. 14, 20, xxviii. 3) to a Daniel whom he places as a great personality between Noah and Job. But this could not be our Daniel, whom Ezekiel, probably a man of ripe age at the time of the Babylonian deportation of the Jews, would hardly have mentioned in the same breath with two such characters, much less have put him *between* them, because, had the Daniel of the biblical book existed at this time, he would have been a mere boy, lacking any such distinction as to make him worthy of so high a mention. It is evident that Ezekiel considered his Daniel to be a celebrated ancient prophet, concerning whose date and origin, however, there is not a single trace to guide research. Hitzig's[6] conjecture that the Daniel of Ezekiel was Melchizedek is quite without foundation. The most that can be said in this connexion is that there may really have been a spiritual leader of the captive Jews who resided at Babylon and who was either named Daniel, perhaps after the unknown patriarch mentioned by Ezekiel, or to whom the same name had been given in the course of tradition by some historical confusion of persons. Following this hypothesis, it must be assumed that the fame of this Judaeo-Babylonian leader had been handed down through the unclear medium of oral tradition until the time of Antiochus Epiphanes, when some gifted Jewish author, feeling the need of producing a work which should console his people in their affliction under the persecutions of that monarch, seized upon the personality of the seer who lived during a time of persecution bearing many points of resemblance to that of Antiochus IV., and moulded some of the legends than extant about the life and activity of this misty prophet into such a form as should be best suited to a didactic purpose.[7]

Daniel, Book of.—The Book of Daniel stands between Ezra and Esther in the third great division of the Hebrew Bible known as the *Hagiographa*, in which are classed all works which were not regarded as being part of the Law or the Prophets. The book presents the unusual peculiarity of being written in two languages, i.-ii. 4 and viii.-xii. being in Hebrew, while the text of ii. 4-vii. is the Palestinian dialect of Aramaic.[8] The subject matter, however, falls naturally into two divisions which are not co-terminous with the linguistic sections; viz. i.-vi. and vii.-xii. The first of these sense-divisions deals only with narratives regarding the reign of Nebuchadrezzar and his supposed son Belshazzar, while the second section consists exclusively of apocalyptic prophecies. There can be no doubt that a definite plan was followed in the arrangement of the work. The author's object was clearly to demonstrate to his readers the necessity of faith in Israel's God, who shall not for ever allow his chosen ones to be ground under the heel of a ruthless heathen oppressor. To illustrate this, he makes use on the one hand (i.-vi.) of carefully chosen narratives, somewhat loosely connected it is true, but all treating substantially the same subject,—the physical triumph of God's servant over his unbelieving enemies; and on the other hand (vii.-xii.), he introduces certain prophetic visions illustrative of God's favour towards the same servant, Daniel. So carefully is this record of the visions arranged that the first two chapters of the second part of the book (vii.-viii.) were no doubt purposely made to appear in a symbolic form, in order that in the last two revelations (xi.-xii.), which were couched in such direct language as to be intelligible even to the modern student of history, the author might obtain the effect of a climax. The book is probably not therefore a number of parts of different origin thrown loosely together by a careless editor, who does not deserve the title of author.[9] The more or less disconnected sections of the first part of the work were probably so arranged purposely, in order to facilitate its diffusion at a time when books were known to the people at large chiefly by being read aloud in public.

Various attempts have been made to explain the sudden change from Hebrew to Aramaic in ii. 4. It was long thought, for example, that Aramaic was the vernacular of Babylonia and was consequently employed as the language of the parts relating to that country. But this was not the case, because the Babylonian language survived until a later date than that of the events portrayed in Daniel.[10] Nor is it possible to follow the theory of Merx, that Aramaic, which was the popular tongue of the day when the Book of Daniel was written, was therefore used for the simpler narrative style, while the more learned Hebrew was made the idiom of the philosophical portions.[11] The first chapter, which is just as much in the narrative style as are the following Aramaic sections, is in Hebrew, while the distinctly apocalyptic chapter vii. is in Aramaic. A third view, that the bilingual character of the work points to a time when both languages were used indifferently, is equally unsatisfactory,[12] because it is highly questionable whether two idioms can ever be used quite indifferently. In fact, a hybrid work in two languages would be a literary monstrosity. In view of the apparent unity of the entire work, the only possible explanation seems to be that the book was written at first all in Hebrew, but for the convenience of the general reader whose vernacular was Aramaic, a translation, possibly from the same pen as the original, was made into Aramaic. It must be supposed then that, certain parts of the original Hebrew manuscript being lost, the missing places were supplied from the current Aramaic translation.[13]

It cannot be denied in the light of modern historical research that if the Book of Daniel be regarded as pretending to full historical authority, the biblical record is open to all manner of attack. It is now the general opinion of most modern scholars who study the Old Testament from a critical point of view that this work cannot possibly have originated, according to the traditional theory, at any time during the Babylonian monarchy, when the events recorded are supposed to have taken place.

The chief reasons for such a conclusion are as follows.[14]

1. The position of the book among the *Hagiographa*, instead of among the Prophetical works, seems to show that it was introduced after the closing of the Prophetical Canon. Some commentators have believed that Daniel was not an actual prophet in the proper sense, but only a seer, or else that he had no official standing as a prophet and that therefore the book was not entitled to a place among official prophetical books. But if the work had really been in existence at the time of the completion of the second part of the canon, the collectors of the prophetical writings, who in their care did not neglect even the parable of Jonah, would hardly have ignored the record of so great a prophet as Daniel is represented to have been.

2. Jesus ben Sirach (Ecclesiasticus), who wrote about 200-180 B.C., in his otherwise complete list of Israel's leading spirits (xlix.), makes no mention of Daniel. Hengstenberg's plea that Ezra and Mordecai were also left unmentioned has little force, because Ezra appears in the book bearing his name as nothing more than a prominent priest and scholar, while Daniel is represented as a great prophet.

3. Had the Book of Daniel been extant and generally known after the time of Cyrus (537-529 B.C.), it would be natural to look for some traces of its power among the writings of Haggai, Zechariah and Malachi, whose works, however, show no evidence that either the name or the history of Daniel was known to these authors. Furthermore, the manner in which the prophets are looked back upon in ix. 6-10 cannot fail to suggest an extremely late origin for the book. Besides this, a careful study of ix. 2 seems to indicate that the Prophetical Canon was definitely completed at the time when the author of Daniel wrote. It is also highly probable that much of the material in the second part of the book was suggested by the works of the later prophets, especially by Ezekiel and Zechariah.

4. Some of the beliefs set forth in the second part of the book also practically preclude the possibility of the author having lived at the courts of Nebuchadrezzar and his successors. Most noticeable among these doctrines is the complete system of angelology consistently followed out in the Book of Daniel, according to which the management of human affairs is entrusted to a regular hierarchy of commanding angels, two of whom, Gabriel and Michael, are even mentioned by name. Such an idea was distinctly foreign to the primitive Israelitish conception of the indivisibility of Yahweh's power, and must consequently have been a borrowed one. It could certainly not have come from the Babylonians, however, whose system of attendant spirits was far from being so complete as that which is set forth in the Book of Daniel, but rather from Persian sources where a more complicated angelology had been developed. As many commentators have brought out, there can be little doubt that the doctrine of angels in Daniel is an indication of prolonged Persian influence. Furthermore, it is now very generally admitted that the doctrine of the resurrection of the dead, which is advanced for the first time in the Old Testament in Daniel, also originated among the Persians,[15] and could only have been engrafted on the Jewish mind after a long period of intercourse with the Zoroastrian religion, which came into contact with the Jewish thinkers considerably after the time of Nebuchadrezzar.

5. All the above evidences are merely internal, but we are now able to draw upon the Babylonian historical sources to prove that Daniel could not have originated at the time of Nebuchadrezzar. There can be no doubt that the author of Daniel thought that Belshazzar (q.v.), who has now been identified beyond all question with *Bel-šar-uzur*, the son of Nabonidus, the last Semitic king of Babylon, was the son of Nebuchadrezzar, and that Belshazzar attained the rank of king.[16] This prince did not even come from the family of Nebuchadrezzar. Nabonidus, the father of Belshazzar, was the son of a nobleman *Nabu-baladsu-iqbi*, who was in all probability not related to any of the preceding kings of Babylon. Had Nabonidus been descended from Nebuchadrezzar he could hardly have failed in his records, which we possess, to have boasted of such a connexion with the greatest Babylonian monarch; yet in none of his inscriptions does he trace his descent beyond his father. Certain expositors have tried to obviate the difficulty, first by supposing that the expression "son of Nebuchadrezzar" in Daniel means "descendant" or "son," a view which is rendered untenable by the facts just cited. This school has also endeavoured to prove that the author of Daniel did not mean to imply Belshazzar's kingship of

Babylon at all by his use of the word "king," but they suggest that the writer of Daniel believed Belshazzar to have been co-regent. If Belshazzar had ever held such a position, which is extremely unlikely in the absence of any evidence from the cuneiform documents, he would hardly have been given the unqualified title "king of Babylon" as occurs in Daniel.[17] For example, Cambyses, son of Cyrus, was undoubtedly co-regent and bore the title "king of Babylon" during his father's lifetime, but, in a contract which dates from the first year of Cambyses, it is expressly stated that Cyrus was still "king of the lands." This should be contrasted with Dan. viii. 1, where reference is made to the "third year of Belshazzar, king of Babylon" without any allusion to another over-ruler. Such attempts are at best subterfuges to support an impossible theory regarding the origin of the Book of Daniel, whose author clearly believed in the kingship of Belshazzar and in that prince's descent from Nebuchadrezzar.

Furthermore, the writer of Daniel asserts (v. 1) that a monarch "Darius the Mede" received the kingdom of Babylon after the fall of the native Babylonian house, although it is evident, from i. 21, x. 1, that the biblical author was perfectly aware of the existence of Cyrus.[18] The fact that in no other scriptural passage is mention made of any Median ruler between the last Semitic king of Babylon and Cyrus, and the absolute silence of the authoritative ancient authors regarding such a king, make it apparent that the late author of Daniel is again in error in this particular. It is known that Cyrus became master of Media by conquering Astyages, and that the troops of the king of Persia capturing Babylon took Nabonidus prisoner with but little difficulty. Unsuccessful attempts have been made to identify this mythical Darius with the Cyaxares, son of Astyages, of Xenophon's *Cyropaedia*, and also with the Darius of Eusebius, who was in all probability Darius Hystaspis. There is not only no room in history for this Median king of the Book of Daniel, but it is also highly likely that the interpolation of "Darius the Mede" was caused by a confusion of history, due both to the destruction of the Assyrian capital Nineveh by the Medes, sixty-eight years before the capture of Babylon by Cyrus, and also to the fame of the later king, Darius Hystaspis, a view which was advanced as early in the history of biblical criticism as the days of the Benedictine monk, Marianus Scotus. It is important to note in this connexion that Darius the Mede is represented as the son of Xerxes (Ahasuerus) and it is stated that he established 120 satrapies. Darius Hystaspis was the father of Xerxes, and according to Herodotus (iii. 89) established twenty satrapies. Darius the Mede entered into possession of Babylon after the death of Belshazzar; Darius Hystaspis conquered Babylon from the hands of certain rebels (Her. iii. 153-160). In fine, the interpolation of a Median Darius must be regarded as the most glaring historical inaccuracy of the author of Daniel. In fact, this error of the author alone is proof positive that he must have lived at a very late period, when the record of most of the earlier historical events had become hopelessly confused and perverted.

With these chief reasons why the Book of Daniel cannot have originated in the Babylonian period, if the reader will turn more especially to the apocalyptic sections (vii.-xii.), it will be quite evident that the author is here giving a detailed account of historical events which may easily be recognized through the thin veil of prophetic mystery thrown lightly around them. It is indeed highly suggestive that just those occurrences which are the most remote from the assumed standpoint of the writer are the most correctly stated, while the nearer we approach the author's supposed time, the more inaccurate does he become. It is quite apparent that the predictions in the Book of Daniel centre on the period of Antiochus Epiphanes (175-164 B.C.), when that Syrian prince was endeavouring to suppress the worship of Yahweh and substitute for it the Greek religion.[19] There can be no doubt, for example, that in the "Little Horn" of vii. 8, viii. 9, and the "wicked prince" described in ix.-x., who is to work such evil among the saints, we have clearly one and the same person. It is now generally recognized that the king symbolized by the Little Horn, of whom it is said that he shall come of one of four kingdoms which shall be formed from the Greek empire after the death of its first king (Alexander), can be none other than Antiochus Epiphanes, and in like manner the references in ix. must allude to the same prince. It seems quite clear that xi. 21-45 refers to the evil deeds of Antiochus IV. and his attempts against the Jewish people and the worship of Yahweh. In xii. follows the promise of salvation from the same tyrant, and, strikingly enough, the predictions in this last section, x.-xii., relating to future events, become inaccurate as soon as the author finishes the section describing the reign of Antiochus Epiphanes. The general style of all these prophecies differs materially from that of all other prophetic writings in the Old Testament. Other prophets confine themselves to vague and general predictions, but the author of Daniel is strikingly particular as to detail in everything relating to the period in which he lived, i.e. the reign of Antiochus IV. Had the work been composed during the Babylonian era, it would be more natural to expect prophecies of the return of the exiled Jews to Palestine, as in Jeremiah, Ezekiel and Isaiah, rather than the acclamation of an ideal Messianic kingdom such as is emphasized in the second part of Daniel.

As a specimen of the apocalyptic method followed in Daniel, the celebrated prophecy of the seventy weeks (ix. 24-27) may be cited, a full discussion of which will be found in Prince, *Daniel* 157-161. According to Jer. xxv. 11-12, the period of Israel's probation and trial was to last seventy years. In the angelic explanation in Daniel of Jeremiah's prophecy, these years were in reality year-weeks, which indicated a period of 490 years. This is the true apocalyptic system. The author takes a genuine prophecy, undoubtedly intended by Jeremiah to refer simply to the duration of the Babylonian captivity, and, by means of a purely arbitrary and mystical interpretation, makes it denote the entire period of Israel's degradation down to his own time. This prophecy is really nothing more than an extension of the vision of the 2300 evening-mornings of viii. 14, and of the "time, times and a half a time" of vii. 25. The real problem is as to the beginning and end of this epoch, which is divided into three periods of uneven length; viz. one of seven weeks; one of sixty-two weeks; and the last of one week. It seems probable that the author of Daniel, like the Chronicler, began his period with the fall of Jerusalem in 586. His first seven weeks, therefore, ending with the rule of "Messiah the Prince,"[20] probably Joshua ben Jozadak, the first high-priest after the exile (Ezra iii. 2), seem to coincide exactly with the duration of the Babylon exile, i.e. forty-nine years.

The second period of the epoch, during which Jerusalem is to be peopled and built, and at the end of which the Messiah is to be cut off, is much more difficult to determine. The key to the problem lies undoubtedly in the last statement regarding the overthrow of the Messiah or Anointed One. Such a reference coming from a Maccabean author can only allude to the deposition by Antiochus IV. of the high-priest Onias III., which took place about 174 B.C., and the Syrian king's subsequent murder of the same person not later than 171 (2 Macc. iv. 33-36). The difficulty now arises that between 537 and 171 there are only 366 years instead of the required number 434. It was evidently not the author's intention to begin the second period of sixty weeks simultaneously with the first period, as some expositors have thought, because the whole passage shows conclusively that he meant seventy independent weeks. Besides, nothing is gained by such a device, which would bring the year of the end of the second period down to the meaningless date 152, too late to refer to Onias. Cornill therefore adopted the only tenable theory regarding the problem; viz. that the author of Daniel did not know the chronology between 537 and 312, the establishment of the Seleucid era, and consequently made the period too long. A parallel case is the much quoted example of Demetrius, who placed the fall of Samaria (722 B.C.) 573 years before the succession of Ptolemy IV. (222), thus making an error of seventy-three years. Josephus, who places the reign of Cyrus forty to fifty years too early, makes a similar error.

The last week is divided into two sections (26-27), in the first of which the city and sanctuary shall be destroyed and in the second the daily offering is to be suspended. All critical scholars recognize the identity of this second half-week with the "time, times and a half a time" of vii. 25. This last week must, therefore, end with the restoration of the temple worship in 164 B.C.

This whole prophecy, which is perhaps the most interesting in the Book of Daniel, presents problems which can never be thoroughly understood, first because the author must have been ignorant of both history and chronology, and secondly, because, in his effort to be as mystical as possible, he purposely made use of indefinite and vague expressions which

render the criticism of the passage a most unsatisfactory task.

The Book of Daniel loses none of its beauty and force because we are bound, in the light of modern criticism, to consider it as a production of the reign of Antiochus Epiphanes, nor should conservative Bible-readers lament because the historical accuracy of the work is thus destroyed. The influence of the work was very great on the subsequent development of Christianity, but it was not the influence of the *history* contained in it which made itself felt, but rather of that sublime hope for a future deliverance of which the author of Daniel never lost sight. The allusion to the book by Jesus (Matt. xxiv. 15) shows merely that our Lord was referring to the work by its commonly accepted title, and implies no authoritative utterance with regard to its date or authorship. Our Lord simply made use of an apt quotation from a well-known work in order to illustrate and give additional force to his own prediction. If the book be properly understood, it must not only be admitted that the author made no pretence at accuracy of detail, but also that his prophecies were clearly intended to be merely an historical résumé, clothed for the sake of greater literary vividness in a prophetic garb. The work, which is certainly not a forgery, but only a consolatory political pamphlet, is just as powerful, viewed according to the author's evident intention, as a consolation to God's people in their dire distress at the time of Antiochus Epiphanes, as if it were, what an ancient but mistaken tradition had made it, really an accurate account of events which took place at the close of the Babylonian period.[21]

Literature.—See bibliography in Bevan, *Daniel* 9, and add Kamphausen, *Dan.*, in Haupt's *Sacred Books of the Old Testament*; Behrmann, *Dan.* (1894); J. D. Prince, *Dan.* (1899); G. A. Barton, "The Compilation of the Book of Daniel," in *Journ. Bibl. Lit.* (1898), 62-86, against the unity of the book, &c., &c.; J. D. Davis, "Persian Words and the Date of O.T. Documents," in *Old Testament and Semitic Studies: in Memory of W. R. Harper* (Chicago, 1908).

(J. D. Pr.)

Additions to Daniel.—The "additions to Daniel" are three in number: *Susannah and the Elders*, *Bel and the Dragon*, and *The Song of the Three Children*. Of these the two former have no organic connexion with the text. The case is otherwise with regard to the last. In some respects it helps to fill up a gap in the canonical text between verses 23 and 24 of chapter iii. And yet we find Polychronius, early in the 5th century, stating that this song was not found in the Syriac version.

Susannah.—This addition was placed by Theodotion before chap. i., and Bel and the Dragon at its close, whereas by the Septuagint and the Vulgate it was reckoned as chap. xiii. after the twelve canonical chapters, Bel and the Dragon as xiv. Theodotion's version is the source of the Peshitto and the Vulgate, for all three additions, and the Septuagint is the source of the Syro-Hexaplaric which has been published by Ceriani (*Mon. Sacr.* vii.). The legend recounts how that in the early days of the Captivity Susannah, the beautiful and pious wife of the rich Joakim, was walking in her garden and was there seen by two elders who were also judges. Inflamed with lust, they made infamous proposals to her, and when repulsed they brought against her a false charge of adultery. When brought before the tribunal she was condemned to death and was on the way to execution, when Daniel interposed and, by cross-questioning the accusers apart, convinced the people of the falsity of the charge.

The source of the story may, according to Ewald (*Gesch.*³ iv. 636), have been suggested by the Babylonian legend of the seduction of two old men by the goddess of love (see also Koran, *Sur.* ii. 96). Another and much more probable origin of the work is that given by Brüll (*Das apocr. Susanna-Buch*, 1877) and Ball (*Speaker's Apocr.* ii. 323-331). The first half of the story is based on a tradition—originating possibly in Jer. xxix. 21-32 and found in the Talmud and Midrash—of two elders Ahab and Zedekiah, who in the Captivity led certain women astray under the delusion that they should thereby become the mother of the Messiah. But the most interesting part of the investigation is concerned with the latter half of the story, which deals with the trial. The characteristics of this section point to its composition about 100-90 B.C., when Simon ben Shetaḥ was president of the Sanhedrin. Its object was to support the attempts of the Pharisees to bring about a reform in the administration of the law courts. According to Sadducean principles the man who was convicted of falsely accusing another of a capital offence was not put to death unless his victim was already executed. The Pharisees held that the intention of the accusers was equivalent to murder. Our apocryph upholds the Pharisaic contention. As Simon ben Shetaḥ insisted on a rigorous examination of the witnesses, so does our writer: as he and his party required that the perjurer should suffer the same penalty he sought to inflict on another, so our writer represents the death penalty as inflicted on the perjured elders.

The language was in all probability Semitic-Hebrew or Aramaic. The paronomasiae in the Greek in verses 54-55 (ὑπὸ σχῖνον ... σχίσει) and 58-59 (ὑπὸ πρῖνον ... πρίσει) present no cogent difficulty against this view; for they may be accidental and have arisen for the first time in the translation. But as Brüll and Ball have shown (see *Speaker's Apocr.* ii. 324), the same paronomasiae are possible either in Hebrew or Aramaic.

Literature.—Ball in the *Speaker's Apocr.* ii. 233 sqq.; Schürer, *Gesch.*³ iii. 333; Rothstein in Kautzsch's *Apocr. u. Pseud.* i. 176 sqq.; Kamphausen in *Ency. Bib.*; Marshall in Hastings' *Bible Dict.*; Toy in the *Jewish Encyc.*

Bel and the Dragon.—We have here two independent narratives, in both of which Daniel appears as the destroyer of heathenism. The latter had a much wider circulation than the former, and is most probably a Judaized form of the old Semitic myth of the destruction of the old dragon, which represents primeval chaos (see Ball, *Speaker's Apocr.* ii. 346-348; Gunkel, *Schöpfung und Chaos*, 320-323). Marduk destroys Tiamat in a similar manner to that in which Daniel destroys the dragon (Delitzsch, *Das babylonische Weltschöpfung Epos*), by driving a storm-wind into the dragon which rends it asunder. Marshall (Hastings' *Bib. Dict.* i. 267) suggests that the "pitch" of the Greek (Aramaic זיפא) arose from the original term for storm-wind (זעפא).

The Greek exists in two recensions, those of the Septuagint and Theodotion. Most scholars maintain a Greek original, but this is by no means certain. Marshall (Hastings' *Bib Dict.* i. 268) argues for an Aramaic, and regards Gasters's Aramaic text [*Proceedings of the Society of Biblical Archaeology* (1894), pp. 280-290, 312-317; (1895) 75-94] as of primary value in this respect, but this is doubtful.

Literature.—Fritzsche's *Handbuch zu den Apoc.*; Ball in the *Speaker's Apocr.* ii. 344 sqq.; Schürer,³ *Gesch.* iii. 332 sqq.; and the articles in the *Ency. Bibl., Bible Dict.*, and *Jewish Encyc.*

The Greek text is best given in Swete iii., and the Syriac will be found in Walton's *Polyglot*, Lagarde and Neubauer's *Tobit.*

Song of the Three Children.—This section is composed of the Prayer of Azariah and the Song of Azariah, Ananias and Misael, and was inserted after iii. 23 of the canonical text of Daniel. According to Fritzsche, König, Schürer, &c., it was composed in Greek and added to the Greek translation. On the other hand, Delitzsch, Bissell, Ball, &c., maintain a Hebrew original. The latter view has been recently supported by Rothstein, *Apocr. und Pseud.* i. 173-176, who holds that these additions were made to the text before its translation into Greek. These additions still preserve, according to Rothstein, a fragment of the original text, i.e. verses 23-28, which came between verses 23 and 24 of chapter iii. of the canonical text. They certainly fill up excellently a manifest gap in this text. "The Song of the Three Children" was first added after the verses just referred to, and subsequently the Prayer of Azariah was inserted before these verses.

Literature.—Ball in the *Speaker's Apocr.* ii. 305 sqq.; Rothstein in Kautzsch's *Apocr. und Pseud.* i. 173 sqq.; Schürer,³ *Gesch.* iii. 332 sqq.

(R. H. C.)

1 Four personages of the name of Daniel appear in the Old Testament: (1) the patriarch of Ezekiel (see above); (2) a son of David (1 Chron. iii. 1); (3) a Levite contemporary with Ezra (Ezra viii. 2; Neh. x. 6); (4) our Daniel.

2 Ant. x. 10, 1.

3 Chap, x., on the Prophets.

4 Panarion, *adv.* Haeres. 55, 3.

5 Prince, *Dan.* p. 26, n. 6.

6 *Dan.* p. viii.

7 The account in chap. ii. of the promotion of Daniel to be governor of Babylon, as a reward for his correct interpretation of Nebuchadrezzar's dream, is very probably an imitation of the story of Joseph in Gen. xl-xli. The points of resemblance are very striking. In both accounts, we have a young Hebrew raised by the favour of a heathen king to great political prominence, owing to his extraordinary God-given ability to interpret dreams. In both versions, the heathen astrologers make the first attempt to solve the difficulty, which results in failure, whereupon the pious Israelite, being summoned to the royal presence, in both cases through the friendly intervention of a court official, triumphantly explains the mystery to the king's satisfaction (cf. Prince, *Dan.* p. 29).

8 See Bevan, *Dan.* 28-40, on the Hebrew and Aramaic of Daniel.

9 According to Lagarde, *Mitteilungen*, iv. 351 (1891); also Gött, *Gelehrte Anzeigen* (1891), 497-520.

10 The latest connected Babylonian inscription is that of Antiochus Soter (280-260 B.C.), but the language was probably spoken until Hellenic times; cf. Gutbrod, *Zeitschr. für Assyriol.* vi. 27.

11 Prince, *Dan.* 12.

12 Bertholdt, Dan. 15; Franz Delitzsch, in Herzog, *Realencyklopädie*, 2nd ed., iii. 470.

13 Bevan, *Dan.* 27 ff.; Prince, *Dan.* 13.

14 For this whole discussion, see Prince, *Dan.* 15 ff.

15 The investigations of Haug, Spiegel and Windischmann show that this was a real Zoroastrian doctrine.

16 Prince, *Dan.* 35-42.

17 Certain tablets published by Strassmaier, bearing date continuously from Nabonidus to Cyrus, show that neither Belshazzar nor "Darius the Mede" could have had the title "king of Babylon." See Driver, *Introduction*,[3] xxii.

18 Prince, *Dan.* 44-56.

19 Prince, *Dan.* 19-20, 140, 155, 179 ff.

20 That "Messiah" or "Anointed One" was used of the High-Priest is seen from Lev. x, 3, v. 16.

21 Prince, *Dan.* 22-24.

DANIEL (Danil), of Kiev, the earliest Russian travel-writer, and one of the leading Russian travellers in the middle ages. He journeyed to Syria and other parts of the Levant about 1106-1107. He was the *igumen*, or abbot, of a monastery probably near Chernigov in Little Russia: some identify him with one Daniel, bishop of Suriev (fl. 1115-1122). He visited Palestine in the reign of Baldwin I., Latin king of Jerusalem (1100-1118), and apparently soon after the crusading capture of Acre (1104); he claims to have accompanied Baldwin, who treated him with marked friendliness, on an expedition against Damascus (*c.* 1107). Though Daniel's narrative, beginning (as it practically ends) at Constantinople, omits some of the most interesting sections of his journey, his work has considerable value. His picture of the Holy Land preserves a record of conditions (such as the Saracen raiding almost up to the walls of Christian Jerusalem, and the friendly relations subsisting between Roman and Eastern churches in Syria) peculiarly characteristic of the time; his account of Jerusalem itself is remarkably clear, minute and accurate; his three excursions—to the Dead Sea and Lower Jordan (which last he compares to a river of Little Russia, the Snov), to Bethlehem and Hebron, and towards Damascus—gave him an exceptional knowledge of certain regions. In spite of some extraordinary blunders in topography and history, his observant and detailed record, marked by evident good faith, is among the most valuable of medieval documents relating to Palestine: it is also important in the history of the Russian language, and in the study of ritual and liturgy (from its description of the Easter services in Jerusalem, the Descent of the Holy Fire, &c.). Several Russian friends and companions, from Kiev and Old Novgorod, are recorded by Daniel as present with him at the Easter Eve "miracle," in the church of the Holy Sepulchre.

There are seventy-six MSS. of Daniel's Narrative, of which only five are anterior to A.D. 1500; the oldest is of 1475 (St Petersburg, Library of Ecclesiastical History 9/1086). Three editions exist, of which I. P. Sakharov's (St Petersburg, 1849) is perhaps the best known (in *Narratives of the Russian People*, vol. ii. bk. viii. pp. 1-45). See also the French version in *Itinéraires russes en orient*, ed M^{e} B. de Khitrovo (Geneva, 1889) (*Société de l'orient latin*); and the account of Daniel in C. R. Beazley, *Dawn of Modern Geography*, ii. 155-174.

(C. R. B.)

DANIEL, GABRIEL (1649-1728), French Jesuit historian, was born at Rouen on the 8th of February 1649. He was educated by the Jesuits, entered the order at the age of eighteen, and became superior at Paris. He is best known by his *Histoire de France depuis l'établissement de la monarchie française* (first complete edition, 1713), which was republished in 1720, 1721, 1725, 1742, and (the last edition, with notes by Father Griffet) 1755-1760. Daniel published an abridgment in 1724 (English trans., 1726), and another abridgment was published by Dorival in 1751. Though full of prejudices which affect his accuracy, Daniel had the advantage of consulting valuable original sources. His *Histoire de la milice française*, &c. (1721) is superior to his *Histoire de France*, and may still be consulted with advantage. Daniel also wrote a by no means successful reply to Pascal's *Provincial Letters*, entitled *Entretiens de Cléanthe et d'Eudoxe sur les lettres provinciales* (1694); two treatises on the Cartesian theory as to the intelligence of the lower animals, and other works.

See Sommervogel, *Bibliothèque de la Compagnie de Jésus*, t. ii.

DANIEL, SAMUEL (1562-1619), English poet and historian, was the son of a music-master, and was born near Taunton, in Somersetshire, in 1562. Another son, John Daniel, was a musician, who held some offices at court, and was the author of *Songs for the Lute, Viol and Voice* (1606). In 1579 Samuel was admitted a commoner of Magdalen Hall, Oxford, where he remained for about three years, and then gave himself up to the unrestrained study of poetry and philosophy. The name of Samuel Daniel is given as the servant of Lord Stafford, ambassador in France, in 1586, and probably refers to the poet. He was first encouraged and, if we may believe him, taught in verse, by the famous countess of Pembroke, whose honour he was never weary of proclaiming. He had entered her household as tutor to her son, William Herbert. His first known work, a translation of Paulus Jovius, to which some original matter is appended, was printed in 1585. His first known volume of verse is dated 1592; it contains the cycle of sonnets to *Delia* and the romance called *The Complaint of Rosamond*. Twenty-seven of the sonnets had already been printed at the end of Sir Philip Sidney's *Astrophel and Stella* without the author's consent. Several editions of *Delia* appeared in 1592, and they were very frequently reprinted during Daniel's lifetime. We learn by internal evidence that Delia lived on the banks of Shakespeare's river, the Avon, and that the sonnets to her were inspired by her memory when the poet was in Italy. To an edition of *Delia* and *Rosamond*, in 1594, was added the tragedy of *Cleopatra*, a severe study in the manner of the ancients, in alternately rhyming heroic verse, diversified by stiff choral interludes. *The First Four Books of the Civil Wars*, an historical poem in *ottava rima*, appeared in 1595. The bibliography of Daniel's works is attended with great difficulty, but as far as is known it was not until 1599 that there was published a volume entitled *Poetical Essays*, which contained, besides the "Civil Wars," "Musophilus," and "A letter from Octavia to Marcus Antonius," poems in Daniel's finest and most mature manner. About this time he became tutor to Anne Clifford, daughter of the countess of Cumberland. On the death of Spenser, in the same year, Daniel received the somewhat vague office of poet-laureate, which he seems, however, to have shortly resigned in favour of Ben Jonson. Whether it was on this occasion is not known, but about this time, and at the recommendation of his brother-in-law, Giovanni Florio, he was taken into favour at court, and wrote a *Panegyric Congratulatorie offered to the King at Burleigh Harrington in Rutlandshire*, in *ottava rima*. In 1603 this poem was published, and in many cases copies contained in addition his *Poetical Epistles* to his patrons and an elegant prose essay called *A Defence of Rime* (originally printed in 1602) in answer to Thomas Campion's *Observations on the Art of English Poesie*, in which it was contended that rhyme was unsuited to the genius of the English language. In 1603, moreover, Daniel was appointed master of the queen's revels. In this capacity he brought out a series of masques and pastoral tragi-comedies,—of which were printed *A Vision of the Twelve Goddesses*, in 1604; *The Queen's Arcadia*, an adaptation of Guarini's *Pastor Fido*, in 1606; *Tethys Festival or the Queenes Wake*, written on the occasion of Prince Henry's becoming a Knight of the Bath, in 1610; and *Hymen's Triumph*, in honour of Lord Roxburgh's marriage in 1615. Meanwhile had appeared, in 1605, *Certain Small Poems*, with the tragedy of *Philotas*; the latter was a study, in the same style as *Cleopatra*, written some five years earlier. This drama brought its author into difficulties, as Philotas, with whom he expressed some sympathy, was taken to represent Essex. In 1607, under the title of *Certaine small Workes heretofore divulged by Samuel Daniel*, the poet issued a revised version of all his works except *Delia* and the *Civil Wars*. In 1609 the Civil Wars had been completed in eight books. In 1612 Daniel published a prose *History of England*, from the earliest times down to the end of the reign of Edward III. This work afterwards continued, and published in 1617, was very popular with Drayton's contemporaries. The section dealing with William the Conqueror was published in 1692 as being the work of Sir Walter Raleigh, apparently without sufficient grounds.

Daniel was made a gentleman-extraordinary and groom of the chamber to Queen Anne, sinecure offices which offered no hindrance to an active literary career. He was now acknowledged as one of the first writers of the time. Shakespeare, Selden and Chapman are named among the few intimates who were permitted to intrude upon the seclusion of a garden-house in Old Street, St Luke's, where, Fuller tells us, he would "lie hid for some months together, the more retiredly to enjoy the company of the Muses, and then would appear in public to converse with his friends." Late in life Daniel threw up his titular posts at court and retired to a farm called "The Ridge," which he rented at Beckington, near Devizes in Wiltshire. Here he died on the 14th of October 1619.

The poetical writings of Daniel are very numerous, but in spite of the eulogies of all the best critics, they were long neglected. This is the more singular since, during the 18th century, when so little Elizabethan literature was read, Daniel retained his poetical prestige. In later times Coleridge, Charles Lamb and others expended some of their most genial criticisms on this poet. Of his multifarious works the sonnets are now, perhaps, most read. They depart from the Italian sonnet form in closing with a couplet, as is the case with most of the sonnets of Surrey and Wyat, but they have a grace and tenderness all their own. Of a higher order is *The Complaint of Rosamond*, a soliloquy in which the ghost of the murdered woman appears and bewails her fate in stanzas of exquisite pathos. Among the *Epistles to Distinguished Persons* will be found some of Daniel's noblest stanzas and most polished verse. The epistle to Lucy, countess of Bedford, is remarkable among those as being composed in genuine *terza rima*, till then not used in English. Daniel was particularly fond of a four-lined stanza of solemn alternately rhyming iambics, a form of verse distinctly misplaced in his dramas. These, inspired it would seem by like attempts of the countess of Pembroke's, are hard and frigid; his pastorals are far more pleasing; and *Hymen's Triumph* is perhaps the best of all his dramatic writing. An extract from this masque is given in Lamb's *Dramatic Poets*, and it was highly praised by Coleridge. In elegiac verse he always excelled, but most of all in his touching address *To the Angel Spirit of the Most Excellent Sir Philip Sidney*. We must not neglect to quote *Musophilus* among the most characteristic writings of Daniel. It is a dialogue between a courtier and a man of letters, and is a general defence of learning, and in particular of poetic learning as an instrument in the education of the perfect courtier or man of action. It is addressed to Fulke Greville, and written, with much sententious melody, in a sort of *terza rima*, or, more properly, *ottava rima* with the couplet omitted. Daniel was a great reformer in verse, and the introducer of several valuable novelties. It may be broadly said of his style that it is full, easy and stately, without being very animated or splendid. It attains a high average of general excellence, and is content with level flights. As a gnomic writer Daniel approaches Chapman, but is far more musical and coherent. He is wanting in fire and passion, but he is preeminent in scholarly grace and tender, mournful reverie.

Daniel's works were edited by A. B. Grosart in 1885-1896.

(E. G.)

DANIELL, JOHN FREDERIC (1700-1845), English chemist and physicist, was born in London on the 12th of March 1790, and in 1831 became the first professor of chemistry at the newly founded King's College, London. His name is best known for his invention of the Daniell cell (*Phil. Trans.*, 1836), still extensively used for telegraphic and other purposes. He also invented the dew-point hygrometer known by his name (*Quar. Journ. Sci.*, 1820), and a register pyrometer (*Phil. Trans.*, 1830); and in 1830 he erected in the hall of the Royal Society a water-barometer, with which he carried out a large number of observations *(Phil. Trans.*, 1832). A process devised by him for the manufacture of illuminating gas from turpentine and resin was in use in New York for a time. His publications include *Meteorological Essays* (1823), an *Essay on Artificial Climate considered in its Applications to Horticulture* (1824), which showed the necessity of a humid atmosphere in hothouses devoted to tropical plants, and an *Introduction to the Study of Chemical Philosophy* (1839). He died suddenly of apoplexy on the 13th of March 1845, in London, while attending a meeting of the council of the Royal Society, of which

he became a fellow in 1813 and foreign secretary in 1839.

DANIELL, THOMAS (1749-1840), English landscape painter, was born at the Chertsey inn, kept by his father, in 1749, and apprenticed to an heraldic painter. Daniell, however, was animated with a love of the romantic and beautiful in architecture and nature. Up to 1784 he painted topographical subjects and flower pieces. By this time his two nephews (see below) had come under his influence, the younger, Samuel, being apprenticed to Medland the landscape engraver, and the elder, William, being under his own care. In this year (1784) he embarked for India accompanied by William, and found at Calcutta ample encouragement. Here he remained ten years, and on returning to London he published his largest work, *Oriental Scenery*, in six large volumes, not completed till 1808. From 1795 till 1828 he continued to exhibit Eastern subjects, temples, jungle hunts, &c., and at the same time continued the publication of illustrated works. These are—*Views of Calcutta*; *Oriental Scenery*, 144 plates; *Views in Egypt*; *Excavations at Ellora*; *Picturesque Voyage to China*. These were for the most part executed in aquatint. He was elected an Academician in 1799, fellow of the Royal Society about the same time, and at different times member of several minor societies. His nephews both died before him; his Indian period had made him independent, and he lived a bachelor life in much respect at Kensington till his death on the 19th of March 1840.

William Daniell (1769-1837), his nephew, was fourteen when he accompanied his uncle to India. His own publications, engraved in aquatint, were—*Voyage to India*; *Zoography*; *Animated Nature*; *Views of London*; *Views of Bootan*, a work prepared from his uncle's sketches; and a *Voyage Round Great Britain*, which occupied him several years. The British Institution made him an award of £100 for a "Battle of Trafalgar," and he was elected R.A. in 1822. He turned to panorama painting before his death, beginning in 1832 with Madras, the picture being enlivened by a representation of the Hindu mode of taming wild elephants.

Samuel Daniell, William's younger brother, was brought up as an engraver, and first appears as an exhibitor in 1792. A few years later he went to the Cape and travelled into the interior of Africa, with his sketching materials in his haversack. The drawings he made there were published, after his return, in his *African Scenery*. He did not rest long at home, but left for Ceylon in 1806, where he spent the remaining years of his life, publishing *The Scenery, Animals and Natives of Ceylon*.

DANNAT, WILLIAM T. (1853-), American artist, was born in New York city in 1853. He was a pupil of the Royal Academy of Munich and of Munkacsy, and became an accomplished draughtsman and a distinguished figure and portrait painter. He early attracted attention with sketches and pictures made in Spain, and a large composition, "The Quartette," now in the Metropolitan Museum of Art, New York, was one of the successes of the Paris Salon of 1884. Dannat settled in Paris, became an officer of the Legion of Honour, and is represented in the Luxembourg.

DANNECKER, JOHANN HEINRICH VON (1758-1841), German sculptor, was born at Stuttgart, where his father was employed in the stables of the duke of Württemberg, on the 15th of October 1758. The boy was entered in the military school at the age of thirteen, but after two years he was allowed to take his own taste for art. We find him at once associating with the young sculptors Scheffauer and Le Jeune, the painters Guibal and Harper, and also with Schiller, and the musician Zumsteeg. His busts of some of these are good; that of Schiller is well known. In his eighteenth year he carried off the prize at the Concours with his model of Milo of Crotona. On this the duke made him sculptor to the palace (1780), and for some time he was employed on child-angels and caryatides for the decoration of the reception rooms. In 1783 he left for Paris with Scheffauer, and placed himself under Pajou. His Mars, a sitting figure sent home to Stuttgart, marks this period; and we next find him, still travelling with his friend, at Rome in 1785, where he settled down to work hard for five years. Goethe and Herder were then in Rome and became his friends, as well as Canova, who was the hero of the day, and who had undoubtedly a great authoritative influence on his style. His marble statues of Ceres and Bacchus were done at this time. These are now in the Residenz-schloss, at Stuttgart. On his return to Stuttgart, which he never afterwards quitted except for short trips to Paris, Vienna and Zürich, the double influence of his admiration for Canova and his study of the antique is apparent in his works. The first was a girl lamenting her dead bird, which pretty light motive was much admired. Afterwards, Sappho, in marble for the Lustschloss, and two offering-bearers for the Jagdschloss; Hector, now in the museum, not in marble; the complaint of Ceres, from Schiller's poem; a statue of Christ, worthy of mention for its nobility, which has been skilfully engraved by Amsler; Psyche; kneeling water-nymph; Love, a favourite he had to repeat. These stock subjects with sculptors had freshness of treatment; and the Ariadne, done a little later, especially had a charm of novelty which has made it a European favourite in a reduced size. It was repeated for the banker Von Bethmann in Frankfort, and it now appears the ornament of the Bethmann Museum. Many of the illustrious men of the time were modelled by him. The original marble of Schiller is now at Weimar; after the poet's death it was again modelled in colossal size. Lavater, Metternich, Countess Stephanie of Baden, General Benkendorf and others are much prized. Dannecker was director of the Gallery of Stuttgart, and received many academic and other distinctions. His death in 1841 was preceded by a period of mental failure.

DANNEWERK, or Danewerk (Danish, *Dannevirke* or *Danevirke*, "Danes' rampart"), the ancient frontier rampart of the Danes against the Germans, extending 10½ m. from just south of the town of Schleswig to the marshes of the river Trene near the village of Hollingstedt. The rampart was begun by Guðoðr (*Godefridus*), king of Vestfold, early in the 9th century. In 934 it was passed by the German king Henry I., after which it was extended by King Harold Bluetooth (940-986), but was again stormed by the emperor Otto II. in 974. The chronicler Saxo Grammaticus mentions in his *Gesta Danorum* the "rampart of Jutland" (*Jutiae moenia*) as having been once more extended by Valdemar the Great (1157-1182), which has been cited among the proofs that Schleswig (*Sønderjylland*) forms an integral part of Jutland (*Manuel hist. de la question de Slesvig*, 1906). After the union of Schleswig and Holstein under the Danish crown, the Danevirke fell into decay, but in

1848 it was hastily strengthened by the Danes, who were, however, unable to hold it in face of the superiority of the Prussian artillery, and on the 23rd of April it was stormed. From 1850 onwards it was again repaired and strengthened at great cost, and was considered impregnable; but in the war of 1864 the Prussians turned it by crossing the Schlei, and it was abandoned by the Danes on the 6th of February without a blow. It was thereupon destroyed by the Prussians; in spite of which, however, a long line of imposing ruins still remains. The systematic excavation of these, begun in 1900, has yielded some notable finds, especially of valuable runic inscriptions (F. de Jessen, *La Question de Slesvig*, pp. 25, 44-50, &c.).

See Lorenzen, *Dannevirke og Omegn* (2nd ed., Copenhagen, 1864); H. Handelmann, *Das Dannewerk* (Kiel, 1885); Philippsen and Sünksen, *Führer durch das Danewerk* (Hamburg, 1903).

DANSVILLE, a village of Livingston county, New York, U.S.A., 49 m. S. of Rochester, on the Canaseraga Creek. Pop. (1890) 3758; (1900) 3633, of whom 417 were foreign-born; (1905) 3908; (1910) 3938. The village is served by the Delaware, Lackawanna & Western, and the Dansville & Mount Morris railways. At Dansville is the Jackson Health Resort, a large sanatorium, with which a nurses' training school is connected. There is a public library. The village has large nurseries and vineyards, flour and paper mills, a large printing establishment, a foundry, and a shoe factory. Dansville, named in honour of Daniel P. Faulkner, was settled about 1800, and was incorporated in 1845.

DANTE, Dante (or Durante) Alighieri (1265-1321), the greatest of Italian poets, was born at Florence about the middle of May 1265. He was descended from an ancient family, but from one which at any rate for several generations had belonged to the burgher and not to the knightly class. His biographers have attempted on very slight grounds to deduce his origin from the Frangipani, one of the oldest senatorial families of Rome. We can affirm with greater certainty that he was connected with the Elisei who took part in the building of Florence under Charles the Great. Dante himself does not, with the exception of a few obscure and scattered allusions, carry his ancestry beyond the warrior Cacciaguida, whom he met in the sphere of Mars (*Par.* xv. 87, foll.). Of Cacciaguida's family nothing is known. The name, as he told Dante (*Par.* xv. 139, 5), was given him at his baptism; it has a Teutonic ring. The family may well have sprung from one of the barons who, as Villani tells us, remained behind Otto I. It has been noted that the phrase "Tonde venner quivi" (xvi. 44) seems to imply that they were not Florentines. He further tells his descendant that he was born in the year 1106 (or, if another reading of xvi, 37, 38 be adopted, in 1091), and that he married an Aldighieri from the valley of the Po. Here the German strain appears unmistakably; the name Aldighiero (Aldiger) being purely Teutonic. He also mentions two brothers, Moronte and Eliseo, and that he accompanied the emperor Conrad III. upon his crusade into the Holy Land, where he died (1147) among the infidels. From Eliseo was probably descended the branch of the Elisei; from Aldighiero, son of Cacciaguida, the branch of the Alighieri. Bellincione, son of Aldighiero, was the grandfather of Dante. His father was a second Aldighiero, a lawyer of some reputation. By his first wife, Lapa di Chiarissimo Cialuffii, this Aldighiero had a son Francesco; by his second, Donna Bella, whose family name is not known, Dante and a daughter. Thus the family of Dante held a most respectable position among the citizens of his beloved city; but had it been reckoned in the very first rank they could not have remained in Florence after the defeat of the Guelphs at Montaperti in 1260. It is clear, however, that Dante's mother at least did so remain, for Dante was born in Florence in 1265. The heads of the Guelph party did not return till 1267.

Dante was born under the sign of the twins, "the glorious stars pregnant with virtue, to whom he owes his genius such as it is." Astrologers considered this constellation as favourable to literature and science, and Brunetto Latini, the philosopher and diplomatist, his instructor, tells him in the *Inferno* (xv. 25, foll.) that, if he follows its guidance, he cannot fail to reach the harbour of fame. Boccaccio relates that before his birth his mother dreamed that she lay under a very lofty laurel, growing in a green meadow, by a very clear fountain, when she felt the pangs of childbirth,—that her child, feeding on the berries which fell from the laurel, and on the waters of the fountain, in a very short time became a shepherd, and attempted to reach the leaves of the laurel, the fruit of which had nurtured him,—that, trying to obtain them he fell, and rose up, no longer a man, but in the guise of a peacock. We know little of Dante's boyhood except that he was a hard student and was profoundly influenced by Brunetto Latini. Boccaccio tells us that he became very familiar with Virgil, Horace, Ovid and Statius, and all other famous poets. From the age of eighteen he, like most cultivated young men of that age, wrote poetry assiduously, in the philosophical amatory style of which his friend, older by many years than himself, Guido Cavalcanti, was a great exponent, and of which Dante regarded Guido Guinicelli of Bologna as the master (*Purg.* xxvi. 97, 8). Leonardo Bruni of Arezzo, writing a hundred years or more after his death, says that "by study of philosophy, of theology, astrology, arithmetic and geometry, by reading of history, by the turning over many curious books, watching and sweating in his studies, he acquired the science which he was to adorn and explain in his verses." Of Brunetto Latini Dante himself speaks with the most loving gratitude and affection, though he does not hesitate to brand his vices with infamy. Under such guidance Dante became master of all the science of his age at a time when it was not impossible to know all that could be known. He had some knowledge of drawing; at any rate he tells us that on the anniversary of the death of Beatrice he drew an angel on a tablet. He was an intimate friend of Giotto, who has immortalized his youthful lineaments in the chapel of the Bargello, and who is recorded to have drawn from his friend's inspiration the allegories of Virtue and Vice which fringe the frescoes of the Scrovegni Chapel at Padua. Nor was he less sensible to the delights of music. Milton had not a keener ear for the loud uplifted angel trumpets and the immortal harps of golden wires of the cherubim and seraphim; and the English poet was proud to compare his own friendship with Henry Lawes with that between Dante and Casella, "met in the milder shades of purgatory." Of his companions the most intimate and sympathetic were the lawyer-poet Cino of Pistoia, Lapo Gianni, Guido Cavalcanti and others, similarly gifted and dowered with like tastes, who moved in the lively and acute society of Florence, and felt with him the first warm flush of the new spirit which was soon to pass over Europe. He has written no sweeter or more melodious lines than those in which he expresses the wish that he, with Guido and Lapo, might be wafted by enchantment over the sea wheresoever they might list, shielded from tempest and foul weather, in such contentment that they should wish to live always in one mind, and that the good enchanter should bring Monna Vanna and Monna Bice and that other lady into their barque, where they should for ever discourse of love and be for ever happy. It is a wonderful thing (says Leonardo Bruni) that, though he studied without intermission, it would not have appeared to anyone that he studied, from his joyous mien and youthful conversation. Like Milton he was trained in the strictest academical education which the age afforded; but Dante lived under a warmer sun and brighter skies, and found in the rich variety and gaiety of his early life a defence against the withering misfortunes of his later years. Milton felt too early the chill breath of Puritanism, and the serious musing on the experience of life, which saddened the verse of both poets, deepened in his case rather into grave and desponding melancholy, than into the fierce

scorn and invective which disillusion wrung from Dante.

Political life.

We must now consider the political circumstances in which lay the activity of Dante's manhood. From 1115, the year of the death of Matilda countess of Tuscany, to 1215, Florence enjoyed a nearly uninterrupted peace. Attached to the Guelph party, it remained undivided against itself. But in 1215 a private feud between the families of Buondelmonte and Uberti introduced into the city the horrors of civil war. Villani (lib. v. cap. 38) relates how Buondelmonte de' Buondelmonti, a noble youth of Florence, being engaged to marry a lady of the house of Amidei, allied himself instead to a Donati, and how Buondelmonte was attacked and killed by the Amidei and Uberti at the foot of the Ponte Vecchio, close by the pilaster which bears the image of Mars. "The death of Messer Buondelmonte was the occasion and beginning of the accursed parties of Guelphs and Ghibellines in Florence." Of the seventy-two families then in Florence thirty-nine became Guelph under the leadership of the Buondelmonte and the rest Ghibelline under the Uberti. The strife of parties was for a while allayed by the war against Pisa in 1222, and the constant struggles against Siena; but in 1248 Frederick II. sent into the city his natural son Frederick "of Antioch," with 1600 German knights. The Guelphs were driven away from the town, and took refuge, part in Montevarchi, part in Capraia. The Ghibellines, masters of Florence, behaved with great severity, and destroyed the towers and palaces of the Guelph nobles. At last the people became impatient. They rose in rebellion, reduced the powers of the podestà, elected a captain of the people to manage the internal affairs of the city, with a council of twelve, established a more democratic constitution, and, encouraged by the death of Frederick II. in December 1250, recalled the exiled Guelphs. Manfred, the bastard son of Frederick, pursued the policy of his father. He stimulated the Ghibelline Uberti to rebel against their position of subjection. A rising of the vanquished party was put down by the people, in July 1258 the Ghibellines were expelled from the town, and the towers of the Uberti razed to the ground. The exiles betook themselves to the friendly city of Siena. Manfred sent them a reinforcement of German horse, under his kinsman Count Giordano Lancia. The Florentines, after vainly demanding their surrender, despatched an army against them. On the 4th of September 1260 was fought the great battle of Montaperti, which dyed the Arbia red, and in which the Guelphs were entirely defeated. The hand which held the banner of the republic was sundered by the sword of a traitor (*Inf.* xxxii. 106). For the first time in the history of Florence the Carroccio was taken. Florence lay at the mercy of her enemies. A parliament was held at Empoli, in which the deputies of Siena, Pisa, Arezzo and other Tuscan towns consulted on the best means of securing their new war power. They voted that the accursed Guelph city should be blotted out. But Farinata degli Uberti stood up in their midst, bold and defiant as when he stood erect among the sepulchres of hell, and said that if, from the whole number of the Florentines, he alone should remain, he would not suffer, whilst he could wield a sword, that his country should be destroyed, and that, if it were necessary to die a thousand times for her, a thousand times would he be ready to encounter death. Help came to the Guelphs from an unexpected quarter. Clement IV., elected pope in 1265, offered the crown of Apulia and Sicily to Charles of Anjou. The French prince, passing rapidly through Lombardy, Romagna and the Marches, reached Rome by way of Spoleto, was crowned on the 6th of January 1266, and on the 23rd of February defeated and killed Manfred at Benevento. In such a storm of conflict did Dante first see the light. In 1267 the Guelphs were recalled, but instead of settling down in peace with their opponents they summoned Charles of Anjou to vengeance, and the Ghibellines were driven out. The meteor passage of Conradin gave hope to the imperial party, which was quenched when the head of the fair-haired boy fell on the scaffold at Naples. Pope after pope tried in vain to make peace. Gregory X. placed the rebellious city under an interdict; in 1278 Cardinal Latini by order of Nicholas III. effected a truce, which lasted for four years. The city was to be governed by a committee of fourteen *buonomini*, on which the Guelphs were to have a small majority. In 1282 the constitution of Florence received the final form which it retained till the collapse of freedom. From the three arti *maggiori* were chosen six priors, in whose hands was placed the government of the republic. Before the end of the century, seven greater arts were recognized, including the *speziali*,—druggists and dealers in all manner of oriental goods, and in books—among whom Dante afterwards enrolled himself. They remained in office for two months, and during that time lived and shared a common table in the public palace. We shall see what influence this office had upon the fate of Dante. The success of the "Sicilian Vespers" (March 1282), the death of Charles of Anjou (January 1285), and of Martin IV. in the following March, roused again the courage of the Ghibellines. They entered Arezzo, where the Ghibellines at present had the upper hand, and threatened to drive out the Guelphs from Tuscany. Skirmishes and raids, of which Villani and Bruni have left accounts, went on through the winter of 1288-1289, forming a prelude to the great battle of Campaldino in the following summer. Then it was that Dante saw "horsemen moving camp and commencing the assault, and holding muster, and the march of foragers, the shock of tournaments, and race of jousts, now with trumpets and now with bells, with drums and castle signals, with native things and foreign" (*Inf.* xxii. 1, foll.). On the 11th of June 1289, at Campaldino near Poppi, in the Casentino, the Ghibellines were utterly defeated. They never again recovered their hold on Florence, but the violence of faction survived under other names. In a letter quoted, though not at first hand, by Leonardo Bruni, which is not now extant, Dante is said to mention that he himself fought with distinction at Campaldino. He was present shortly afterwards at the battle of Caprona (*Inf.* xxi. 95, foll.), and returned in September 1289 to his studies and his love. His peace was of short duration. On the 9th of June 1290 died Beatrice, whose mortal love had guided him for thirteen years, and whose immortal spirit purified his later life, and revealed to him the mysteries of Paradise.

Dante had first met Beatrice Portinari at the house of her father Folco on May-day 1274. In his own words, "already nine times after my birth the heaven of light had returned as it were to the same point, when there appeared to my eyes the glorious lady of my mind, who was by many called Beatrice who knew not what to call her. She had already been so long in this life that already in its time the starry heaven had moved towards the east the twelfth part of a degree, so that she appeared to me about the beginning of her ninth year, and I saw her about the end of my ninth year. Her dress on that day was of a most noble colour, a subdued and goodly crimson, girdled and adorned in such sort as best suited with her tender age. At that moment I saw most truly that the spirit of life which hath its dwelling in the secretest chamber of the heart began to tremble so violently that the least pulses of my body shook therewith; and in trembling it said these words, 'Ecce deus fortior me qui veniens dominabitur mihi.'" In the *Vita Nuova* is written the story of his passion from its commencement to within a year after the lady's death (June 9th, 1290). He saw Beatrice only once or twice, and she probably knew little of him. She married Simone de' Bardi. But the worship of her lover was stronger for the remoteness of its subject. The last chapter of the Vita Nuova relates how, after the lapse of a year, "it was given me to behold a wonderful vision, wherein I saw things which determined me to say nothing further of this blessed one until such time as I could discourse more worthily concerning her. And to this end I labour all I can, as she in truth knoweth. Therefore if it be His pleasure through whom is the life of all things that my life continue with me a few years, it is my hope that I shall yet write concerning her what hath not before been written of any woman. After the which may it seem good unto Him who is the master of grace that my spirit should go hence to behold the glory of its lady, to wit, of that blessed Beatrice who now gloriously gazes on the countenance of Him qui est per omnia saecula benedictus." In the *Convito* he resumes the story of his life. "When I had lost the first delight of my soul (that is, Beatrice) I remained so pierced with sadness that no comforts availed me anything, yet after some time my mind, desirous of health, sought to return to the method by which other disconsolate ones had found consolation, and I set myself to read that little-known book of Boetius in which he consoled himself when a prisoner and an exile. And hearing that Tully had written another work, in which, treating of friendship, he had given words of consolation to Laelius, I set myself to read that also." He so far recovered from the shock of his loss that in 1292 he married Gemma, daughter of Manetto Donati, a connexion of the celebrated Corso Donati, afterwards Dante's bitter foe. It is possible that she is the lady mentioned in the *Vita Nuova* as sitting full of pity at her window and comforting Dante for his sorrow. By this wife he had two sons and two daughters, and although he never mentions her in the *Divina Commedia*, and although she did not accompany him into exile, there is no reason to suppose that she was other

than a good wife, or that the union was otherwise than happy. Certain it is that he spares the memory of Corso in his great poem, and speaks kindly of his kinsmen Piccarda and Forese.

In 1293 Giano della Bella, a man of old family who had thrown in his lot with the people, induced the commonwealth to adopt the so-called "Ordinances of Justice," a severely democratic constitution, by which among other things it was enacted that no man of noble family, even though engaged in trade, could hold office as prior. Two years later Giano was banished, but the ordinances remained in force, though the *grandi* recovered much of their power.

Dante now began to take an active part in politics. He was inscribed in the *arte* of the *Medici* and *Speziali*, which made him eligible as one of the six *priori* to whom the government of the city was entrusted in 1282. Documents still existing in the archives of Florence show that he took part in the deliberations of the several councils of the city in 1295, 1296, 1300 and 1301. The notice in the last year is of some importance. The pope had demanded a contingent of 100 Florentine knights to serve against his enemies, the Colonna family. On the 19th of June we read in the contemporary report of the debate on this question in the Council of a Hundred: "*Dantes Alagherius consuluit quod de servitio faciendo Domino Papae nihil fieret*." Other instances of his invariable opposition to Boniface occur. Filelfo says that he served on fourteen embassies, a statement not only unsupported by evidence, but impossible in itself. Filelfo does not mention the only embassy in which we know for certain that Dante was engaged, that to the town of San Gemignano in May 1300. From the 15th of June to the 15th of August 1300 he held the office of prior, which was the source of all the miseries of his life. The spirit of faction had again broken out in Florence. The two rival families were the Cerchi and the Donati,—the first of great wealth but recent origin, the last of ancient ancestry but poor. A quarrel had arisen in Pistoia between the two branches of the Cancellieri,—the Bianchi and Neri, the Whites and the Blacks. The quarrel spread to Florence, the Donati took the side of the Blacks, the Cerchi of the Whites. Pope Boniface was asked to mediate, and sent Cardinal Matteo d'Acquasparta to maintain peace. He arrived just as Dante entered upon his office as prior. The cardinal effected nothing, but Dante and his colleagues banished the heads of the rival parties in different directions to a distance from the capital. The Blacks were sent to Città della Pieve in the Tuscan mountains; the Whites, among whom was Dante's dearest friend Guido Cavalcanti, to Serrezzano in the unhealthy Maremma. After the expiration of Dante's office both parties returned, Guido Cavalcanti so ill with fever that he shortly afterwards died. At a meeting held in the church of the Holy Trinity the Whites were denounced as Ghibellines, enemies of the pope. The Blacks sought for vengeance. Their leader, Corso Donati, hastened to Rome, and persuaded Boniface VIII. to send for Charles of Valois, brother of the French king, Philip the Fair, to act as "peacemaker." The priors sent at the end of September four ambassadors to the pope, one of whom, according to the chronicler Dino, was Dante. There are, however, improbabilities in the story, and the passage quoted in support of it bears marks of later interpolation. He never again saw the towers of his native city. Charles of Valois, after visiting the pope at Anagni, retraced his steps to Florence, entering the city on All Saints' Day and taking up his abode in the Oltr' Arno. Corso Donati, who had been banished a second time, returned in force and summoned the Blacks to arms. The prisons were broken open, the podestà driven from the town, the Cerchi confined within their houses, a third of the city was destroyed with fire and sword. By the help of Charles the Blacks were victorious. They appointed Cante de' Gabrielli of Gubbio as podestà, a man devoted to their interests. More than 600 Whites were condemned to exile and cast as beggars upon the world. On the 27th of January 1302, Dante, with four others of the White party, was charged before the podestà, Cante de' Gabrielli, with *baratteria*, or corrupt jobbery and peculation when in office, and, not appearing, condemned to pay a fine of 5000 lire of small florins. If the money was not paid within three days their property was to be destroyed and laid waste; if they did pay the fine they were to be exiled for two years from Tuscany; in any case they were never again to hold office in the republic. The charge in Dante's case was obviously preposterous, though ingeniously devised; for he was known to be at the time in somewhat straitened circumstances, and had recently been in control of certain public works. But of all sins, that of "barratry" was one of the most hateful to him. No doubt the papal finger may be traced in the affair. On the 10th of March Dante and fourteen others were condemned to be burned alive if they should come into the power of the republic. Similar sentences were passed in September 1311 and October 1315. The sentence was not formally reversed till 1494, under the government of the Medici.

Leonardo Bruni, who accepts the story of the embassy to Rome, states that Dante received the news of his banishment in that city, and at once joined the other exiles at Siena. How he escaped arrest in the papal states is not explained. The exiles met first at Gargonza, a castle between Siena and Arezzo, and then at Arezzo itself. They joined themselves to the Ghibellines, to which party the podestà Uguccione della Faggiuola belonged. The Ghibellines, however, were divided amongst themselves, and the more strict Ghibellines were not disposed to favour the cause of the White Guelphs. On the 8th of June 1302, however, a meeting was held at San Godenzo, a place in the Florentine territory, Dante's presence at which is proved by documentary evidence, and an alliance was there made with the powerful Ghibelline clan of the Ubaldini. The exiles remained at Arezzo till the summer of 1304. In September 1303 the fleur-de-lis had entered Anagni, and Christ had a second time been made prisoner in the person of his vicar. At the instigation of Philip the Fair, William of Nogaret and Sciarra Colonna had entered the papal palace at Anagni, and had insulted and, it is said, even beaten the aged pontiff under his own roof. Boniface did not survive the insult long, but died in the following month. He was succeeded by Benedict XI., and in March the cardinal da Prato came to Florence, sent by the new pope to make peace. The people received him with enthusiasm; ambassadors came to him from the Whites; and he did his best to reconcile the two parties. But the Blacks resisted all his efforts. He shook the dust from off his feet, and departed, leaving the city under an interdict. Foiled by the calumnies and machinations of the one party, the cardinal gave his countenance to the other. It happened that Corso Donati and the heads of the Black party were absent at Pistoia. Da Prato advised the Whites to attack Florence, deprived of its heads and impaired by a recent fire. An army was collected of 16,000 foot and 9000 horse. Communications were opened with the Ghibellines of Bologna and Romagna, and a futile attempt was made to enter Florence from Lastra, the failure of which further disorganized the party. Dante had, however, already separated from the "ill-conditioned and foolish company" of common party-politicians, who rejected his counsels of wisdom, and had learnt that he must henceforth form a party by himself. In 1303 he had left Arezzo and gone to Forli in Romagna, of which city Scarpetta degli Ordelaffi was lord. To him, according to Flavius Blondus the historian (d. before 1484), a native of the place, Dante acted for a time as secretary.

From Forli Dante probably went to Bartolommeo della Scala, lord of Verona, where the country of the great Lombard gave him his first refuge and his first hospitable reception. Can Grande, to whom he afterwards dedicated the *Paradiso*, was then a boy. Bartolommeo died in 1304, and it is possible that Dante may have remained in Verona till his death. We must consider, if we would understand the real nature of Dante's Ghibellinism, that he had been born and bred a Guelph; but he saw that the conditions of the time were altered, and that other dangers menaced the welfare of his country. There was no fear now that Florence, Siena, Pisa, Arezzo should be razed to the ground in order that the castle of the lord might overlook the humble cottages of his contented subjects; but there was danger lest Italy should be torn in sunder by its own jealousies and passions, and lest the fair domain bounded by the sea and the Alps should never properly assert the force of its individuality, and should present a contemptible contrast to a united France and a confederated Germany. Sick with petty quarrels and dissensions, Dante strained his eyes towards the hills for the appearance of a universal monarch, raised above the jars of faction and the spur of ambition, under whom each country, each city, each man, might, under the institutions best suited to it, lead the life and do the work for which it was best fitted. United in spiritual harmony with the vicar of Christ, he should show for the first time to the world an example of a government where the strongest force and the highest wisdom were interpenetrated by all that God had given to the world of piety and justice. In this sense and in no other was Dante a Ghibelline. The vision

Dante's Ghibellinism.

was never realized—the hope was never fulfilled. Not till 500 years later did Italy become united and the "greyhound of deliverance" chase from city to city the wolf of cupidity. But is it possible to say that the dream did not work its own realization, or to deny that the high ideal of the poet, after inspiring a few minds as lofty as his own, has become embodied in the constitution of a state which acknowledges no stronger bond of union than a common worship of the exile's indignant and impassioned verse?

Wanderings.

It is very difficult to determine with exactness the order and the place of Dante's wanderings. Many cities and castles in Italy have claimed the honour of giving him shelter, or of being for a time the home of his inspired muse. He certainly spent some time with Count Guido Salvatico in the Casentino near the sources of the Arno, probably in the castle of Porciano, and with Uguccione in the castle of Faggiuola in the mountains of Urbino. After this he is said to have visited the university of Bologna; and in August 1306 we find him at Padua. Cardinal Napoleon Orsini, the legate of the French pope Clement V., had put Bologna under a ban, dissolved the university and driven the professors to the northern city. In May or June 1307 the same cardinal collected the Whites at Arezzo and tried to induce the Florentines to recall them. The name of Dante is found attached to a document signed by the Whites in the church of St Gaudenzio in the Mugello. This enterprise came to nothing. Dante retired to the castle of Moroello Malespina in the Lunigiana, where the marble ridges of the mountains of Carrara descend in precipitous slopes to the Gulf of Spezzia. From this time till the arrival of the emperor Henry VII. in Italy, October 1310, all is uncertain. His old enemy Corso Donati had at last allied himself with Uguccione della Faggiuola, the leader of the Ghibellines. Dante thought it possible that this might lead to his return. But in 1308 Corso was declared a traitor, attacked in his house, put to flight and killed. Dante lost his last hope. He left Tuscany, and went to Can Grande della Scala at Verona. From this place it is thought that he visited the university of Paris (1309), studied in the rue du Fouarre and went on into the Low Countries. That he ever crossed the Channel or went to Oxford, or himself saw where the heart of Henry, son of Richard, earl of Cornwall, murdered by his cousin Guy of Montfort in 1271, was "still venerated on the Thames," may safely be disbelieved. The only evidence for it is in the *Commentary* of John of Serravalle, bishop of Fermo, who lived a century later, had no special opportunity of knowing, and was writing for the benefit of two English bishops. The election in 1308 of Henry of Luxemburg as emperor stirred again his hopes of a deliverer. At the end of 1310, in a letter to the princes and people of Italy, he proclaimed the coming of the saviour; at Milan he did personal homage to his sovereign. The Florentines made every preparation to resist the emperor. Dante wrote from the Casentino a letter dated the 31st of March 1311, in which he rebuked them for their stubbornness and obstinacy. Henry still lingered in Lombardy at the siege of Cremona, when Dante, on the 16th of April 1311, in a celebrated epistle, upbraided his delay, argued that the crown of Italy was to be won on the Arno rather than on the Po, and urged the tarrying emperor to hew the rebellious Florentines like Agag in pieces before the Lord. Henry was as deaf to this exhortation as the Florentines themselves. After reducing Lombardy he passed from Genoa to Pisa, and on the 29th of June 1312 was crowned by some cardinals in the church of St John Lateran at Rome; the Vatican being in the hands of his adversary King Robert of Naples. Then at length he moved towards Tuscany by way of Umbria. Leaving 814
Cortona and Arezzo, he reached Florence on the 19th of September. He did not dare to attack it, but returned in November to Pisa. In the summer of the following year he prepared to invade the kingdom of Naples; but in the neighbourhood of Siena he caught a fever and died at the monastery of Buonconvento, on the 24th of August 1313. He lies in the Campo Santo of Pisa; and the hopes of Dante and his party were buried in his grave.

Old age and death.

After the death of the emperor Henry (Bruni tells us) Dante passed the rest of his life as an exile, sojourning in various places throughout Lombardy, Tuscany and the Romagna, under the protection of various lords, until at length he retired to Ravenna, where he ended his life. Very little can be added to this meagre story. There is reason for supposing that he stayed at Gubbio with Bosone dei Rafaelli, and tradition assigns him a cell in the monastery of Sta Croce di Fonte Avellana in the same district, situated on the slopes of Catria, one of the highest peaks of the Apennines in that region. After the death of the French pope, Clement V., he addressed a letter, dated the 14th of July 1314, to the cardinals in conclave, urging them to elect an Italian pope. About this time he came to Lucca, then lately conquered by his friend Uguccione. Here he completed the last cantos of the *Purgatory*, which he dedicated to Uguccione, and here he must have become acquainted with Gentucca, whose name had been whispered to him by her countryman on the slopes of the Mountain of Purification (*Purg.* xxiv. 37). That the intimacy between the "world-worn" poet and the young married lady (who is thought to be identifiable with Gentucca Morla, wife of one Cosciorino Fondora) was other than blameless, is quite incredible. In August 1315 was fought the battle of Monte Catini, a day of humiliation and mourning for the Guelphs. Uguccione made but little use of his victory; and the Florentines marked their vengeance on his adviser by condemning Dante yet once again to death if he ever should come into their power. In the beginning of the following year Uguccione lost both his cities of Pisa and Lucca. At this time Dante was offered an opportunity of returning to Florence. The conditions given to the exiles were that they should pay a fine and walk in the dress of humiliation to the church of St John, and there do penance for their offences. Dante refused to tolerate this shame; and the letter is still extant in which he declines to enter Florence except with honour, secure that the means of life will not fail him, and that in any corner of the world he will be able to gaze at the sun and the stars, and meditate on the sweetest truths of philosophy. He preferred to take refuge with his most illustrious protector Can Grande della Scala of Verona, then a young man of twenty-five, rich, liberal and the favoured head of the Ghibelline party. His name has been immortalized by an eloquent panegyric in the seventeenth canto of the *Paradiso*. Whilst on a visit at the court of Verona he maintained, on the 20th of January 1320, the philosophical thesis *De aqua et terra*, on the levels of land and water, which is included in his minor works. The last three years of his life were spent at Ravenna, under the protection of Guido da Polenta. In his service Dante undertook an embassy to the Venetians. He failed in the object of his mission, and, returning disheartened and broken in spirit through the unhealthy lagoons, caught a fever and died in Ravenna on the 14th of September 1321. His bones still repose there. His doom of exile has been reversed by the union of Italy, which has made the city of his birth and the various cities of his wanderings component members of a common country. His son Piero, who wrote a commentary on the *Divina Commedia*, settled as a lawyer in Verona, and died in 1364. His daughter Beatrice lived as a nun in Ravenna, dying at some time between 1350 (when Boccaccio brought her a present of ten gold crowns from a Florentine gild) and 1370. His direct line became extinct in 1509.

Divina Commedia.

Dante's Works.—Of Dante's works, that by which he is known to all the educated world, and in virtue of which he holds his place as one of the half-dozen greatest writers of all time, is of course the *Commedia*. (The epithet *divina*, it may be noted, was not given to the poem by its author, nor does it appear on a title-page until 1555, in the edition of Ludovico Dolce, printed by Giolito; though it is applied to the poet himself as early as 1512.) The poem is absolutely unique in literature; it may safely be said that at no other epoch of the world's history could such a work have been produced. Dante was steeped in all the learning, which in its way was considerable, of his time; he had read the *Summa Theologica* of Aquinas, the *Trésor* of his master Brunetto, and other encyclopaedic works available in that age; he was familiar with all that was then known of the Latin classical and post-classical authors. Further, he was a deep and original political thinker, who had himself borne a prominent part in practical politics. He was born into a generation in which almost every man of education habitually wrote verse, as indeed their predecessors had been doing for the last fifty years. Vernacular poetry had come late into Italy, and had hitherto, save for a few didactic or devotional treatises hitched into rough rhyme, been exclusively lyric in form. Amatory at first, later, chiefly in the hands of Guittone of Arezzo and Guido Cavalcanti, taking an ethical and metaphysical tone, it had never fully shaken off the Provençal influence under which it had started, and of which Dante himself shows considerable traces.

The age also was unique, though the two great events which made the 15th century a turning-point in the world's history —the invention of printing and the discovery of the new world (to which might perhaps be added the intrusion of Islam into Europe)—were still far in the future. But the age was essentially one of great men; of free thought and free speech; of brilliant and daring action, whether for good or evil. It is easy to understand how Dante's bitterest scorn is reserved for those "sorry souls who lived without infamy and without renown, displeasing to God and to His enemies."

The time was thus propitious for the production of a great imaginative work, and the man was ready who should produce it. It called for a prophet, and the prophet said, "Here am I." "Dante," says an acute writer, "is not, as Homer is, the father of poetry springing in the freshness and simplicity of childhood out of the arms of mother earth; he is rather, like Noah, the father of a second poetical world, to whom he pours forth his prophetic song fraught with the wisdom and the experience of the old world." Thus the *Commedia*, though often classed for want of a better description among epic poems, is totally different in method and construction from all other poems of that kind. Its "hero" is the narrator himself; the incidents do not modify the course of the story; the place of episodes is taken by theological or metaphysical disquisitions; the world through which the poet takes his readers is peopled, not with characters of heroic story, but with men and women known personally or by repute to him and those for whom he wrote. Its aim is not to delight, but to reprove, to rebuke, to exhort; to form men's characters by teaching them what courses of life will meet with reward, what with penalty, hereafter; "to put into verse," as the poet says, "things difficult to think." For such new matter a new vehicle was needed. We have Bembo's authority for believing that the *terza rima*, surpassed, if at all, only by the ancient hexameter, as a measure equally adaptable to sustained narrative, to debate, to fierce invective, to clear-cut picture and to trenchant epigram, was first employed by Dante.

The action of the *Commedia* opens in the early morning of the Thursday before Easter, in the year 1300. The poet finds himself lost in a forest, escaping from which he has his way barred by a wolf, a lion and a leopard. All this, like the rest of the poem, is highly symbolical. This branch of the subject is too vast to be entered on at any length here; but so far as this passage is concerned it may be said that it seems to indicate that at this period of his life, about the age of thirty-five, Dante went through some experience akin to what is now called "conversion." Having led up till then the ordinary life of a cultivated Florentine of good family; taking his part in public affairs, military and civil, as an hereditary member of the predominant Guelph party; dallying in prose which with all its beauty and passion is full of the conceits familiar to the 13th century, and in verse which save for the excellence of its execution differs in no way from that of his predecessors, with the memory of his lost love; studying more seriously, perhaps, than most of his associates; possibly travelling a little,— gradually or suddenly he became convinced that all was not well with him, and that not by leading, however blamelessly, the "active" life could he save his soul. The strong vein of mysticism, found in so many of the deepest thinkers of that age, and conspicuous in Dante's mind, no doubt played its part. His efforts to free himself from the "forest" of worldly cares were impeded by the temptations of the world—cupidity (including ambition), the pride of life and the lusts of the flesh, symbolized by the three beasts. But a helper is at hand. Virgil appears and explains that he has a commission from three ladies on high to guide him. The ladies are the Blessed Virgin, St Lucy (whom for some reason never yet explained Dante seems to have regarded as in a special sense his protector) and Beatrice. In Virgil we are apparently intended to see the symbol of what Dante calls philosophy, what we should rather call natural religion; Beatrice standing for theology, or rather revealed religion. Under Virgil's escort Dante is led through the two lower realms of the next world, Hell and Purgatory; meeting on the way with many persons illustrious or notorious in recent or remoter times, as well as many well enough known then in Tuscany and the neighbouring states; but who, without the immortality, often unenviable, that the poet has conferred on them, would long ago have been forgotten. Popes, kings, emperors, poets and warriors, Florentine citizens of all degrees, are there found; some doomed to hopeless punishment, others expiating their offences in milder torments, and looking forward to deliverance in due time. It is remarkable to notice how rarely, if ever, Dante allows political sympathy or antagonism to influence him in his distribution of judgment. Hell is conceived as a vast conical hollow, reaching to the centre of the earth. It has three great divisions, corresponding to Aristotle's three classes of vices, incontinence, brutishness and malice. The first are outside the walls of the city of Dis; the second, among whom are included unbelievers, tyrants, suicides, unnatural offenders, usurers, are within; the first apparently on the same level as those without, the rest separated from them by a steep descent of broken rocks. (It should be said that many Dante scholars hold that Aristotle's "brutishness" has no place in Dante's scheme; but the symmetry of the arrangement, the special reference made to that division, and certain expressions used elsewhere by Dante, seem to make it probable that he would here, as in most other cases, have followed his master in philosophy.) The sinners by malice, which includes all forms of fraud or treachery, are divided from the last by a yet more formidable barrier. They lie at the bottom of a pit, the depth of which is not stated, with vertical sides, and accessible only by supernatural means; a monster named Geryon bearing the poets down on his back. The torments here are of a more terrible, often of a loathsome character. Ignominy is added to pain, and the nature of Dante's demeanour towards the sinners changes from pity to hatred. At the very bottom of the pit is Lucifer, immovably fixed in ice; climbing down his limbs they reach the centre of the earth, whence a cranny conducts them back to the surface, at the foot of the purgatorial mountain, which they reach as Easter Day is dawning. Before the actual Purgatory is attained they have to climb for the latter half of the day and rest at night. The occupants of this outer region are those who have delayed repentance till death was upon them. They include many of the most famous men of the last thirty years. In the morning the gate is opened, and Purgatory proper is entered. This is divided into seven terraces, corresponding to the seven deadly sins, which encircle the mountain and have to be reached by a series of steep climbs, compared by Dante in one instance to the path from Florence to Samminiato. The penalties are not degrading, but rather tests of patience or endurance; and in several cases Dante has to bear a share in them as he passes. On the summit is the Earthly Paradise. Here Beatrice appears, in a mystical pageant; Virgil departs, leaving Dante in her charge. By her he is led through the various spheres of which, according to both the astronomy and the theology of the time, Heaven is composed, to the supreme Heaven, or Empyrean, the seat of the Godhead. For one moment there is granted him the intuitive vision of the Deity, and the comprehension of all mysteries, which is the ultimate goal of mystical theology; his will is wholly blended with that of God, and the poem ends.

Convito.

The *Convito*, or *Banquet*, also called *Convivio* (Bembo uses the first form, Trissino the other), is the work of Dante's manhood, as the *Vita Nuova* is the work of his youth. It consists, in the form in which it has come down to us, of an introduction and three treatises, each forming an elaborate commentary in a long canzone. It was intended, if completed, to have comprised commentaries on eleven more canzoni, making fourteen in all, and in this shape would have formed a *tesoro* or handbook of universal knowledge, such as Brunetto Latini and others have left to us. It is perhaps the least well known of Dante's Italian works, but crabbed and unattractive as it is in many parts, it is well worth reading, and contains many passages of great beauty and elevation. Indeed a knowledge of it is quite indispensable to the full understanding of the *Divina Commedia* and the *De Monarchia*. The time of its composition is uncertain. As it stands it has very much the look of being the contents of note-books partially arranged. Dante mentions princes as living who died in 1309; he does not mention Henry VII. as emperor, who succeeded in 1310. There are some passages which seem to have been inserted at a later date. The canzoni upon which the commentary is written were probably composed between 1292 and 1300, when he was seeking in philosophy consolation for the loss of Beatrice. The *Convito* was first printed in Florence by Buonaccorsi in 1490. It has never been adequately edited.

The *Vita Nuova* (*Young Life* or *New Life*, for both significations seem to be intended) contains the history of his love for Beatrice. He describes how he met Beatrice as a child, himself a child, how he often sought her glance, how she once greeted him in the street, how he feigned a false love to hide his true love, how he fell ill and saw in a

Vita Nuova. dream the death and transfiguration of his beloved, how she died, and how his health failed from sorrow, how the tender compassion of another lady nearly won his heart from its first affection, how Beatrice appeared to him in a vision and reclaimed his heart, and how at last he saw a vision which induced him to devote himself to study that he might be more fit to glorify her who gazes on the face of God for ever. This simple story is interspersed with sonnets, ballads and canzoni, arranged with a remarkable symmetry, to which Professor Charles Eliot Norton was the first to draw attention, chiefly written at the time to emphasize some mood of his changing passion. After each of these, in nearly every case, follows an explanation in prose, which is intended to make the thought and argument intelligible to those to whom the language of poetry was not familiar. The whole has a somewhat artificial air, in spite of its undoubted beauty; showing that Dante was still under the influence of the *Dugentisti*, many of whose conceits he reproduces. The book was probably completed by 1300. It was first printed by Sermartelli in Florence, 1576.

Canzoniere. Besides the smaller poems contained in the *Vita Nuova* and *Convito* there are a considerable number of canzoni, ballate and sonnetti bearing the poet's name. Of these many undoubtedly are genuine, others as undoubtedly spurious. Some which have been preserved under the name of Dante belong to Dante de Maiano, a poet of a harsher style; others which bear the name of Aldighiero are referable to Dante's sons Jacopo or Pietro, or to his grandsons; others may be ascribed to Dante's contemporaries and predecessors Cino da Pistoia and others. Those which are genuine secure Dante a place among lyrical poets scarcely if at all inferior to that of Petrarch. Most of these were printed in *Sonetti e canzoni* (Giunta, 1527). The best edition of the *Canzoniere* of Dante is that by Fraticelli published by Barbéra at Florence. His collection includes seventy-eight genuine poems, eight doubtful and fifty-four spurious. To these are added an Italian paraphrase of the seven penitential psalms in *terza rima*, and a similar paraphrase of the Credo, the seven sacraments, the ten commandments, the Lord's Prayer and the Ave Maria.

De monarchia. The Latin treatise *De monarchia*, in three books, contains the mature statement of Dante's political ideas. In it he propounds the theory that the supremacy of the emperor is derived from the supremacy of the Roman people over the world, which was given to them direct from God. As the emperor is intended to assure their earthly happiness, so does their spiritual welfare depend upon the pope, to whom the emperor is to do honour as to the first-born of the Father. The date of its publication is almost universally admitted to be the time of the descent of Henry VII. into Italy, between 1310 and 1313, although its composition may have been in hand from a much earlier period. The book was first printed by Oporinus at Basel in 1559, and placed on the Index of forbidden books.

De vulgari eloquentia. The treatise *De vulgari eloquentia*, in two books, also in Latin, is mentioned in the *Convito*. Its object was first to establish the Italian language as a literary tongue, and to distinguish the noble or "courtly" speech which might become the property of the whole nation, at once a bond of internal unity and a line of demarcation against external nations, from the local dialects peculiar to different districts; and secondly, to lay down rules for poetical composition in the language so established. The work was intended to be in four books, but only two are extant. The first of these deals with the language, the second with the style and with the composition of the canzone. The third was probably intended to continue this subject, and the fourth was destined to the laws of the ballata and sonetto. It contains much acute criticism of poetry and poetic diction. This work was first published in the Italian translation of Trissino at Vicenza in 1529. The original Latin was not published till 1577 at Paris by Jacopo Corbinelli, one of the Italians who were brought from Florence by Catherine de' Medici, from a MS. now preserved at Grenoble. The work was probably left unfinished in consequence of Dante's death.

Eclogues. Boccaccio mentions in his life of Dante that he wrote two eclogues in Latin in answer to Johannes de Virgilio, who invited him to come from Ravenna to Bologna and compose a great work in the Latin language. The most interesting passage in the work is that in the first poem, where he expresses his hope that when he has finished the three parts of his great poem his grey hairs may be crowned with laurel on the banks of the Arno. Although the Latin of these poems is superior to that of his prose works, we may feel thankful that Dante composed the great work of his life in his own vernacular. The versification, however, is good, and there are pleasant touches of gentle humour. The *Eclogues* have been edited by Messrs Wicksteed and Gardiner (*Dante and Giovanni del Virgilio*, London, 1902).

De aqua et terra. A treatise *De aqua et terra* has come down to us, which Dante tells us was delivered at Mantua in January 1320 (perhaps 1321) as a solution of the question which was being at that time much discussed—whether in any place on the earth's surface water is higher than the earth. It was first published at Venice in 1508, by an ecclesiastic named Moncetti, from a MS. which he alleged to be in his possession, but which no one seems to have seen. Its genuineness is accordingly very doubtful; but Dr Moore has from internal evidence made out a very strong case for it.

Letters. The *Letters* of Dante are among the most important materials for his biography. Giovanni Villani mentions three as specially remarkable—one to the government of Florence, in which he complains of undeserved exile; another to the emperor Henry VII., when he lingered too long at the siege of Brescia; and a third to the Italian cardinals to urge them to the election of an Italian pope after the death of Clement V. The first of these letters has not come down to us, the two last are extant. Besides these we have one addressed to the cardinal da Prato, one to a Florentine friend refusing the base conditions of return from exile, one to the princes and lords of Italy to prepare them for the coming of Henry of Luxembourg, another to the Florentines reproaching them with the rejection of the emperor, and a long letter to Can Grande della Scala, containing directions for interpreting the *Divina Commedia*, with especial reference to the *Paradiso*. Of less importance are the letters to the nephews of Count Alessandro da Romena, to the marquis Moroello Malespina, to Cino da Pistoia and to Guido da Polenta. The genuineness of all the letters has at one time or another been impugned; but the more important are now generally accepted. They have been translated by Mr C. S. Latham, ed. by Mr G. R. Carpenter (Cambridge, Massachusetts and London, 1891).

Dante's reputation has passed through many vicissitudes, and much trouble has been spent by critics in comparing him with other poets of established fame. Read and commented upon with more admiration than intelligence in the Italian universities in the generation immediately succeeding his death, his name became obscured as the sun of the Renaissance rose higher towards its meridian. In the 16th century he was held inferior to Petrarch; in the 17th and first half of the 18th he was almost universally neglected. His fame is now fully vindicated. Translations and commentaries issue from every press in Europe and America, and many studies for separate points are appearing every year.

AUTHORITIES.—It would be impossible here to give anything like a complete account even of the editions of Dante's works; still more of the books which have been written to elucidate the *Commedia* as a whole, or particular points in it. The section "Dante" in the British Museum catalogue down to 1887 occupies twenty-nine folio pages; the supplement, to 1900, as many more. The catalogue of the Fiske collection, in Cornell University library, is in two quarto volumes and covers 606 pages. A few of the more important editions and of the more valuable commentaries and aids may, however, be recorded.

Editions.—The *Commedia* was first printed by John Numeister at Foligno, in April 1472. Two other editions followed in the same year: one at Jesi (*Federicus Veronensis*), and Mantua (*Georgius et Paulus Teutonici*). These, together with a Naples edition of about 1477 (Francesco del Tuppo), were included by Lord Vernon in *Le Prime Quattro Edizioni* (1858). Another Neapolitan edition, without printer's name, is dated 1477, and in the same year Wendelin of Spires published the first Venetian edition. Milan followed in 1478 with that known from the name of its editor as the *Nidobeatine*. In 1481

appeared the first Florentine edition (*Nicolo and Lorenzo della Magna*) with the commentary of Cristoforo Landino, and a series of copper engravings ascribed to Baccio Baldini, varying in number in different copies from two to twenty; a sumptuous and very carelessly printed volume. Venice supplied most of the editions for many years to come. Altogether twelve existed by the end of the century. In 1502 Aldus produced the first "pocket" edition in his new "italic" type, probably cut from the handwriting of his friend Bembo. A second edition of this is dated 1515. The firm of Giunta at Florence printed the poem in a small volume with cuts, in 1506; and for the rest of the 16th century edition follows edition, to the number of about thirty in all. The most noteworthy commentaries are those of Alessandro Vellutello (Venice, 1544), and Bernardo Daniello (Venice, 1568), both of Lucca. The Cruscan Academicians edited the text in 1595. The first edition with woodcuts is that of Boninus de Boninis (Brescia, 1487). Bernardino Benali followed at Venice in 1491, and from that time onward few if any of the folio editions are without them. The 17th century produced three (or perhaps four) small, shabby and inaccurate editions. In 1716 a revival of interest in Dante had set in, and before 1800 some score of editions had appeared, the best-known being those of G. A. Volpi (Padua, 1727), Pompeo Venturi (Venice, 1739) and Baldassare Lombardi (Rome, 1791).

Commentaries.—The *Commedia* began to be the subject of commentaries as soon as, if not before, the author was in his grave. One known as the *Anonimo* until in 1881 Dr Moore identified its writer as Graziole de' Bambaglioli, was in course of writing in 1324. It was published by Lord Vernon, to whose munificence we owe the accessibility of most of the earlier commentaries, in 1848. That of Jacopo della Lana is thought to have been composed before 1340. It was printed in the Venice and Milan editions of 1477, and 1478 respectively. The so-called *Ottimo Comento* (Pisa, 1837) is of about the same date. It embodies parts of Lana's, but is largely an independent work. Witte ascribes it to Andrea della Lancia, a Florentine notary. Dante's sons Pietro and Jacopo also commented on their father's poem. Their works were published, again at Lord Vernon's expense, in 1845 and 1848. Boccaccio's lectures on the *Commedia*, cut short at *Inf.* xvii. 17 by his death in 1375, are accessible in various forms. His work was achieved by his disciple Benvenuto Rambaldi of Imola (d. *c.* 1390). Benvenuto's commentary, written in Latin, genial in temper, and often acute, was popular from the first. Extracts from it were used as notes in many MSS. Much of it was printed by Muratori in his *Antiquitates Italicae*; but the entire work was first published in 1887 by Mr William Warren Vernon, with the aid of Sir James Lacaita. No greater boon has ever been offered to students of Dante. Another early annotator who must not be overlooked is Francesco da Buti of Pisa, who lectured in that city towards the close of the same century. His commentary, which served as the basis of Landino's already mentioned, was first printed in Pisa in 1858. One more commentary deserves mention. During the council of Constance, John of Serravalle, bishop of Fermo, fell in with the English bishops Robert Hallam and Nicholas Bubwith, and at their request compiled a voluminous exposition of the *Commedia*. This remained in MS. till recently, when it was printed in a costly form.

Translations.—Probably the first complete translation of Dante into a modern language was the Castilian version of Villena (1428). In the following year Andreu Febrer produced a rendering into Catalan verse. In 1515 Villegas published the *Inferno* in Spanish. The earliest French version is that of B. Grangier (1597). Chaucer has rendered several passages beautifully, and similar fragments are embedded in Milton and others. But the first attempt to reproduce any considerable portion of the poem was made by Rogers, who only completed the *Inferno* (1782). The entire poem appeared first in English in the version of Henry Boyd (1802) in six-line stanzas; but the first adequate rendering is the admirable blank verse of H. F. Cary (1814, 2nd ed. 1819), which has remained the standard translation, though others of merit, notably those of Pollock (1854) and Longfellow (1867) in blank verse, Plumptre (1887) and Haselfoot (1887) in *terza rima*; J. A. Carlyle (*Inferno* only, 1847). C. E. Norton (1891), and H. F. Tozer (1904), in prose, have since appeared. The best in German are those of "Philalethes" (the late King John of Saxony) and Witte, both in blank verse.

Modern Editions and Commentaries.—The first serious attempt to establish an accurate text in recent times was made by Carl Witte, whose edition (1862) has been subsequently used as the basis for the text of the *Commedia* in the Oxford edition of Dante's complete works (1896 and later issues). Dr Toynbee's text (1900) follows the Oxford, with some modifications. The notes of Cary, Longfellow, Witte and "Philalethes," appended to their several translations, and Tozer's, in an independent volume, are valuable. Scartazzini's commentary is the most voluminous that has appeared since the 15th century. With a good deal of superfluous, and some superficial, erudition, it cannot be neglected by any one who wishes to study the poem thoroughly. An edition by A.J. Butler contains a prose version and notes. Of modern Italian editions, Bianchi's and Fraticelli's are still as good as any.

Other Aids.—For beginners no introduction is equal to the essay on Dante by the late Dean Church. Maria Rossetti's *Shadow of Dante* is also useful. *A Study of Dante*, by J. A. Symonds, is interesting. More advanced students will find Dr Toynbee's *Dante Dictionary* indispensable, and Dr E. Moore's *Studies in Dante* of great service in its discussion of difficult places. Two concordances, to the *Commedia* by Dr Fay (Cambridge, Mass., 1888), and to the minor works by Messrs Sheldon and White (Oxford, 1905), are due to American scholars. Mr W. W. Vernon's *Readings in Dante* have profited many students. Dante's minor works still lack thorough editing and scholarly elucidation, with the exception of the *De vulgari eloquentia*, which has been well handled by Professor Pio Rajna (1896), and the *Vita Nuova* by F. Beck (1896) and Barbi (1907). Good translations of the latter by D. G. Rossetti and C. E. Norton, and of the *De monarchia* by F. C. Church and P. H. Wicksteed are in existence. The best text is that of the Oxford *Dante*, though much confessedly remains to be done. The dates of their original publication have already been given.

Bibliography.—The first attempt at a bibliography of editions of Dante was made in Pasquali's edition of his collected works (Venice, 1739); but the first really adequate work on the subject is that of the viscount Colomb de Batines (1846-1848). A supplement by Dr Guido Biagi appeared in 1888. Julius Petzholdt had already covered some of the same ground in *Bibliographia Dantea*, extending from 1865 to 1880. The period from 1891 to 1900 has been dealt with by SS. Passerini and Mazzi in *Un Decennio di bibliografia Dantesca* (1905). The catalogues of the two libraries already named, and that of Harvard University, are worth consulting. For the MSS. Dr E. Moore's *Textual Criticism* (1889) is the most complete guide.

(A. J. B.*)

DANTON, GEORGE JACQUES (1759-1794), one of the most conspicuous actors in the decisive episodes of the French Revolution, was born at Arcis-sur-Aube on the 26th of October 1759. His family was of respectable quality, though of very moderate means. They contrived to give him a good education, and he was launched in the career of an advocate at the Paris bar. When the Revolution broke out, it found Danton following his profession with apparent success, leading a cheerful domestic life, and nourishing his intelligence on good books. He first appears in the revolutionary story as president of the popular club or assembly of the district in which he lived. This was the famous club of the Cordeliers, so called from the circumstance that its meetings were held in the old convent of the order of the Cordeliers, just as the Jacobins derived their name from the refectory of the convent of the Jacobin brothers. It is an odd coincidence that the old rivalries of Dominicans and Franciscans in the democratic movement inside the Catholic Church should be recalled by the names of the two factions in the democratic movement of a later century away from the church. The Cordeliers were from the first the centre of the popular principle in the French Revolution carried to its extreme point; they were the earliest to suspect the court of being irreconcilably hostile to freedom; and it was they who most vehemently proclaimed the need for root-and-branch measures. Danton's robust, energetic and impetuous temperament made him the natural leader in such a quarter. We find no traces of his activity in the two great insurrectionary events of 1789—the fall of the Bastille, and the

forcible removal of the court from Versailles to the Tuileries. In the spring of 1790 we hear his voice urging the people to prevent the arrest of Marat. In the autumn we find him chosen to be the commander of the battalion of the national guard of his district. In the beginning of 1791 he was elected to the post of administrator of the department of Paris. This interval was for all France a barren period of doubt, fatigue, partial reaction and hoping against hope. It was not until 1792 that Danton came into the prominence of a great revolutionary chief.

In the spring of the previous year (1791) Mirabeau had died, and with him had passed away the only man who was at all likely to prove a wise guide to the court. In June of that year the king and queen made a disastrous attempt to flee from their capital and their people. They were brought back once more to the Tuileries, which from that time forth they rightly looked upon more as a prison than a palace or a home. The popular exasperation was intense, and the constitutional leaders, of whom the foremost was Lafayette, became alarmed and lost their judgment. A bloody dispersion of a popular gathering, known afterwards as the massacre of the Champ-de-Mars (July 1791), kindled a flame of resentment against the court and the constitutional party which was never extinguished. The Constituent Assembly completed its infertile labours in September 1791. Then the elections took place to its successor, the short-lived Legislative Assembly. Danton was not elected to it, and his party was at this time only strong enough to procure for him a very subordinate post in the government of the Parisian municipality. Events, however, rapidly prepared a situation in which his influence became of supreme weight. Between January and August 1792 the want of sympathy between the aims of the popular assembly and the spirit of the king and the queen became daily more flagrant and beyond power of disguise. In April war was declared against Austria, and to the confusion and distraction caused by the immense civil and political changes of the past two years was now added the ferment and agitation of war with an enemy on the frontier. The distrust felt by Paris for the court and its loyalty at length broke out in insurrection. On the memorable morning of the 10th of August 1792 the king and queen took refuge with the Legislative Assembly from the apprehended violence of the popular forces who were marching on the Tuileries. The share which Danton had in inspiring and directing this momentous rising is very obscure. Some look upon him as the head and centre of it. Apart from documents, support is given to this view by the fact that on the morrow of the fall of the monarchy Danton is found in the important post of minister of justice. This sudden rise from the subordinate office which he had held in the commune is a proof of the impression that his character had made on the insurrectionary party. To passionate fervour for the popular cause he added a certain broad steadfastness and an energetic practical judgment which are not always found in company with fervour. Even in those days, when so many men were so astonishing in their eloquence, Danton stands out as a master of commanding phrase. One of his fierce sayings has become a proverb. Against Brunswick and the invaders, "*il nous faut de l'audace, et encore de l'audace, et toujours de l'audace*,"—we must dare, and again dare, and for ever dare. The tones of his voice were loud and vibrant. As for his bodily presence, he had, to use his own account of it, the athletic shape and the stern physiognomy of the Liberty for which he was ready to die. Jove the Thunderer, the rebel Satan, a Titan, Sardanapalus, were names that friends or enemies borrowed to describe his mien and port. He was thought about as a coarser version of the great tribune of the Constituent Assembly; he was called the Mirabeau of the sansculottes, and Mirabeau of the markets.

In the executive government that was formed on the king's dethronement, this strong revolutionary figure found himself the colleague of the virtuous Roland and others of the Girondins. Their strength was speedily put to a terrible test. The alarming successes of the enemy on the frontier, and the surrender of two important fortresses, had engendered a natural panic in the capital. But in the breasts of some of the wild men whom the disorder of the time had brought to prominent place in the Paris commune this panic became murderously heated. Some hundreds of captives were barbarously murdered in the prisons. There has always been much dispute as to Danton's share in this dreadful transaction. At the time, it must be confessed, much odium on account of an imputed direction of the massacres fell to him. On the whole, however, he cannot be fairly convicted of any part in the plan. What he did was to make the best of the misdeed, with a kind of sombre acquiescence. He deserves credit for insisting against his colleagues that they should not flee from Paris, but should remain firm at their posts, doing what they could to rule the fierce storm that was raging around them.

The elections to the National Convention took place in September, when the Legislative Assembly surrendered its authority. The Convention ruled France until October 1795. Danton was a member; resigning the ministry of justice, he took a foremost part in the deliberations and proceedings of the Convention, until his execution in April 1794. This short period of nineteen months was practically the life of Danton, so far as the world is concerned with him.

He took his seat in the high and remote benches which gave the name of the Mountain to the thoroughgoing revolutionists who sat there. He found himself side by side with Marat, whose exaggerations he never countenanced; with Robespierre, whom he did not esteem very highly, but whose immediate aims were in many respects his own; with Camille Desmoulins and Phélippeaux, who were his close friends and constant partisans. The foes of the Mountain were the group of the Girondins,—eloquent, dazzling, patriotic, but unable to apprehend the fearful nature of the crisis, too full of vanity and exclusive party-spirit, and too fastidious to strike hands with the vigorous and stormy Danton. The Girondins dreaded the people who had sent Danton to the Convention; and they insisted on seeing on his hands the blood of the prison massacres of September. Yet in fact Danton saw much more clearly than they saw how urgent it was to soothe the insurrectionary spirit, after it had done the work of abolition which to him, as to them too, seemed necessary and indispensable. Danton discerned what the Girondins lacked the political genius to see, that this control of Paris could only be wisely effected by men who sympathized with the vehemence and energy of Paris, and understood that this vehemence and energy made the only force to which the Convention could look in resisting the Germans on the north-east frontier, and the friends of reaction in the interior. "Paris," he said, "is the natural and constituted centre of free France. It is the centre of light. When Paris shall perish there will no longer be a republic."

Danton was among those who voted for the death of the king (January 1793). He had a conspicuous share in the creation of the famous revolutionary tribunal, his aim being to take the weapons away from that disorderly popular vengeance which had done such terrible work in September. When all executive power was conferred upon a committee of public safety, Danton had been one of the nine members of whom that body was originally composed. He was despatched on frequent missions from the Convention to the republican armies in Belgium, and wherever he went he infused new energy into the work of national liberation. He pressed forward the erection of a system of national education, and he was one of the legislative committee charged with the construction of a new system of government. He vainly tried to compose the furious dissensions between Girondins and Jacobins. The Girondins were irreconcilable, and made Danton the object of deadly attack. He was far too robust in character to lose himself in merely personal enmities, but by the middle of May (1793) he had made up his mind that the political suppression of the Girondins had become indispensable. The position of the country was most alarming. Dumouriez, the victor of Valmy and Jemmappes, had deserted. The French arms were suffering a series of checks and reverses. A royalist rebellion was gaining formidable dimensions in the west. Yet the Convention was wasting time and force in the vindictive recriminations of faction. There is no positive evidence that Danton directly instigated the insurrection of the 31st of May and the 2nd of June, which ended in the purge of the Convention and the proscription of the Girondins. He afterwards spoke of himself as in some sense the author of this revolution, because a little while before, stung by some trait of factious perversity in the Girondins, he had openly cried out in the midst of the Convention, that if he could only find a hundred men, they would resist the oppressive authority of the Girondin commission of twelve. At any rate, he certainly acquiesced in the violence of the commune, and he publicly gloried in the expulsion of the men who stood obstinately in the way of a vigorous and concentrated exertion of national power. Danton, unlike the Girondins, accepted the fury of popular passion as an inevitable incident in the work of deliverance. Unlike Billaud Varenne or Hébert, or any other of the Terrorist party, he had no wish to use this frightful two-

edged weapon more freely than was necessary. Danton, in short, had the instinct of the statesman. His object was to reconcile France with herself; to restore a society that, while emancipated and renewed in every part, should yet be stable; and above all to secure the independence of his country, both by a resolute defence against the invader, and by such a mixture of vigour with humanity as should reconcile the offended opinion of the rest of Europe. This, so far as we can make it out, was what was in his mind.

The position of the Mountain had now undergone a complete change. In the Constituent Assembly its members did not number more than 30 out of the 578 of the third estate. In the Legislative Assembly they had not been numerous, and none of their chiefs had a seat. In the Convention for the first nine months they had an incessant struggle for their very lives against the Girondins. They were now (June 1793) for the first time in possession of absolute power. It was not easy, however, for men who had for many months been nourished on the ideas and stirred to the methods of opposition, all at once to develop the instincts of government. Actual power was in the hands of the two committees—that of public safety and of general security. Both were chosen out of the body of the Convention. The drama of the nine months between the expulsion of the Girondins and the execution of Danton turns upon the struggle of the committee to retain power—first, against the insurrectionary commune of Paris, and second, against the Convention, from which the committees derived an authority that was regularly renewed on the expiry of each short term.

Danton, immediately after the fall of the Girondins, had thrown himself with extraordinary energy into the work to be done. The first task in a great city so agitated by anarchical ferment had been to set up a strong central authority. In this genuinely political task Danton was prominent. He was not a member of the committee of public safety when that body was renewed in the shape that speedily made its name so redoubtable all over the world. This was the result of a self-denying ordinance which he imposed upon himself. It was he who proposed that the powers of the committee should be those of a dictator, and that it should have copious funds at its disposal. In order to keep himself clear of any personal suspicion, he announced his resolution not to belong to the body which he had thus done his best to make supreme in the state. His position during the autumn of 1793 was that of a powerful supporter and inspirer, from without, of the government which he had been foremost in setting up. Danton was not a great practical administrator and contriver, like Carnot, for instance. But he had the gift of raising in all who heard him an heroic spirit of patriotism and fiery devotion, and he had a clear eye and a cool judgment in the tempestuous emergencies which arose in such appalling succession. His distinction was that he accepted the insurrectionary forces, instead of blindly denouncing them as the Girondins had done. After these forces had shaken down the throne, and then, by driving away the Girondins, had made room for a vigorous government, Danton perceived the expediency of making all haste to an orderly state. Energetic prosecution of the war, and gradual conciliation of civil hatreds, had been, as we have said, the two marks of his policy ever since the fall of the monarchy. The first of these objects was fulfilled abundantly, partly owing to the energy with which he called for the arming of the whole nation against its enemies. His whole mind was now given to the second of them. But the second of them, alas, was desperate.

It was to no purpose that, both in his own action and in the writings of Camille Desmoulins (*Le Vieux Cordelier*), of whom he was now and always the intimate and inspirer, he worked against the iniquities of the bad men, like Carrier and Collot d'Herbois, in the provinces, and against the severity of the revolutionary tribunal in Paris. The black flood could not at a word or in an hour subside from its storm-lashed fury. The commune of Paris was now composed of men like Hébert and Chaumette, to whom the restoration of any sort of political order was for the time indifferent. They wished to push destruction to limits which even the most ardent sympathizers with the Revolution condemn now, and which Danton condemned then, as extravagant and senseless. Those men were not politicians, they were fanatics; and Danton, who was every inch a politician, though of a vehement type, had as little in common with them as John Calvin of Geneva had with John of Leiden and the Münster Anabaptists. The committee watched Hébert and his followers uneasily for many weeks, less perhaps from disapproval of their excesses than from apprehensions of their hostility to the committee's own power. At length the party of the commune proposed to revolt against the Convention and the committees. Then the blow was struck, and the Hébertists were swiftly flung into prison, and thence under the knife of the guillotine (March 24th, 1794). The execution of the Hébertists was the first victory of the revolutionary government over the extreme insurrectionary party. But the committees had no intention to concede anything to their enemies on the other side. If they refused to follow the lead of the anarchists of the commune, they were none the more inclined to give way to the Dantonian policy of clemency. Indeed, such a course would have been their own instant and utter ruin. The Terror was not a policy that could be easily transformed. A new policy would have to be carried out by new men, and this meant the resumption of power by the Convention, and the death of the Terrorists. In Thermidor 1794 such a revolution did take place, with those very results. But in Germinal feeling was not ripe. The committees were still too strong to be overthrown. And Danton seems to have shown a singular heedlessness. Instead of striking by vigour in the Convention, he waited to be struck. In these later days a certain discouragement seems to have come over his spirit. His wife had died during his absence on one of his expeditions to the armies; he had now married again, and the rumour went that he was allowing domestic happiness to tempt him from the keen incessant vigilance proper to the politician in such a crisis. He must have known that he had enemies. When the Jacobin club was "purified" in the winter, Danton's name would have been struck out as a moderate if Robespierre had not defended him. The committees had deliberated on his arrest soon afterwards, and again it was Robespierre who resisted the proposal. Yet though he had been warned of the lightning that was thus playing round his head, Danton did not move. Either he felt himself powerless, or he rashly despised his enemies. At last Billaud Varenne, the most prominent spirit of the committee after Robespierre, succeeded in gaining Robespierre over to his designs against Danton. Robespierre was probably actuated by the motives of selfish policy which soon proved the greatest blunder of his life. The Convention, aided by Robespierre and the authority of the committee, assented with ignoble unanimity. On the 30th of March Danton, Desmoulins and others of the party were suddenly arrested. Danton displayed such vehemence before the revolutionary tribunal, that his enemies feared lest he should excite the crowd in his favour. The Convention, in one of its worst fits of cowardice, assented to a proposal made by St Just that, if a prisoner showed want of respect for justice, the tribunal might pronounce sentence without further delay. Danton was at once condemned, and led, in company with fourteen others, including Camille Desmoulins, to the guillotine (April 5th, 1794). "I leave it all in a frightful welter," he said; "not a man of them has an idea of government. Robespierre will follow me; he is dragged down by me. Ah, better be a poor fisherman than meddle with the government of men!"

Events went as Danton foresaw. The committees presently came to quarrel with the pretensions of Robespierre. Three months after Danton, Robespierre fell. His assent to the execution of Danton had deprived him of the single great force that might have supported him against the committee. The man who had "saved France from Brunswick" might perhaps have saved her from the White reaction of 1794.

Bibliography.—Sources for the life of Danton abound in the national archives and in the columns of the *Moniteur*. His *Œuvres* were published by A. Vermorel (Paris, 1866), and his speeches are included in H. Morse Stephens' *Principal Speeches of the Statesmen and Orators of the French Revolution* (vol. ii., Oxford, 1892); cf. F. V. Aulard, *Les Orateurs de la Législative et de la Convention* (Danton and his group; 2 vols., 1885-1886). The charges of corruption freely brought against Danton by contemporaries were accepted by many historians, and he has been persistently accused of instigating or at least abetting, by failure to use the power he possessed, the September massacres. A minute examination of the evidence by F. V. Aulard and J. F. E. Robinet in France, followed by A. H. Beesly in England, has placed his career and his character in a fairer light. The chief books on Danton's life are:—A. Bougeart, *Danton, documents pour servir à l'histoire de la Révolution française* (Brussels, 1861); J. F. E. Robinet, *Danton, mémoire sur sa vie privée* (Paris, 1865), *Le Procès des*

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(J. Mo.)

DANUBE (Ger. *Donau*, Hungarian *Duna*, Rumanian *Dunarea*, Lat. *Danubius* or *Danuvius*, and in the lower part of its course *Ister*), the most important river of Europe as regards the volume of its outflow, but inferior to the Volga in length and in the area of its drainage. It originates at Donaueschingen in the Black Forest, where two mountain streams, the Brigach and the Brege, together with a third stream from the Palace Gardens, unite at an elevation of 2187 ft. above the sea to form the Danube so called. From this point it runs in an easterly direction until it falls into the Black Sea some 1750 m. from its source, being the only European river of importance with a course from west to east. Its basin, which comprises a territory of nearly 300,000 sq. m., is bounded by the Black Forest, some of the minor Alpine ranges, the Bohemian Forest and the Carpathian Mountains on the north, and by the Alps and the Balkan range on the south. From the point where the Danube first becomes navigable, i.e. at its junction with the Iller at Ulm (1505 ft. above sea-level), it is fed by at least 300 tributaries, the principal of which on the right bank are the Inn, the Drave and the Save; while on the left bank are the Theiss or Tisza, the Olt, the Sereth and the Pruth. These seven rivers have a total length of 2920 m. and drain one half of the basin of the Danube.

The course of this mighty river is rich in historical and political associations. For a long period it formed the frontier of the Roman empire; near Eining (above Regensburg) was the ancient Abusina, which for nearly five centuries was the chief Roman outpost against the northern barbarians. Traces of Trajan's wall still exist between that point and Wiesbaden, while another line of fortifications bearing the same emperor's name are found in the Dobrudja between Cernavoda (on the lower Danube) and Constantza. At intervening points are still found many notable Roman remains, such as Trajan's road, a marvellous work on the right bank of the river in the rocky Kazan defile (separating the Balkans on the south from the Carpathians on the north), where a contemporary commemorative tablet is still conspicuously visible. At Turnu Severin below the end of this famous gorge are the remains of a solid masonry bridge constructed by the same emperor at the period of his Dacian conquests. But since Roman days the central Danube has never formed the boundary of a state; on the contrary it became the route followed from east to west by successive hordes of barbarians—the Huns, Avars, Slavs, Magyars and Turks; while the Franks under Charlemagne, the Bavarians and the Crusaders all marched in the opposite direction towards the east. In more modern days its banks were the scenes of many bloody battles during the Napoleonic Wars. Still more recently it has become the great highway of commerce for central Europe. It has been pointed out by J. G. Kohl (*Austria and the Danube*, London, 1844) and others that, in consequence of the Danube having been in constant use as the line of passage of migratory hostile tribes, it nowhere forms the boundary between two states from Orsova upwards, and thus it traverses as a central artery Württemberg, Bavaria, Austria and Hungary, while on the other hand various tributaries both north and south, which formed serious obstacles to the march of armies, have become lines of separation between different states. Thus Hungary is separated from Austria by the rivers March and Leitha; the river Enns, for a considerable period the extreme western boundary of the Magyar kingdom, still separates Upper and Lower Austria; the Inn and the Salzach divide Austria from Bavaria, and farther west the Iller separates Bavaria from Württemberg.

Historical and political associations.

The Danube after leaving Donaueschingen flows south-east in the direction of Lake Constance, and below Immendingen a considerable quantity of its waters escapes through subterranean fissures to the river Ach in the Rhine basin. At Gutmadingen it turns to the north-east, which general direction, although with many windings, it maintains as far as Linz. At Tuttlingen it contracts and the hills crowd close to the banks, while ruins of castles crown almost every possible summit. The scenery is wild and beautiful until the river passes Sigmaringen. At Ulm, where the river leaves Württemberg and enters Bavaria, it is joined by a large tributary, the Iller, and from this point becomes navigable downstream for specially constructed boats carrying 100 tons of merchandise. It is here some 78 yds. in breadth, with an average depth of 3 ft. 6 in. Continuing its north-easterly course it passes through Bavaria, gradually widening its channel first at Steppberg, then at Ingolstadt, but finally narrowing again until it reaches Regensburg (height 949 ft.). At this point it changes its direction to the south-east, and passing along the southern slopes of the Bavarian Forest enters Austria at Passau (height 800 ft.). In its passage through Bavaria it receives several important affluents on both banks, notably on the right the Alpine rivers Lech, Isar and Inn, the last of which at the junction near Passau exceeds in volume the waters of the Danube.

Course.

From Passau the Danube flows through Austria for a distance of 233 m. Closed in by mountains it flows past Linz in an unbroken stream—below, it expands and divides into many arms until it reaches the famous whirlpool near Grein where its waters unite and flow on in one channel for 40 m., through mountains and narrow passes. Beyond Krems it again divides, forming arms and islands beyond Vienna. The Danube between Linz and Vienna is renowned not only for its picturesque beauty but for the numerous medieval and modern buildings of historical and archaeological interest which crown its banks. The splendid Benedictine monastery of Melk and the ruins of Dürrenstein, the prison of Richard Cœur de Lion, are among the most interesting.

After passing Vienna and the Marchfeld, the Danube (here 316 yds. wide and 429 ft. above sea-level) passes through a defile formed by the lower spurs of the Alps and the Carpathians and enters Hungary at the ruined castle of Theben a little above Pressburg, the old Magyar capital, after leaving which the river passes through the Hungarian plains, receiving several affluents on both sides. It divides into three channels, forming several islands. After passing the fortress of Komárom it loses its easterly course at Vácz (Waitzen), and flows nearly due south for 230 m. down to its junction with the Drave (81 ft. above sea-level), passing in its course Budapest, the capital of Hungary, and farther on Mohács. Below Mohács the Franz Josef canal connects the Danube with the Theiss. After its junction with the Save the Danube follows a south-easterly direction for 200 m. until it is joined on the right bank of the Drave at Belgrade, above which it receives on the left bank the Theiss or Tisz., the largest of its Hungarian affluents. From Belgrade the Danube separates Hungary from Servia. It flows eastward until it has passed through the stupendous Kazan defile, in which its waters (at Semlin 1700 yds. wide and 40 ft. deep) are hemmed in by precipitous rocks to a width of only 162 yds., with a depth of 150 ft. and a tremendous current. Emerging, above Orsova, at a height of 42 ft. above sea-level, it opens to nearly a mile in width and, turning south-eastwards, is again narrowed by its last defile, the Iron Gates, where it passes over the Prigrada rock. The course of the river through Hungary, from Pressburg to Orsova, is some 600 m.

The river now flows south, separating Servia from Rumania down to its junction with the Timok, after which as far as Silistria, a distance of 284 m., it separates Rumania from Bulgaria. The north bank is mostly flat and marshy, whereas the Bulgarian bank is almost continuously crowned by low heights on which are built the considerable towns of Vidin (Widdin), Lom Palanka, Rustchuk and Silistria, all memorable names in Turko-Russian wars. From Silistria the river flows through Rumanian territory and after passing Cernavoda, where it is crossed by a modern railway bridge, it reaches (left bank) the

important commercial ports of Braila and Galatz. A few miles east of Galatz the Pruth enters on the left bank, which is thenceforward Russian territory. The Danube flows in a single channel from Galatz for 30 m. to the Ismail Chatal (or fork), where it breaks up into the several branches of the delta. The Kilia branch from this point flows to the north-east past the towns of Ismail and Kilia, and 17 m. below the latter breaks up into another delta discharging by seven channels into the Black Sea. The Tulcea branch flows south-east from the Ismail Chatal, and 7 m. below the town of Tulcea separates into two branches. The St George's branch, holding a general, though winding, course to the south-east, discharges by two channels into the sea; and the Sulina branch, taking an easterly direction, emerges into the Black Sea 20 m. south of the Ochakov mouth of the Kilia, and 20 m. north of the Kedrilles mouth of the St George.

In 1857 the proportion of discharge by the three branches of the Danube was Sulina 7%, St George's 30% and Kilia 63%; but in 1905 the relative proportions had altered to Sulina 9%, St George's 24% and Kilia 67%. The average outflow by the three mouths combined is 236,432 cub. ft. per second. The delta enclosed between the Kilia and St George's branches, about 1000 sq. m. in area, mainly consists of one large marsh covered with reeds, and intersected by channels, relieved in places by isolated elevations covered with oak, beech and willows, many of them marking the ancient coast-line. On the eastern side of the Kilia delta the coast-line is constantly advancing and the sea becoming shallower, owing to the enormous amount of solid deposits brought down by the river. In time of ordinary flood the Kilia branch with its numerous mouths pours into the sea some 3000 cub. ft. of sand and mud per minute. Its effects are felt as far south as Sulina, and tend to necessitate the farther extension into the sea of the guiding piers of that port.

Navigation.

In the course of the 19th century, more especially during its latter half, much was done to render the Danube more available as a means of communication. In 1816 Austria and Bavaria made arrangements for the common utilization of the upper portion of the river, and since then both governments have been liberal in expenditure on its improvement. In 1844 the Ludwigs Canal was constructed by King Louis of Bavaria. It is 110 m. in length and 7 ft. in depth, and connects the Danube at Kelheim (half way between Ulm and Passau) with the Rhine at Mainz by means of the rivers Altmühl, Regnitz and Main. Various other projects exist, one for the connexion of the Danube (near Vienna) with the river Oder at Oderberg, another for a canal from the Danube to the Moldau at Budweis, 125 m. in length, which owing to the regularization of the Moldau is the last uncompleted link of a navigable channel 1875 m. in length between Sulina and Hamburg at the mouths of the Danube and the Elbe respectively. There also exist other schemes for joining the Danube with the rivers Neckar and Theiss, and also for connecting the Oder Canal with the Vistula and the Dniester. Between Ulm and Vienna, a distance of 629 m., works of rectification have been numerous and have greatly improved the navigability of the river. The draining of the Donau-moos between Neuburg and Ingolstadt, commenced in 1791, was successfully completed about 1835; and in 1853 the removal of the rocks which obstructed the river below Grein was finally achieved; while at Vienna itself the whole mass of the Danube was conducted nearer the town for a distance of nearly 2 m. through an artificial channel 10 m. in length and 330 yds. in width, with a depth of about 12 ft., and at a cost with subsidiary works of over three millions sterling. The work, begun in 1866, involved the removal of 12,000,000 cub. metres of sand and gravel, and proved a great success, not only amply realizing its principal object, the protection of Vienna from disastrous inundations, but also improving the navigability of the river in that portion of its course. The Hungarian government also, throughout the latter half of the 19th century, expended vast sums at Budapest for the improvement of navigation and the protection of the town from inundation, and in the regularization of the Danube down to Orsova.

In prehistoric times a great part of the plains of Hungary formed a large inland sea, which ultimately burst its bounds, whereupon the Danube forced its way through the Carpathians at the Kazan defile. Much of what then formed the bottom of this sea consisted until modern times of marshes and waste lands lying in the vicinity of its numerous rivers. The problem of draining and utilizing these lands was not the only difficulty to be surmounted by the Hungarian engineers; the requirements of navigation and the necessity in winter of preventing the formation of large ice-fields, such as caused the disastrous floods at Budapest in 1838, had also to be considered. In carrying out these works the Hungarian government between 1867 and 1895 spent seven millions sterling, and a further expenditure of three and a half millions was provided for up to 1907. At Budapest, where the formation of ice-fields at the upper entrance of the two side arms of the Danube—the Promontor on the north, 20 m. in length, and the Soroksar, 35 m. long,—caused the inundation alluded to, the latter branch has been artificially blocked and the whole of the Danube now flows through Budapest in a single channel. For the first section of 60 m. after entering Hungary, the bed of the river, here surcharged with gravel, was constantly changing its course. It has been regularized throughout, the width of the stream varying from 320 to 400 yds. In the second section from Gönyö to Paks, 164 m. in length, the river had a tendency to form islands and sandbanks—its width now varies uniformly from 455 to 487 yds. The third section of 113 m., from Paks to the mouth of the Drave, differed from the others and made innumerable twists and curves. No fewer than seventeen cuttings have been made, reducing the original course of the river by 75 m. The fourth section, 217 m. in length, from the Drave to Old Moldova, resembles in its characteristics the second section and has been similarly treated. Cuttings have also been made where necessary, and the widths of the channel are 487 yds. to the mouth of the Theiss, 650 between that point and the Save, and lower down 760 yds. In the fifth and last section from Old Moldova to Orsova and the Iron Gates the river is enclosed by mountains and rocky banks, and the obstacles to navigation are rocks and whirlpools.

Article VI. of the treaty of London (1871) authorized the powers which possess the shores of this part of the Danube to come to an understanding with the view of removing these impediments, and to have the right of levying a provisional tax on vessels of every flag which may henceforth benefit thereby until the extinction of the debt contracted for the execution of the works. As the riverain powers could not come to an agreement on the subject, the great powers at the congress of Berlin (1878) entrusted to Austria-Hungary the execution of the works in question. Austria-Hungary subsequently conferred its rights on Hungary, by which country the works were carried out at a cost of about one and a half millions sterling.

The principal obstructions between Old Moldova and Turnu Severin were the Stenka Rapids, the Kozla Dojke Rapids, the Greben section and the Iron Gates. At the first named there was a bank of rocks, some of them dry at low water, extending almost across the river (985 yds. wide). The fall of the river bed is small, but the length of the rapid is 1100 yds. The Kozla Dojke, 9 m. below the Stenka Rapids, extend also for 1100 yds., with a fall of 1 in 1000, where two banks of rocks cause a sudden alternation in the direction of the current. The river is here only 170 to 330 yds. in width. Six miles farther on is the Greben section, the most difficult part of the works of improvement. A spur of the Greben mountains runs out below two shoals where the river suddenly narrows to 300 yds. at low water, but presently widens to 1½ m. Seven miles lower down are the Jucz Rapids, where the river-bed has a fall of 1 in 433. At the Iron Gates, 34 m. below the Greben, the Prigrada rocky bank nearly blocked the river at the point where it widens out after leaving the Kazan defile. The general object of the works was to obtain a navigable depth of water at all seasons of 2 metres (6.56 ft.) on that portion of the river above Orsova, and a depth of 3 metres (9.84 ft.) below that town. To effect this at Stenka, Kozla Dojke, Islaz and Tachtalia, channels 66 yds. wide had to be cut in the solid rock to a depth of 6 ft. 6 in. below low water. The point of the Greben spur had to be entirely removed for a distance of 167 yds. back from its original face. Below the Greben point a training wall 7 to 9 ft. high, 10 ft. at top and nearly 4 m. in length, has been built along the Servian shore in order to confine the river in a narrow channel. At Jucz another similar channel had to be cut and a training wall built. At the Iron Gates a channel 80 yds. wide, nearly 2000 yds. in length and 10 ft. deep (in the immediate vicinity of traces of an old Roman canal) had to be cut on the Servian side of the river through solid rock. Training walls have been built on either side of the channel to confine the water so as to raise its level; that on the right bank having a width of 19 ft. 6 in. at top, and serving as a tow-path; that

on the left being 13 ft. in width. These training walls are built of stone with flat revetments to protect them against ice. These formidable and expensive works have not altogether realized the expectations that had been formed of them. One most important result, however, has been attained, i.e. vessels can now navigate the Iron Gates at all seasons of the year when the river is not closed by ice, whereas formerly at extreme low water, lasting generally for about three months in the late summer and autumn, through navigation was always at a standstill, and goods had to be landed and transported considerable distances by land. The canal was opened for traffic on the 1st of October 1898. It was designed of sufficient width, as was supposed, for the simultaneous passage of boats in opposite directions; but on account of the great velocity of the current this has been found to be impracticable.

From the Iron Gates down to Braila, which is the highest point to which large sea-going ships ascend the river, there have been no important works of improvement. From Braila to Sulina, a distance of about 100 m., the river falls under the jurisdiction of the European commission of the Danube, an institution of such importance as to merit lengthened notice. It was called into existence under Art. XVI. of the treaty of Paris (1856), and in November of that year a commission was constituted in which Austria, France, Great Britain, Prussia, Russia, Sardinia and Turkey were each represented by one delegate "to designate and cause to be executed the works necessary below Isaktcha[1] to clear the mouths of the Danube as well as the neighbouring parts of the sea, from the sands and other impediments which obstructed them, in order to put that part of the river and the said parts of the sea in the best possible state for navigation."

European commission of the Danube.

In Art. XVIII. of the same treaty it was anticipated that the European commission would have finished the works described within the period of two years, when it was to be dissolved and its powers taken over by a Riverain commission to be established under the same treaty; but this commission has never come into existence. Extended by short periods up to 1871, the powers of the European commission were then prolonged under the treaty of London for twelve years. At the congress of Berlin in 1878 its jurisdiction was extended from Isakcea to Galatz (26 m.), and it was decided that the commission, in which Rumania was henceforward to be represented by a delegate, should exercise its powers in complete independence of the territorial authority. By the treaty of London of 1883 the jurisdiction of the commission was extended from Galatz to Braila and its powers were prolonged for twenty-one years (i.e. till the 24th of April 1904), after which its existence was to continue by tacit prolongation for successive terms of three years unless one of the high contracting powers should propose any modification in its constitution or attributes. It was also decided that the European commission should no longer exercise any effective control over that portion of the Kilia branch of which the two banks belonged to one of the riverain powers (Russia and Rumania), while as regards that portion of it which separated the two countries, control was to be exercised by the Russian and Rumanian delegates on the European commission. Russia was also authorized to levy tolls intended to cover the expenses of any works of improvement that might be undertaken by her. Art. VII. of the same treaty declared that the regulations for navigation, river police, and superintendence drawn up on the 2nd of June 1882 by the European commission, assisted by the delegates of Servia and Bulgaria, should be made applicable to that part of the Danube situated between the Iron Gates and Braila. In consequence of Rumania's opposition, the proposed *Commission Mixte* was never formed, and these regulations have never been put in force. As regards the extension of the powers of the European commission to Braila, 11 m. above Galatz, and at the head of the maritime navigation, a tacit understanding has been arrived at, under which questions concerning navigation proper come under the jurisdiction of the commission, while the police of the ports remains in the hands of the Rumanian authorities.

Sir Charles Hartley, who was chief engineer of the commission from 1856 to 1907,[2] in a paper contributed to the Institution of Civil Engineers in 1873 (vol. xxxvi.), gave the following graphic description of the state of the Sulina mouth when the commission entered on its labours in 1856:—

> "The entrance to the Sulina branch was a wild open seaboard strewn with wrecks, the hulls and masts of which, sticking out of the submerged sandbanks, gave to mariners the only guide where the deepest channel was to be found. The depth of the channel varied from 7 to 11 ft., and was rarely more than 9 ft.
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> "The site now occupied by wide quays extending several miles in length was then entirely covered with water when the sea rose a few inches above ordinary level, and that even in a perfect calm; the banks of the river near the mouth were only indicated by clusters of wretched hovels built on piles and by narrow patches of sand skirted by tall weeds, the only vegetable product of the vast swamps beyond.
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> "For some years before the improvements, an average of 2000 vessels of an aggregate capacity of 400,000 tons visited the Danube, and of this number more than three-fourths loaded either the whole or part of their cargoes from lighters in the Sulina roadstead, where, lying off a lee shore, they were frequently exposed to the greatest danger. Shipwrecks were of common occurrence, and occasionally the number of disasters was appalling. One dark winter night in 1855, during a terrific gale, 24 sailing ships and 60 lighters went ashore off the mouth and upwards of 300 persons perished."

The state of affairs in the river was not much better than at the Sulina mouth. Of the three arms of the Danube, the Kilia, the Sulina and the St George, the central or Sulina branch, owing to its greater depth of water over the bar, had from time immemorial been the principal waterway for sea-going vessels; its average depth throughout its course, which could not always be counted on, was 8 ft., but it contained numerous shoals where vessels had to lighten, so that cargo had often to be shifted several times in the voyage down the river. It also contained numerous bends and sharp curves, sources of the greatest difficulty to navigation.

The commission fixed its seat at Galatz. Provisional works of improvement were begun almost immediately at the mouth of the Sulina branch of the Danube, but two years were spent in discussing the relative claims to adoption of the Kilia, the Sulina and the St George's mouths. Unable to agree, the delegates referred the question to their respective governments, and a technical commission appointed by France, England, Prussia and Sardinia met at Paris and decided unanimously in favour of St George's; but recommended, instead of the embankment of the natural channel, the formation of an artificial canal 17 ft. in depth closed by sluices at its junction with the river, and reaching the sea at some distance from the natural embouchure. The choice of St George's made by this commission was adopted at Galatz in December 1858, and six of the seven representatives voted for its canalization; but owing to various political and financial considerations, it was ultimately decided to do nothing more in the meantime than render permanent and effective the provisional works already in progress at the Sulina mouth. These consisted of two piers forming a seaward prolongation of the fluvial channel, begun in 1858 and completed in 1861. The northern pier had a length of 4631 ft., the southern of 3000, and the depth of the water in which they were built varied from 6 to 20 ft. At the commencement of the works the depth of the channel was only 9 ft. but by their completion it had increased to 19 ft. The works designed and constructed by Sir Charles Hartley had in fact proved so successful that nothing more was ever heard of the St George's project. In 1865 a new lighthouse was erected at the end of the north pier. The value of these early works of the commission is shown by the fact that of 2928 vessels navigating the lower Danube in 1855, 36 were wrecked, while of 2676 in 1865 only 7 were wrecked. In 1871 it was found expedient to lengthen the piers seaward, and in 1876 the south jetty was prolonged, so as to bring its end exactly opposite the lighthouse on the north pier. This resulted in an increase of the depth to 20½ ft., and for fifteen years, from 1879 to 1895, this depth remained constant without the aid of dredging. In 1894, owing to the constantly increasing size of vessels frequenting the Danube, it was found necessary to deepen the entrance still further, and to construct two parallel piers between the main jetties, reducing the breadth of the river to 500 ft., and thereby increasing the scour. There is now a continuous channel 24 ft. in depth, 5200 ft. in length, and 300 ft. in width between the piers, and 600 ft. outside the extremities of the piers, until deep water is reached in the open sea. This depth is only maintained by constant dredging.

The engineers of the commission have been equally successful in dealing with the Sulina branch of the river. Its original length of 45 m. from St George's Chatal to the sea was impeded at the commencement of the improvement works by eleven bends, each with a radius of less than 1000 ft., besides numerous others of somewhat larger radius, and its bed was encumbered by ten shifting shoals, varying from 8 to 13 ft. in depth at low water. By means of a series of training walls, by groynes thrown out from the banks, by revetments of the banks, and by dredging, all done with the view of narrowing the river, a minimum depth of 11 ft. was attained in 1865, and 13 ft. in 1871. In 1880 the needs of commerce and the increased size of steamers frequenting the river necessitated the construction of a new entrance from the St George's branch. This work, designed in 1857, but unexecuted during a quarter of a century, owing to insufficiency of funds, was completed in 1882; and in 1886, after other comparatively short cuttings had been made to get rid of difficult bends and further to deepen the channel without having to resort to dredgers, the desired minimum depth of 15 ft. was attained. Since that date a series of new cuttings has been made. These have shortened the length of the Sulina canal by 11 nautical m., eliminated all the difficult bends and shoals, and provided an almost straight waterway 34 m. in length from Sulina to St George's Chatal, with a minimum depth of 20 ft. when the river is at its lowest.

In the early days of the commission, i.e. from 1857 to 1860, the money spent on the works of improvement, amounting to about £150,000, was advanced as a loan by the then territorial power, Turkey; but in 1860 the commission began to levy taxes on vessels frequenting the river, and since then has repaid its debt to the Turkish government, as well as various loans for short periods, and a larger one of £120,000 guaranteed by the powers, and raised in 1868, mainly through the energy of the British commissioner, Sir John Stokes. This last loan was paid off in 1882 and the commission became free from debt in 1887. It has now an average annual income of about £80,000 derived from taxes paid by ships when[3] leaving the river. The normal annual expenditure amounts to about £56,000, while £24,000 is generally allotted to extraordinary works, such as new cuttings, &c. Between 1857 and 1905 a sum of about one and three quarter millions sterling was spent on engineering works, including the construction of quays, lighthouses, workshops and buildings, &c. Sulina from being a collection of mud hovels has developed into a town with 5000 inhabitants; a well-found hospital has been established where all merchant sailors receive gratuitous treatment; lighthouses, quays, floating elevators and an efficient pilot service all combine to make it a first-class port.

The result of all the combined works for the rectification of the Danube is that from Sulina up to Braila the river is navigable for sea-going vessels up to 4000 tons register, from Braila to Turnu Severin it is open for sea-going vessels up to 600 tons, and for flat barges of from 1500 to 2000 tons capacity. From Turnu Severin to Orsova navigation is confined to river steamers, tugs and barges drawing 6 ft. of water. Thence to Vienna the draught is limited to 5 ft., and from Vienna to Regensburg to a somewhat lower figure. Barges of 600 tons register can be towed from the lower Danube to Regensburg. Here petroleum tanks have been constructed for the storage of Rumanian petroleum, the first consignment of which in 1898, conveyed in tank boats, took six weeks on the voyage up from Giurgevo. The principal navigation company on the upper Danube is the Société Impériale et Royale Autrichienne of Vienna, which started operations in 1830. This company also owns the Fünfkirchen mines, producing annually 500,000 tons of coal. The society transports goods and passengers between Galatz and Regensburg. A less important society is the Rumanian State Navigation Company, possessing a large flotilla of tugs and barges, which run to Budapest, where they have established a combined service with the South Danube German Company for the transport of goods from Pest to Regensburg. A Hungarian Navigation Company, subsidized by the state, has also been formed, and the Hungarian railways, the Servian government and private owners own a large number of tugs and barges.

But it is the trade of the lower Danube that has principally benefited. Freights from Galatz and Braila to North Sea ports have fallen from 50s. to about 12s. or even 10s. per ton. Sailing ships of 200 tons register have given way to steamers up to 4000 tons register carrying a deadweight of nearly 8000 tons; and good order has succeeded chaos. From 1847 to 1860 an average of 203 British ships entered the Danube averaging 193 tons each; from 1861 to 1889, 486 ships averaging 796 tons; in 1893, 905 vessels of 1,287,762 tons, or 68% of the total traffic, and rather more than two and a half times the total amount of British tonnage visiting the Danube in the fourteen years between 1847 and 1860. The average amount of cereals (principally wheat) annually exported from the Danube during the period 1901-1905 was 13,000,000 quarters, i.e. about five times the average annual exportation during the period 1861-1867. It has been calculated that between 1861 and 1902 the total tonnage of ships frequenting the Danube increased five-fold, while the mean size of individual ships increased ten-fold.

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(H. Tr.)

1 Isakcea was 66 nautical m. from the sea measured by the Sulina arm of the Danube, 37 m. below Braila and 26 m. below Galatz.

2 Sir Charles Hartley became consulting engineer in 1872, when he was succeeded as resident engineer by Mr Charles Kühl, C.E., C.M.G. To those two gentlemen is mainly due the conspicuous success of the engineering works.

3 Ships pay no taxes to the commission on entering the river, but on leaving it every ship of over 1500 tons register pays 1s. 5d. per registered ton if loaded at Galatz or Braila, or 11d. per ton if loaded at Sulina. This includes pilotage and light dues. Smaller vessels pay less and ships of less than 300 tons are exempt.

DANVERS, a township of Essex county, on the coast of Massachusetts, U.S.A., about 19 m. N. by E. of Boston. Pop. (1890) 7454; (1900) 8542, of whom 1873 were foreign-born; (1910 census) 9407. Danvers includes an area of 14 sq. m. of level country diversified by hills. There are several villages or business centres, the largest of which, bearing the same name as the township, is served by the Boston & Maine railway. In the township are a state insane asylum, with accommodation for 1000 patients; St John's Preparatory College (Roman Catholic), conducted by the Xavierian Brothers; and, in Peabody Park, the Peabody Institute, with a good public library and museum, the gift (1867) of George Peabody. The Danvers historical society has a valuable collection. Although chiefly a residential town, Danvers has various manufactures, the most important of which are leather, boots and shoes, bricks, boxes and electric lamps. The total value

of the factory product in 1905 was $2,017,908, of which more than one half was the value of leather. Danvers owns its water-works and its electric lighting and power plant. A part of what is now Danvers was included in the grant made by the court of assistants to Governor John Endecott and the Rev. Samuel Skelton of the Salem church in 1632. Danvers was set off from Salem as a district in 1752 and was incorporated as a township in 1757, but the act of incorporation was disallowed in 1759 by the privy council on the recommendation of the board of trade, in view of George II.'s disapproval of the incorporation of new townships at that time,—hence the significance of the words on the seal of Danvers, "The King Unwilling"; in 1775 the district was again incorporated. Salem Village, a part of the present township, was the centre of the famous witchcraft delusion in 1692. In 1885 South Danvers was set off as a separate township, and in 1868 was named Peabody in honour of George Peabody, who was born and is buried there. In 1857 part of Beverly was annexed to Danvers. Among distinguished natives of Danvers are Samuel Holton (1738-1816), a member (1778-1780 and 1782-1787) of the Continental Congress and (1793-1795) of the Federal Congress; Israel Putnam; Moses Porter (1755-1822), who served through the War of Independence and the War of 1812; and Grenville Mellen Dodge (b. 1831), a prominent railway engineer, who fought in the Union army in the Civil War, reaching the rank of major-general of volunteers, was a Republican member of the national House of Representatives in 1867-1869, and in 1898 president of the commission which investigated the management of the war with Spain.

See J. W. Hanson, *History of the Town of Danvers* (Danvers, 1848); Ezra D. Hines, *Historic Danvers* (Danvers, 1894) and *Historical Address* (Boston, 1907), in celebration of the 150th anniversary of the first incorporation; and A. P. White, "History of Danvers" in *History of Essex County, Mass.* (Philadelphia, 1888).

DANVILLE, a city and the county-seat of Vermilion county, Illinois, U.S.A., in the E. part of the state, near the Big Vermilion river, 120 m. S. of Chicago. Pop. (1890) 11,491; (1900) 16,354, of whom 1435 were foreign-born; (1910) 27,871. Danville is served by the Chicago & Eastern Illinois (whose shops are here), the Wabash, the Chicago, Indiana & Southern, and the Cleveland, Cincinnati, Chicago & St Louis railways, and by three interurban lines. There are three public parks (Lincoln, Douglas and Ellsworth), a Carnegie library (1883), and a national home for disabled volunteer soldiers (opened in 1898). Situated in the vicinity of an extensive coalfield (the Grape Creek district), Danville has a large trade in coal; it has also several manufacturing establishments engaged principally in the construction and repair of railway cars, and in the manufacture of bricks, foundry products, glass, carriages, flour and hominy. The value of the factory products of the city in 1905 was $3,304,120, an increase of 72.7% since 1900. Danville was first settled about 1830 and was first incorporated in 1839; in 1874 it was chartered as a city under the general state law of 1872 for the incorporation of municipalities. It annexed Vermilion Heights in 1905, South Danville (pop. in 1900, 898) in 1906, and Germantown (pop. in 1900, 1782) and Roselawn in 1907.

DANVILLE, a city and the county-seat of Boyle county, Kentucky, U.S.A., 113 m. S. by W. of Cincinnati. Pop. (1890) 3766; (1900) 4285 (1913 negroes) (1910) 5420. The city is served by the Southern and the Cincinnati Southern railways, the latter connecting at Junction City (4 m. S.) with the Louisville & Nashville railway. Danville is an attractive city, situated in the S.E. part of the fertile "Blue Grass region" of Kentucky. In McDowell Park there is a monument to the memory of Dr Ephraim McDowell (1771-1830), who after 1795 lived in Danville, and is famous for having performed in 1809 the first entirely successful operation for the removal of an ovarian tumour. Danville is the seat of several educational institutions, the most important of which is the Central University of Kentucky (Presbyterian), founded in 1901 by the consolidation of Centre College (opened at Danville in 1823), and the Central University (opened at Richmond, Ky., in 1874). The law school also is in Danville. The classical, scientific and literary department of the present university is still known as Centre College; the medical and dental departments are in Louisville, and the university maintains a preparatory school, the Centre College academy, at Danville. In 1908 the university had 87 instructors and 696 students. Other institutions at Danville are Caldwell College for women (1860; Presbyterian), and the Kentucky state institution for deaf mutes (1823). The Transylvania seminary was opened here in 1785, but four years later was removed to Lexington (q.v.), and a Presbyterian theological seminary was founded here in 1853, but was merged with the Louisville theological seminary (known after 1902 as the Presbyterian Theological Seminary of Kentucky) in 1901. The municipality owns and operates its water-works and power plant. From its first settlement in 1781 until the admission of Kentucky into the Union in 1792 Danville was an important political centre. There was an influential political club here from 1786 to 1790, and here, too, sat the several conventions—nine in all—which asked for a separation from Virginia, discussed the proposed conditions of separation from that commonwealth, framed the first state constitution, and chose Frankfort as the capital. Danville was incorporated in 1789. It was the birthplace of James G. Birney and of Theodore O'Hara.

DANVILLE, a borough and the county-seat of Montour county, Pennsylvania, U.S.A., on the N. branch of the Susquehanna river, about 65 m. N. by E. of Harrisburg. Pop. (1890) 7998; (1900) 8042, of whom 771 were foreign-born; (1910 census) 7517. It is served by the Delaware, Lackawanna & Western, and the Philadelphia & Reading railways, and by electric railway to Bloomsburg. The borough is built on an elevated bank of the river at the base of Montour Ridge, where the narrow valley appears to be shut in on every side by hills; the river is spanned by a steel bridge, built in 1905. Iron, coal and limestone abound in the vicinity, and the borough has large manufactories of stoves and furnaces, and of iron and steel, in one of which in 1845 a "T"-rail, probably the first in America, was rolled. It is the seat of a state hospital for the insane (established in 1868). The water-works and electric light plant are owned and operated by the municipality. A settlement was founded here about 1776 by Captain William Montgomery and his son Daniel; and a town was laid out in 1792 and called Dan's Town until the present name was adopted a few years later. Growth was slow until the discovery of iron ore on Montour Ridge, followed in 1832 by the completion of the N. branch of the Pennsylvania Canal, which runs through the centre of the borough. Danville was incorporated in 1849.

DANVILLE, a city in Pittsylvania county, Virginia, U.S.A., on the Dan river about 140 m. (by rail) S.W. of Richmond. Pop. (1890) 10,305; (1900) 16,520 (6515 negroes); (1910) 19,020. It is on the main line of the Southern railway, and is the terminus of branches to Richmond and Norfolk; it is also served by the Danville & Western railway, a road (75 m. long) connecting with Stuart, Va., and controlled by the Southern, though operated independently. The city is built on high ground above the river. It has a city hall, a general hospital, a Masonic temple, and a number of educational institutions, including the Roanoke College (1860; Baptist), for young women; the Randolph-Macon Institute (1897; Methodist Episcopal, South), for girls; and a commercial college. The river furnishes valuable water-power, which is utilized by the city's manufactories (value of product in 1900, third in rank in the state, $8,103,484, of which only $3,693,792 was "factory" product; in 1905 the "factory" product was valued at $4,774,818), including cotton mills—in 1905 Danville ranked first among the cities of the state in the value of cotton goods produced—a number of tobacco factories, furniture and overall factories, and flour and knitting mills. The city is a jobbing centre and wholesale market for a considerable area in southern Virginia and northern North Carolina, and is probably the largest loose-leaf tobacco market in the country, selling about 40,000,000 lb annually. In the industrial suburb of Schoolfield, which in 1908 had a population of about 3000, there is a large textile mill. The city owns and operates its water-supply system (with an excellent filtration plant installed in 1904) and its gas and electric lighting plants. Danville was settled about 1770, was first incorporated as a town in 1792, and became a city in 1833; it is politically independent of Pittsylvania county. To Danville, after the evacuation of Richmond on the 2nd of April 1865, the archives of the Confederacy were carried, and here President Jefferson Davis paused for a few days in his flight southward.

DANZIG, or Dantsic (Polish *Gdansk*), a strong maritime fortress and seaport of Germany, capital of the province of West Prussia, on the left bank of the western arm of the Vistula, 4 m. S. of its entrance, at Neufahrwasser, into the Baltic, 253 m. N.E. from Berlin by rail. Pop. (1885) 114,805; (1905) 159,088. The city is traversed by two branches of the Mottlau, a small tributary of the Vistula, dredged to a depth of 15 ft., thus enabling large vessels to reach the wharves of the inner town. The strong fortifications which, with ramparts, bastions and wet ditches, formerly entirely surrounded the city, were removed on the north and west sides in 1895-1896, the trenches filled in, and the area thus freed laid out on a spacious plan. One portion, acquired by the municipality, has been turned into promenades and gardens, the Steffens Park, outside the Olivaer Tor, fifty acres in extent, occupying the north-western corner. The remainder of the massive defences remain, with twenty bastions, in the hands of the military authorities; the works for laying the surrounding country under water on the eastern side have been modernized, and the western side defended by a cordon of forts crowning the hills and extending down to the port of Neufahrwasser.

Danzig almost alone of larger German cities still preserves its picturesque medieval aspect. The grand old patrician houses of the days of its Hanseatic glory, with their lofty and often elaborately ornamented gables and their balconied windows, are the delight of the visitor to the town. Only one ancient feature is rapidly disappearing—owing to the exigencies of street traffic—the stone terraces close to the entrance doors and abutting on the street. Of its old gates the Hohe Tor, modelled after a Roman triumphal arch, is a remarkable monumental erection of the 16th century. From it runs the Lange Gasse, the main street, to the Lange Markt. On this square stands the Artus- or Junker-hof (the merchant princes of the middle ages were in Germany styled *Junker*, squire), containing a hall richly decorated with wood carving and pictures, once used as a banqueting-room and now serving as the exchange. There are twelve Protestant and seven Roman Catholic churches and two synagogues. Of these the most important is St Mary's, begun in 1343 and completed in 1503, one of the largest Protestant churches in existence. It possesses a famous painting of the Last Judgment, formerly attributed to Jan van Eyck, but probably by Memlinc. Among other ancient buildings of note are the beautiful Gothic town hall, surmounted by a graceful spire, the armoury (Zeughaus) and the Franciscan monastery, restored in 1871, and now housing the municipal picture gallery and a collection of antiquities. Of modern structures, the government offices, the house of the provincial diet, the post office and the palace of the commander of the 17th army corps, which has its headquarters in Danzig, are the most noteworthy.

The manufacture of arms and artillery is carried on to a great extent, and the imperial and private docks and shipbuilding establishments, notably the Schichau yard, turn out ships of the largest size. The town is famous for its amber, beer, brandy and liqueurs, and its transit trade makes it one of the most important commercial cities of northern Europe. Danzig originally owed its commercial importance to the fact that it was the shipping port for the corn grown in Poland and the adjacent regions of Russia and Prussia; but for some few years past this trade has been slipping away from her. On the other hand, her trade in timber and sugar has grown proportionally. Nevertheless energetic efforts are being made to check any loss of importance—first, in 1898, by a determined attempt to make Danzig an industrial centre, manufacturing on a large scale; and secondly, by the construction and opening in 1899 of a free harbour at Neufahrwasser at the mouth of the Vistula. The industries which it has been the principal aim to foster and further develop are shipbuilding (naval and marine), steel foundries and rolling mills, sugar refineries, flour and oil mills, and distilleries.

History.—The origin of Danzig is unknown, but it is mentioned in 997 as an important town. At different times it was held by Pomerania, Poland, Brandenburg and Denmark, and in 1308 it fell into the hands of the Teutonic knights, under whose rule it long prospered. It was one of the four chief towns of the Hanseatic League. In 1455, when the Teutonic Order had become thoroughly corrupt, Danzig shook off its yoke and submitted to the king of Poland, to whom it was formally ceded, along with the whole of West Prussia, at the peace of Thorn. Although nominally subject to Poland, and represented in the Polish diets and at the election of Polish kings, it enjoyed the rights of a free city, and governed a considerable territory with more than thirty villages. It suffered severely through various wars of the 17th and 18th centuries, and in 1734, having declared in favour of Stanislus Leszczynski, was besieged and taken by the Russians and Saxons. At the first partition of Poland, in 1772, Danzig was separated from that kingdom; and in 1793 it came into the possession of Prussia. In 1807, during the war between France and Prussia, it was bombarded and captured by Marshal Lefebvre, who was rewarded with the title of duke of Danzig; and at the peace of Tilsit Napoleon declared it a free town, under the protection of France, Prussia and Saxony, restoring to it its ancient territory. A French governor, however, remained in it, and by compelling it to submit to the continental system almost ruined its trade. It was given back to Prussia in 1814.

See J. C. Schultz, *Danzig und seine Bauwerke* (Berlin, 1873); Wistulanus, *Geschichte der Stadt Danzig* (Danzig, 1891); *Défense de Dantzig en 1813; documents militaires du lieutenant-général Campredon*, pub. by Auriel (Paris, 1888); Daniel, *Deutschland* (Leipzig, 1895).

DAPHLA (or Dafla) **HILLS,** a tract of hilly country on the border of Eastern Bengal and Assam, occupied by an

independent tribe called Daphla. It lies to the north of the Tezpur and North Lakhimpur subdivisions, and is bounded on the west by the Aka Hills and on the east by the Abor range. Colonel Dalton in *The Ethnology of Bengal* considers the Daphlas to be closely allied to the hill Miris, and they are akin to and intermarry with the Abors. They have a reputation for cowardice, and as politically they are disunited, they are at the mercy of the Akas, their less numerous but more warlike neighbours on the west. Their clothing is scanty, and its most distinguishing feature is a cane cap with a fringe of bearskin or feathers, which gives them a very curious appearance. The men wear their hair in a plait, which is coiled into a ball on the forehead, to which they fasten their caps with a long skewer. In 1872 a party of independent Daphlas suddenly attacked a colony of their own tribesmen, who had settled at Amtola in British territory, and carried away forty-four captives to the hills. This led to the Daphla expedition of 1874, when a force of 1000 troops released the prisoners and reduced the tribe to submission. According to the census of 1901 the Daphlas in British territory numbered 954, the tribal country not being enumerated.

DAPHNAE (Tahpanhes, Taphne; mod. *Defenneh*), an ancient fortress near the Syrian frontier of Egypt, on the Pelusian arm of the Nile. Here King Psammetichus established a garrison of foreign mercenaries, mostly Carians and Ionian Greeks (Herodotus ii. 154). After the destruction of Jerusalem by Nebuchadrezzar in 588 B.C., the Jewish fugitives, of whom Jeremiah was one, came to Tahpanhes. When Naucratis was given by Amasis II. the monopoly of Greek traffic, the Greeks were all removed from Daphnae, and the place never recovered its prosperity; in Herodotus's time the deserted remains of the docks and buildings were visible. The site was discovered by Prof. W. M. Flinders Petrie in 1886; the name "Castle of the Jew's Daughter" seems to preserve the tradition of the Jewish refugees. There is a massive fort and enclosure; the chief discovery was a large number of fragments of pottery, which are of great importance for the chronology of vase-painting, since they must belong to the time between Psammetichus and Amasis, i.e. the end of the 7th or the beginning of the 6th century B.C. They show the characteristics of Ionian art, but their shapes and other details testify to their local manufacture.

See W. M. F. Petrie, *Tanis II., Nebesheh, and Defenneh* (4th Memoir of the Egypt Exploration Fund, 1888).

(E. Gr.)

DAPHNE (Gr. for a laurel tree), in Greek mythology, the daughter of the Arcadian river-god Ladon or the Thessalian Peneus, or of the Laconian Amyclas. She was beloved by Apollo, and when pursued by him was changed by her mother Gaea into a laurel tree sacred to the god (Ovid, *Metam.* i. 452-567). In the Peloponnesian legends, another suitor of Daphne, Leucippus, son of Oenomaüs of Pisa, disguised himself as a girl and joined her companions. His sex was discovered while bathing, and he was slain by the nymphs (Pausanias viii. 20; Parthenius, *Erotica*, 15).

DAPHNE, in botany, a genus of shrubs, belonging to the natural order Thymelaeaceae, and containing about forty species, natives of Europe and temperate Asia. *D. Laureola*, spurge laurel, a small evergreen shrub with green flowers in the leaf axils towards the ends of the branches and ovoid black very poisonous berries, is found in England in copses and on hedge-banks in stiff soils. *D. Mezereum*, mezereon, a rather larger shrub, 2 to 4 ft. high, has deciduous leaves, and bears fragrant pink flowers in clusters in the axils of last season's leaves, in early spring before the foliage. The bright red ovoid berries are cathartic, the whole plant is acrid and poisonous, and the bark is used medicinally. It is a native of Europe and north Asia, and found apparently wild in copses and woods in Britain. It is a well-known garden plant, and several other species of the genus are cultivated in the open air and as greenhouse plants. *D. Cneorum* (Europe) is a hardy evergreen trailing shrub, with bright pink sweet-scented flowers. *D. pontica* (Eastern Europe) is a hardy spreading evergreen with greenish-yellow fragrant flowers. *D. indica* (China) and *D. japonica* (Japan) are greenhouse evergreens with respectively red or white and pinkish-purple flowers.

DAPHNEPHORIA, a festival held every ninth year at Thebes in Boeotia in honour of Apollo Ismenius or Galaxius. It consisted of a procession in which the chief figure was a boy of good family and noble appearance, whose father and mother must be alive. Immediately in front of this boy, who was called Daphnephoros (laurel bearer), walked one of his nearest relatives, carrying an olive branch hung with laurel and flowers and having on the upper end a bronze ball from which hung several smaller balls. Another smaller ball was placed on the middle of the branch or pole (called κωπώ), which was then twined round with purple ribbons, and at the lower end with saffron ribbons. These balls were said to indicate the sun, stars and moon, while the ribbons referred to the days of the year, being 365 in number. The Daphnephoros, wearing a golden crown, or a wreath of laurel, richly dressed and partly holding the pole, was followed by a chorus of maidens carrying suppliant branches and singing a hymn to the god. The Daphnephoros dedicated a bronze tripod in the temple of Apollo, and Pausanias (ix. 10. 4) mentions the tripod dedicated there by Amphitryon when his son Heracles had been Daphnephoros. The festival is described by Proclus (in Photius *cod.* 239).

See also A. Mommsen, *Feste der Stadt Athen* (1898); C. O. Müller, *Orchomenos* (1844); article in Daremberg and Saglio's *Dictionnaire des antiquités*.

DAPHNIS, the legendary hero of the shepherds of Sicily, and reputed inventor of bucolic poetry. The chief authorities

for his story are Diodorus Siculus, Aelian and Theocritus. According to his countryman Diodorus (iv. 84), and Aelian (*Var. Hist.*, x. 18), Daphnis was the son of Hermes (in his character of the shepherd-god) and a Sicilian nymph, and was born or exposed and found by shepherds in a grove of laurels (whence his name.) He was brought up by the nymphs, or by shepherds, and became the owner of flocks and herds, which he tended while playing on the syrinx. When in the first bloom of youth, he won the affection of a nymph, who made him promise to love none but her, threatening that, if he proved unfaithful, he would lose his eyesight. He failed to keep his promise and was smitten with blindness. Daphnis, who endeavoured to console himself by playing the flute and singing shepherds' songs, soon afterwards died. He fell from a cliff, or was changed into a rock, or was taken up to heaven by his father Hermes, who caused a spring of water to gush out from the spot where his son had been carried off. Ever afterwards the Sicilians offered sacrifices at this spring as an expiatory offering for the youth's early death. There is little doubt that Aelian in his account follows Stesichorus (q.v.) of Himera, who in like manner had been blinded by the vengeance of a woman (Helen) and probably sang of the sufferings of Daphnis in his recantation. Nothing is said of Daphnis's blindness by Theocritus, who dwells on his amour with Naïs; his victory over Menalcas in a poetical competition; his love for Xenea brought about by the wrath of Aphrodite; his wanderings through the woods while suffering the torments of unrequited love; his death just at the moment when Aphrodite, moved by compassion, endeavours (but too late) to save him; the deep sorrow, shared by nature and all created things, for his untimely end (Theocritus i. vii. viii.). A later form of the legend identifies Daphnis with a Phrygian hero, and makes him the teacher of Marsyas. The legend of Daphnis and his early death may be compared with those of Narcissus, Linus and Adonis—all beautiful youths cut off in their prime, typical of the luxuriant growth of vegetation in the spring, and its sudden withering away beneath the scorching summer sun.

See F. G. Welcker, *Kleine Schriften zur griechischen Litteraturgeschichte*, i. (1844); C. F. Hermann, *De Daphnide Theocriti* (1853); R. H. Klausen, *Aeneas und die Penaten*, i. (1840); R. Reitzenstein, *Epigramm und Skolion* (1893); H. W. Prescott in *Harvard Studies*, x. (1899); H. W. Stoll in Roscher's *Lexikon der Mythologie*; and G. Knaack in Pauly-Wissowa's *Realencyclopädie*.

DARÁB (originally Darábgerd), a district of the province of Fars in Persia. It has sixty-two villages, and possesses a hot climate, snow being rarely seen there in winter. It produces a great quantity of dates and much tobacco, which is considered the best in Persia. The town Daráb, the capital of the district, is situated in a very fertile plain, 140 m. S.E. of Shiraz. It has a population of about 5000, and extensive orchards of orange and lemon trees and immense plantations of date-palms. Legend ascribes the foundation of the city to Darius, hence its name Daráb-gerd (Darius-town). In the neighbourhood there are various remains of antiquity, the most important of which 3½ m. S., is known as the Kalah i Daráb, or citadel of Darius, and consists of a series of earthworks arranged in a circle round an isolated rock. Nothing, however, remains to fix the date or explain the history of the fortification. Another monument in the vicinity is a gigantic bas-relief, carved on the vertical face of a rock, representing the victory of the Sassanian Shapur I. (Sapor) of Persia over the Roman emperor Valerian, A.D. 260.

DARBHANGA, a town and district of British India, in the Patna division of Bengal. The town is on the left bank of the Little Baghmati river, and has a railway station. Pop. (1901) 66,244. The town is really a collection of villages that have grown up round the residence of the raja. This is a magnificent palace, with gardens, a menagerie and a good library. There are a first-class hospital, with a Lady Dufferin hospital attached; a handsome market-place, and an Anglo-vernacular school. The district of Darbhanga extends from the Nepal frontier to the Ganges. It was constituted in 1875 out of the unwieldy district of Tirhoot. Its area is 3348 sq. m. In 1901 the population was 2,912,611, showing an increase of 4% in the decade. The district consists entirely of an alluvial plain, in which the principal rivers are the Ganges, Buri Gandak, Baghmati and Little Baghmati, Balan and Little Balan, and Tiljuga. The land is especially fertile in the more elevated part of the district S.W. of the Buri Gandak; rice is the staple crop, and it may be noted that the cultivator in Darbhanga is especially dependent on the winter harvest. The chief exports are rice, indigo, linseed and other seeds, saltpetre and tobacco. There are several indigo factories and saltpetre refineries, and a tobacco factory. The district is traversed by the main line of the Bengal & North-Western railway and by branch lines, part of which were begun as a famine relief work in 1874.

The maharaja bahadur of Darbhanga, a Rajput, whose ancestor Mahesh Thakor received the Darbhanga raj (which includes large parts of the modern districts of Darbhanga, Muzaffarpur, Monghyr, Purnea and Bhagalpur) from the emperor Akbar early in the 16th century, is not only the premier territorial noble of Behar but one of the greatest noblemen of all India. Maharaja Lachhmeswar Singh Bahadur, who succeeded to the raj in 1860 and died in 1898, was distinguished for his public services, and especially as one of the most munificent of living philanthropists. Under his supervision his raj came to be regarded as the model for good and benevolent management; he constructed hundreds of miles of roads planted with trees, bridged all the rivers, and constructed irrigation works on a great scale. His charities were without limit; thus he contributed £300,000 for the relief of the sufferers from the Bengal famine of 1873-1874, and it is computed that during his possession of the raj he expended at least £2,000,000 on charities, works of public utility, and charitable remissions of rent. For many years he served as a member of the legislative council of the viceroy with conspicuous ability and moderation of view. As representative of the landowners of Berar and Bengal he took an important part in the discussion on the Bengal Tenancy Bill. He was succeeded by his brother, Maharaja Rameshwar Singh Bahadur, who was born on the 16th of January 1860, and on attaining his majority in 1878 was appointed to the Indian Civil Service, serving as assistant magistrate successively at Darbhanga, Chhapra and Bhagalpur. In 1886 he was created a raja bahadur, exempted from attendance at the civil courts, and appointed a member of the legislative council of Bengal. He was created a maharaja bahadur on his succession to the raj in 1898. Like his brother, he was educated by an English tutor, and his administration carried on the enlightened traditions of his predecessor.

See Sir Roper Lethbridge, *The Golden Book of India*.

D'ARBLAY, FRANCES (1752-1840), English novelist and diarist, better known as Fanny Burney, daughter of Dr Charles Burney (q.v.), was born at King's Lynn, Norfolk, on the 13th of June 1752. Her mother was Esther Sleepe, granddaughter

of a French refugee named Dubois. Fanny was the fourth child in a family of six. Of her brothers, James (1750-1821) became an admiral and sailed with Captain Cook on his second and third voyages, and Charles Burney (1757-1817) was a well-known classical scholar. In 1760 the family removed to London, and Dr Burney, who was now a fashionable music 827
master, took a house in Poland Street. Mrs Burney died in 1761, when Fanny was only nine years old. Her sisters Esther (Hetty), afterwards Mrs Charles Rousseau Burney, and Susanna, afterwards Mrs Phillips, were sent to school in Paris, but Fanny was left to educate herself. Early in 1766 she paid her first visit to Dr Burney's friend Samuel Crisp at Chessington Hall, near Epsom. Dr Burney had first made Samuel Crisp's acquaintance about 1745 at the house of Fulke Greville, grandfather of the diarists, and the two studied music while the rest of the guests hunted. Crisp wrote a play, *Virginia*, which was staged by David Garrick in 1754 at the request of the beautiful countess of Coventry (née Maria Gunning). The play had no great success, and in 1764 Crisp established himself in retirement at Chessington Hall, where he frequently entertained his sister, Mrs Sophia Gast, of Burford, Oxfordshire, and Dr Burney and his family, to whom he was familiarly known as "daddy" Crisp.[1] It was to her "daddy" Crisp and her sister Susan that Fanny Burney addressed large portions of her diary and many of her letters. After his wife's death in 1767, Dr Burney married Elizabeth Allen, widow of a King's Lynn wine-merchant.

From her fifteenth year Fanny lived in the midst of an exceptionally brilliant social circle, gathered round her father in Poland Street, and later in his new home in St Martin's Street, Leicester Fields. Garrick was a constant visitor, and would arrive before eight o'clock in the morning. Of the various "lyons" they entertained she leaves a graphic account, notably of Omai, the Otaheitan native, and of Alexis Orlov, the favourite of Catherine II. of Russia. Dr Johnson she first met at her father's home in March 1777. Her father's drawing-room, where she met many of the chief musicians, actors and authors of the day, was in fact Fanny's only school. Her reading, however, was by no means limited. Macaulay stated that in the whole of Dr Burney's library there was but one novel, Fielding's *Amelia*; but Austin Dobson points out that she was acquainted with the abbé Prévost's *Doyen de Killérine*, and with Marivaux's *Vie de Marianne*, besides *Clarissa Harlowe* and the books of Mrs Elizabeth Griffith and Mrs Frances Brooke. Her diary also contains the record of much more strenuous reading. Her stepmother, a woman of some cultivation, did not encourage habits of scribbling. Fanny, therefore, made a bonfire of her MSS., among them a *History of Caroline Evelyn*, a story containing an account of Evelina's mother. Luckily her journal did not meet with the same fate. The first entry in it was made on the 30th of May 1768, and it extended over seventy-two years. The earlier portions of it underwent wholesale editing in later days, and much of it was entirely obliterated. She planned out *Evelina*, or *A Young Lady's Entrance into the World*, long before it was written down. *Evelina* was published by Thomas Lowndes in the end of January 1778, but it was not until June that Dr Burney learned its authorship, when the book had been reviewed and praised everywhere. Fanny proudly told Mrs Thrale the secret. Mrs Thrale wrote to Dr Burney on the 22nd of July: "Mr Johnson returned home full of the Prayes of the *Book* I had lent him, and protesting that there were passages in it which might do *honour* to Richardson: we talk of it for ever, and he feels ardent after the denouement; he could not get *rid* of the Rogue, he said." Miss Burney soon visited the Thrales at Streatham, "the most consequential day I have spent since my birth" she calls the occasion. It was the prelude to much longer visits there. Dr Johnson's best compliments were made for her benefit, and eagerly transcribed in her diary. His affectionate friendship for "little Burney" only ceased with his death.

Evelina was a continued success. Sir Joshua Reynolds sat up all night to read it, as did Edmund Burke, who came next to Johnson in Miss Burney's esteem. She was introduced to Elizabeth Montagu and the other bluestocking ladies, to Richard Brinsley Sheridan, and to the gay Mrs Mary Cholmondeley, the sister of Peg Woffington, whose manners, as described in the diary, explain much of *Evelina*. At the suggestion of Mrs Thrale, and with offers of help from Arthur Murphy, and encouragement from Sheridan, Fanny began to write a comedy. Crisp, realizing the limitations of her powers, tried to dissuade her, and the piece, *The Witlings*, was suppressed in deference to what she called a "hissing, groaning, catcalling epistle" from her two "daddies." Meanwhile her intercourse with Mrs Thrale proved very exacting, and left her little time for writing. She went with her to Bath in 1780, and was at Streatham again in 1781. Her next book was written partly at Chessington and after much discussion with Mr Crisp. *Cecilia; or, Memoirs of an Heiress*, by the author of *Evelina*, was published in 5 vols. in 1782 by Messrs Payne & Cadell (who paid the author £250—not £2000 as stated by Macaulay). If *Cecilia* has not quite the freshness and charm of *Evelina*, it is more carefully constructed, and contains many happy examples of what Johnson called Miss Burney's gift of "character-mongering." Burke sent her a letter full of high praise. But some of her friends found the writing too often modelled on Johnson's, and Horace Walpole thought the personages spoke too uniformly in character.

On the 24th of April 1783, Fanny Burney's "most judicious adviser and stimulating critic," "daddy" Crisp, died. He was her devoted friend, as she was to him, "the dearest thing on earth." The next year she was to lose two more friends. Mrs Thrale married Piozzi, and Johnson died. Fanny had met the celebrated Mrs Delany in 1783, and she now attached herself to her. Mrs Delany, who was living (1785) in a house near Windsor Castle presented to her by George III., was on the friendliest terms with both the king and queen, and Fanny was honoured with more than one royal interview. Queen Charlotte, soon afterwards, offered Miss Burney the post of second keeper of the robes, with a salary of £200 a year, which after some hesitation was accepted. Much has been said against Dr Burney for allowing the authoress of *Evelina* and *Cecilia* to undertake an office which meant separation from all her friends and a wearisome round of court ceremonial. On the other hand, it may be fairly urged that Fanny's literary gifts were really limited. She had written nothing for four years, and apparently felt she had used her best material. "What my daddy Crisp says," she wrote as early as 1779, "'that it would be the best policy, but for pecuniary advantages, for me to write no more,' is exactly what I have always thought since *Evelina* was published" (*Diary*, i. 258). Her misgivings as to her unfitness for court life were quite justified. From Queen Charlotte she received unvarying kindness, though she was not very clever with her waiting-maid's duties. She had to attend the queen's toilet, to take care of her lap-dog and her snuff-box, and to help her senior, Mrs Schwellenberg, in entertaining the king's equerries and visitors at tea. The constant association with Mrs Schwellenberg, who has been described as "a peevish old person of uncertain temper and impaired health, swaddled in the buckram of backstairs etiquette," proved to be the worst part of Fanny's duties. Her diary is full of amusing court gossip, and sometimes deals with graver matters, notably in the account of Warren Hastings' trial, and in the story of the beginning of George III.'s madness, as seen by a member of his household. But the strain told on her health, and after pressure both from Fanny and her numerous friends, Dr Burney prepared with her a joint memorial asking the queen's leave to resign. She left the royal service in July 1791 with a retiring pension of £100 a year, granted from the queen's private purse, and returned to her father's house at Chelsea. Dr Burney had been appointed organist at Chelsea Hospital in 1783, through Burke's influence.

In 1792 she became acquainted with a group of French exiles, who had taken a house, Juniper Hall, near Mickleham, where Fanny's sister, Mrs Phillips, lived. On the 31st of July 1793 she married one of the exiles, Alexandre D'Arblay, an artillery officer, who had been adjutant-general to La Fayette. They took a cottage at Bookham on the strength, it appears, of Miss Burney's pension. In 1793 she produced her *Brief Reflections relative to the Emigrant French Clergy*. Her son Alexandre was born on the 18th of December 1794. In the following spring Sheridan produced at Drury Lane her *Edwy* 828
and Elgiva, a tragedy which was not saved even by the acting of the Kembles and Mrs Siddons. The play was never printed. Money was now a serious object, and Madame D'Arblay was therefore persuaded to issue her next novel, *Camilla: or A Picture of Youth* (5 vols., 1796), by subscription. A month after publication Dr Burney told Horace Walpole that his daughter had made £2000 by the book, and this sum was almost certainly augmented later. It is interesting to note that Jane Austen was among the subscribers. Unfortunately its literary success was not as great. "How I like *Camilla*?" wrote Horace Walpole to Miss Hannah More (August 29th, 1796), "I do not care to say how little. Alas! she has reversed

experience ... this author knew the world and penetrated characters before she had stepped over the threshold; and, now she has seen so much of it, she has little or no insight at all: perhaps she apprehended having seen too much, and kept the bags of foul air that she brought from the Cave of Tempests too closely tied." Nevertheless *Camilla* has found judicious persons to admire it, notably Jane Austen in *Northanger Abbey*. A second play, *Love and Fashion*, was actually put in rehearsal in 1799, but was withdrawn in the next year. In 1801 Madame D'Arblay accompanied her husband to Paris, where General D'Arblay eventually obtained a place in the civil service. In 1812 she returned to England, bringing with her her son Alexandre to escape the conscription. In 1814 she published *The Wanderer; or Female Difficulties*. Possibly because readers expected to find a description of her impressions of revolutionary France, it had a large sale, from which the author realized £7000. Nobody, it has been said, ever read *The Wanderer*. In the end of the year General D'Arblay came to England and took his wife back to France. During the Hundred Days of 1815 she was in Belgium, and the vivid account in her Diary of Brussels during Waterloo may have been used by Thackeray in *Vanity Fair*. General D'Arblay now received permission to settle in England. After his death, which took place at Bath on the 3rd of May 1818, his wife lived in Bolton Street, Piccadilly. There she was visited in 1826 by Sir Walter Scott, who describes her (*Journal*, November 18th, 1826) as an elderly lady with no remains of personal beauty, but with a gentle manner and a pleasing countenance. The later years of her life were occupied with the editing of the *Memoirs of Dr Burney, arranged from his own Manuscripts, from family papers and from personal recollections* (3 vols., 1832). Her style had, as time went on, altered for the worse, and this book is full of extraordinary affectations. Madame D'Arblay died in London on the 6th of January 1840 and was buried at Walcot, Bath, near her son and husband.

Madame D'Arblay is still read in *Evelina*, but her best title to the affections of modern readers is the *Diary and Letters*. The small egotisms of the writer do not alienate other readers as they did John Wilson Croker. Dr Johnson lives in its pages almost as vividly as in those of Boswell, and King George and his wife in a friendlier light than in most of their contemporary portraits. Croker, in *The Quarterly Review*, April 1833 and June 1842, made two attacks on Madame D'Arblay. The first is an unfriendly but largely justifiable criticism on the *Memoirs of Dr Burney*. In the second, a review of the first three volumes of the *Diary and Letters*, Croker abused the writer's innocent vanity, and declared that, considering their bulk and pretensions, the *Diary and Letters* were "nearly the most worthless we have ever waded through." These pronouncements drew forth the eloquent defence by Lord Macaulay, first printed in *The Edinburgh Review*, January 1843, which, in spite of some inaccuracies and considerable exaggeration, has perhaps done more than anything else to maintain Madame D'Arblay's constant popularity.

BIBLIOGRAPHY.—The *Diary and Letters of Madame D'Arblay* was edited by her niece, Charlotte Frances Barrett, in 7 vols. (1842-1846). The text, covering the years 1778-1840, was edited with preface, notes and reproductions of contemporary portraits and other illustrations, by Mr Austin Dobson in 6 vols. (1904-1905). This *Diary*, which begins with the publication of *Evelina*, was supplemented in 1889 by *The Early Diary of Frances Burney* (1768-1778), which was in the first instance suppressed as being of purely private interest, edited by Mrs Annie Raine Ellis, with an introduction giving many particulars of the Burney family. Mrs Ellis also edited *Evelina* for "Bohn's Novelist's Library" in 1881, and *Cecilia* in 1882. See also Austin Dobson's *Fanny Burney* (*Madame D'Arblay*) (1903), in the "English Men of Letters Series."

1 His letters to Mrs Gast and another sister, Anne, were edited with the title of *Burford Papers* (1906), by W. H. Hutton.

DARBOY, GEORGES (1813-1871), archbishop of Paris, was born at Fayl-Billot in Haute Marne on the 16th of January 1813. He studied with distinction at the seminary at Langres, and was ordained priest in 1836. Transferred to Paris as almoner of the college of Henry IV., and honorary canon of Notre Dame, he became the close friend of Archbishop Affre and of his successor Archbishop Sibour. He was appointed bishop of Nancy in 1859, and in January 1863 was raised to the archbishopric of Paris. The archbishop was a strenuous upholder of episcopal independence in the Gallican sense, and involved himself in a controversy with Rome by his endeavours to suppress the jurisdiction of the Jesuits and other religious orders within his diocese. Pius IX. refused him the cardinal's hat, and rebuked him for his liberalism in a letter which was probably not intended for publication. At the Vatican council he vigorously maintained the rights of the bishops, and strongly opposed the dogma of papal infallibility, against which he voted as inopportune. When the dogma had been finally adopted, however, he was one of the first to set the example of submission. Immediately after his return to Paris the war with Prussia broke out, and his conduct during the disastrous year that followed was marked by a devoted heroism which has secured for him an enduring fame. He was active in organizing relief for the wounded at the commencement of the war, remained bravely at his post during the siege, and refused to seek safety by flight during the brief triumph of the Commune. On the 4th of April 1871 he was arrested by the communists as a hostage, and confined in the prison at Mazas, from which he was transferred to La Roquette on the advance of the army of Versailles. On the 27th of May he was shot within the prison along with several other distinguished hostages. He died in the attitude of blessing and uttering words of forgiveness. His body was recovered with difficulty, and, having been embalmed, was buried with imposing ceremony at the public expense on the 7th of June. It is a noteworthy fact that Darboy was the third archbishop of Paris who perished by violence in the period between 1848 and 1871. Darboy was the author of a number of works, of which the most important are a *Vie de St Thomas Becket* (1859), a translation of the works of St Denis the Areopagite, and a translation of the *Imitation of Christ*.

See J. A. Foulon, *Histoire de la vie et des œuvres de Mgr. Darboy* (Paris, 1889), and J. Guillermin, *Vie de Mgr. Darboy* (Paris, 1888), biographies written from the clerical standpoint, which have called forth a number of pamphlets in reply.

DARCY, THOMAS DARCY, BARON (1467-1537), English soldier, was a son of Sir William Darcy (d. 1488), and belonged to a family which was seated at Templehurst in Yorkshire. In early life he served, both as a soldier and a diplomatist, in Scotland and on the Scottish borders, where he was captain of Berwick; and in 1505, having been created Baron Darcy, he was made warden of the east marches towards Scotland. In 1511 Darcy led some troops to Spain to help Ferdinand and Isabella against the Moors, but he returned almost at once to England, and was with Henry VIII. on his French campaign two years later. One of the most influential noblemen in the north of England, where he held several important offices, Darcy was also a member of the royal council, dividing his time between state duties in London and a more active life in the north. He showed great zeal in preparing accusations against his former friend, Cardinal Wolsey; however, after the cardinal's fall his words and actions caused him to be suspected by Henry VIII. Disliking the separation from Rome, Darcy asserted that matrimonial cases were matters for the decision of the spiritual power, and he was soon communicating with Eustace Chapuys, the ambassador of the emperor Charles V., about an invasion of England in the interests of the Roman Catholics. Detained in London against his will by the king, he was not allowed to return to Yorkshire until late in 1535, and

about a year after his arrival in the north the rising known as the Pilgrimage of Grace broke out. For a short time Darcy defended Pontefract Castle against the rebels, but soon he surrendered to them this stronghold, which he could certainly have held a little longer, and was with them at Doncaster, being regarded as one of their leaders. Upon the dispersal of the insurgents Darcy was pardoned, but he pleaded illness when Henry requested him to proceed to London. He may have assisted to suppress the rising which was renewed under Sir Francis Bigod early in 1537, but the king believed, probably with good reason, that he was guilty of fresh treasons, and he was seized and hurried to London. During his imprisonment he uttered his famous remark about Thomas Cromwell:—"Cromwell, it is thou that art the very original and chief causer of all this rebellion and mischief, ... and I trust that or thou die, though thou wouldst procure all the noblemen's heads within the realm to be stricken off, yet shall there one head remain that shall strike off thy head." Tried by his peers, Darcy was found guilty of treason, and was beheaded on the 20th of June 1537. In 1548 his barony was revived in favour of his son George (d. 1557), but it became extinct on the death of George's descendant John in 1635.

DARDANELLES (Turk. *Bahr-Sefed Boghazi*), the strait, in ancient times called the Hellespont (q.v.), uniting the Sea of Marmora with the Aegean, so called from the two castles which protect the narrowest part and preserve the name of the city of Dardanus in the Troad, famous for the treaty between Sulla and Mithradates in 84 B.C. The shores of the strait are formed by the peninsula of Gallipoli on the N.W. and by the mainland of Asia Minor on the S.E.; it extends for a distance of about 47 m. with an average breadth of 3 or 4 m. At the Aegean extremity stand the castles of Sedil Bahr and Kum Kaleh respectively in Europe and Asia; and near the Marmora extremity are situated the important town of Gallipoli (Callipolis) on the northern side, and the less important though equally famous Lamsaki or Lapsaki (Lampsacus) on the southern. The two castles of the Dardanelles *par excellence* are Chanak-Kalehsi, Sultanieh-Kalehsi, or the Old Castle of Anatolia, and Kilid-Bahr, or the Old Castle of Rumelia, which were long but erroneously identified with Sestos and Abydos now located farther to the north. The strait of the Dardanelles is famous in history for the passage of Xerxes by means of a bridge of boats, and for the similar exploit on the part of Alexander. It is famous also from the story of Hero and Leander, and from Lord Byron's successful attempt (repeated by others) to rival the ancient swimmer. Strategically the Dardanelles is a point of great importance, since it commands the approach to Constantinople from the Mediterranean. The passage of the strait is easily defended, but in 1807 the English admiral (Sir) J. T. Duckworth made his way past all the fortresses into the Sea of Marmora. The treaty of July 1841, confirmed by the Paris peace of 1856, prescribed that no foreign ship of war might enter the strait except by Turkish permission, and even merchant vessels are only allowed to pass the castle of Chanak-Kalehsi during the day.

See Choiseul-Gouffier, *Voyage pittoresque* (Paris, 1842); Murray's *Handbook for Constantinople* (London, 1900).

DARDANELLES (Turk. *Sultanieh Kalehsi*, or *Chanak Kalehsi*), the chief town and seat of government of the lesser Turkish province of Bigha, Asia Minor. It is situated at the mouth of the Rhodius, and at the narrowest part of the strait of the Dardanelles, where its span is but a mile across. Its recent growth has been rapid, and it possesses a lyceum, a military hospital, a public garden, a theatre, quays and water-works. Exclusive of the garrison, the population is estimated at 13,000, of whom one-half are Turkish, and the remainder Greek, Jewish, Armenian and European. The town contains many mosques, Greek, Armenian and Catholic churches, and a synagogue. There is a resident Greek bishop. The civil governor, and the military commandants of the numerous fortresses on each side of the strait, are stationed here. Many important works have been added to the defences. The Ottoman fleet is stationed at Nagara (anc. *Abydos*). The average annual number of merchant vessels passing the strait is 12,000 and the regular commercial vessels calling at the port of Dardanelles are represented by numerous foreign agencies. Besides the Turkish telegraph service, the Eastern Telegraph Company has a station at Dardanelles, and there are Turkish, Austrian, French and Russian post offices. The import trade consists of manufactures, sugar, flour, coffee, rice, leather and iron. The export trade consists of valonia (largely produced in the province), wheat, barley, beans, chickpeas, canary seed, liquorice root, pine and oak timber, wine and pottery. Excepting in the items of wine and pottery, the export trade shows steady increase. Every year sees a larger area of land brought under cultivation by immigrants, and adds to the number of mature (i.e. fruit-bearing) valonia trees. Vine-growers are discouraged by heavy fiscal charges, and by the low price of wine; many have uprooted their vineyards. The pottery trade is affected by change of fashion, and the factories are losing their importance. The lower quarters of the town were heavily damaged in the winter of 1900-1901 by repeated inundations caused by the overflow of the Rhodius.

See V. Cuinet, *Turquie d'Asie* (Paris, 1890-1900).

DARDANUS, in Greek legend, son of Zeus and Electra, the mythical founder of Dardanus on the Hellespont and ancestor of the Dardans of the Troad and, through Aeneas, of the Romans. His original home was supposed to have been Arcadia, where he married Chryse, who brought him as dowry the Palladium or image of Pallas, presented to her by the goddess herself. Having slain his brother Iasius or Iasion (according to others, Iasius was struck by lightning), Dardanus fled across the sea. He first stopped at Samothrace, and when the island was visited by a flood, crossed over to the Troad. Being hospitably received by Teucer, he married his daughter Batea and became the founder of the royal house of Troy.

See Apollodorus iii. 12; Diod. Sic. v. 48-75; Virgil, *Aeneid*, iii. 163 ff.; articles in Pauly-Wissowa's *Realencyclopädie* and Roscher's *Lexikon der Mythologie*.

DARDISTAN, a purely conventional name given by scientists to a tract of country on the north-west frontier of India. There is no modern race called Dards, and no country so named by its inhabitants, but the inhabitants of the right bank of the Indus, from the Kandia river to Batera, apply it to the dwellers on the left bank. In the scientific use of the appellation, Dardistan comprises the whole of Chitral, Yasin, Panyal, the Gilgit valley, Hunza and Nagar, the Astor valley, the Indus

valley from Bunji to Batera, the Kohistan-Malazai, i.e. the upper reaches of the Panjkora river, and the Kohistan of Swat. The so-called Dard races are referred to by Pliny and Ptolemy, and are supposed to be a people of Aryan origin who ascended the Indus valley from the plains of the Punjab, reaching as far north as Chitral, where they dispossessed the Khos. They have left their traces in the different dialects, Khoswar, Burishki and Shina, spoken in the Gilgit agency.

The question of Dardistan is debated at length in Leitner's *Dardistan* (1877); Drew's *Jummoo and Kashmir Territories* (1875); Biddulph's *Tribes of the Hindu-Kush* (1880) and Durand's *The Making of a Frontier* (1899). For further details see GILGIT.

DARES PHRYGIUS, according to Homer (*Iliad*, v. 9) a Trojan priest of Hephaestus. He was supposed to have been the author of an account of the destruction of Troy, and to have lived before Homer (Aelian, *Var. Hist.* xi. 2). A work in Latin, purporting to be a translation of this, and entitled *Daretis Phrygii de excidio Trojae historia*, was much read in the middle ages, and was then ascribed to Cornelius Nepos, who is made to dedicate it to Sallust; but the language is extremely corrupt, and the work belongs to a period much later than the time of Nepos (probably the 5th century A.D.). It is doubtful whether the work as we have it is an abridgment of a larger Latin work or an adaptation of a Greek original. Together with the similar work of Dictys Cretensis (with which it is generally printed) the *De excidio* forms the chief source for the numerous middle age accounts of the Trojan legend. (See DICTYS; and O. S. von Fleschenberg, *Daresstudien*, 1908.)

DAR-ES-SALAAM ("The harbour of peace"), a seaport of East Africa, in 6° 50′ S. 39° 20′ E., capital of German East Africa. Pop. (1909) estimated at 24,000, including some 500 Europeans. The entrance to the harbor, which is perfectly sheltered (hence its name), is through a narrow opening in the palm-covered shore. The harbour is provided with a floating dock, completed in 1902. The town is built on the northern sweep of the harbour and is European in character. The streets are wide and regularly laid out. The public buildings, which are large and handsome, include the government and customs offices on the quay opposite the spot where the mail boats anchor, the governor's house, state hospital, post office, and the Boma or barracks. Adjoining the governor's residence are the botanical gardens, where many European plants are tested with a view to acclimatization. There are various churches, and government and mission schools. In the town are the head offices of the Deutsch-Ostafrikanische Gesellschaft, the largest trading company in German East Africa. The mangrove swamps at the north-west end of the harbour have been drained and partially built over.

Until the German occupation nothing but an insignificant village existed at Dar-es-Salaam. In 1862 Said Majid, sultan of Zanzibar, decided to build a town on the shores of the bay, and began the erection of a palace, which was never finished, and of which but scanty ruins remain. In 1871 Said Majid died, and his scheme was abandoned. In 1876 Mr (afterwards Sir) William McKinnon began the construction of a road from Dar-es-Salaam to Victoria Nyanza, intending to make of Dar-es-Salaam an important seaport. This project however failed. In 1887 Dr Carl Peters occupied the bay in the name of the German East Africa Company. Fighting with the Arabs followed, and in 1889 the company handed over their settlement to the German imperial government. In 1891 the town was made the administrative capital of the colony. It is the starting point of a railway to Mrogoro, and is connected by overland telegraph via Ujiji with South Africa. A submarine cable connects the town with Zanzibar. Dar-es-Salaam was laid out by the Germans on an ambitious scale in the expectation that it would prove an important centre of commerce, but trade developed very slowly. Ivory, rubber and copal are the chief exports. The trade returns are included in those of German East Africa (q.v.).

DARESTE DE LA CHAVANNE, ANTOINE ELISABETH CLÉOPHAS (1820-1882), French historian, was born in Paris on the 28th of October 1820, of an old Lyons family. Educated at the École des Chartes, he became professor in the faculty of letters at Grenoble in 1844, and in 1849 at Lyons, where he remained nearly thirty years. He died on the 6th of August 1882. His works comprise: *Histoire de l'administration en France depuis Philippe-Auguste* (2 vols., 1848); *Histoire des classes agricoles en France depuis saint Louis jusqu'à Louis XVI* (2 vols., 1853 and 1858), now quite obsolete; and a *Histoire de France* (8 vols., 1865-1873), completed by a *Histoire de la Restauration* (2 vols., 1880), a good summary of the work of Veil-Castel, and by a *Histoire du Gouvernement de Juillet*, a dry enumeration of dates and facts. Before the publication of Lavisse's great work, Dareste's general history of France was the best of its kind; it surpassed in accuracy the work of Henri Martin, especially in the ancient periods, just as Martin's in its turn was an improvement upon that of Sismondi.

DARESTE DE LA CHAVANNE, RODOLPHE MADELEINE CLÉOPHAS (1824-), French jurist, was born in Paris on the 25th of December 1824. He studied at the École des Chartes and the École de Droit, and starting early on a legal career he rose to be counsellor to the court of cassation (1877 to 1900). His first publication was an *Essai sur François Hotman* (1850), completed later by his publication of Hotman's correspondence in the *Revue historique* (1876), and he devoted the whole of his leisure to legal history. Of his writings may be mentioned *Les Anciennes Lois de l'Islande* (1881); *Mémoire sur les anciens monuments du droit de la Hongrie* (1885), and *Études d'histoire du droit* (1889). On Greek law he wrote some notable works: *Du prêt à la grosse chez les Athéniens* (1867); *Les Inscriptions hypothécaires en Grèce* (1885), *La Science du droit en Grèce: Platon, Aristote, Théophraste* (1893), and *Étude sur la loi de Gortyne* (1885). He collaborated with Théodore Reinach and B. Haussoullier in their *Recueil des inscriptions juridiques grecques* (1905), and his name is worthily associated with the edition of Philippe de Beaumanoir's *Coutumes de Beauvaisis*, published by Salmon (2 vols., 1899, 1900).

DARFUR, a country of east central Africa, the westernmost state of the Anglo-Egyptian Sudan. It extends from about 10° N. to 16° N. and from 21° E. to 27° 30′ E., has an area of some 150,000 sq. m., and an estimated population of 750,000. It is bounded N. by the Libyan desert, W. by Wadai (French Congo), S. by the Bahr-el-Ghazal and E. by Kordofan. The two last-named districts are *mudirias* (provinces) of the Anglo-Egyptian Sudan. The greater part of the country is a plateau from 2000 to 3000 ft. above sea-level. A range of mountains of volcanic origin, the Jebel Marra, runs N. and S. about the line of the 24° E. for a distance of over 100 m., its highest points attaining from 5000 to 6000 ft. East to west this chain extends about 80 m. Eastward the mountains fall gradually into sandy, bush-covered steppes. North-east of Jebel Marra lies the Jebel Medob (3500 ft. high), a range much distorted by volcanic action, and Bir-el-Melh, an extinct volcano with a crater 150 ft. deep. South of Jebel Marra are the plains of Dar Dima and Dar Uma; S.W. of the Marra the plain is 4000 ft. above the sea. The watershed separating the basins of the Nile and Lake Chad runs north and south through the centre of the country. The mountains are scored by numerous *khors*, whose lower courses can be traced across the tableland. The khors formerly contained large rivers which flowed N.E. and E. to the Nile, W. and S.W. to Lake Chad, S. and S.E. to the Bahr-el-Ghazal. The streams going N.E. drain to the Wadi Melh, a dry river-bed which joins the Nile near Debba, but on reaching the plain the waters sink into the sandy soil and disappear. The torrents flowing directly east towards the Nile also disappear in the sandy deserts. The khors in the W., S.W. and S.,—the most fertile part of Darfur—contain turbulent torrents in the rainy season, when much of the southern district is flooded. Not one of the streams is perennial, but in times of heavy rainfall the waters of some khors reach the Bahr-el-Homr tributary of the Bahr-el-Ghazal. (For some 200 m. the Bahr-el-Homr marks the southern frontier of the country.) In the W. and S. water can always be obtained in the dry season by digging 5 or 6 ft. below the surface of the khors.

The climate, except in the south, where the rains are heavy and the soil is a damp clay, is healthy except after the rains. The rainy season lasts for three months, from the middle of June to the middle of September. In the neighbourhood of the khors the vegetation is fairly rich. The chief trees are the acacias whence gum is obtained, and baobab (*Adansonia digitata*); while the sycamore and, in the Marra mountains, the *Euphorbia candelabrum* are also found. In the S.W. are densely forested regions. Cotton and tobacco are indigenous. The most fertile land is found on the slopes of the mountains, where wheat, durra, *dukhn* (a kind of millet and the staple food of the people) and other grains are grown. Other products are sesame, cotton, cucumbers, water-melons and onions.

Copper is obtained from Hofrat-el-Nahas in the S.E., iron is wrought in the S.W.; and there are deposits of rock-salt in various places. The copper mines (in 9° 48′ N. 24° 5′ E.) are across the Darfur frontier in the Bahr-el-Ghazal province. The vein runs N.W. and S.E. and in places rises in ridges 2 ft. above the general level of ground. There is an immense quantity of ore, (silicate and carbonate) specimens containing 14% of metal. Camels and cattle are both numerous and of excellent breeds. Some of the Arab tribes, such as the Baggara, breed only cattle, those in the north and east confine themselves to rearing camels. Horses are comparatively rare; they are a small but sturdy breed. Sheep and goats are numerous. The ostrich, common in the eastern steppes, is bred by various Arab tribes, its feathers forming a valuable article of trade.

Inhabitants.—The population of Darfur consists of negroes and Arabs. The negro *For*, forming quite half the inhabitants, occupy the central highlands and part of the Dar Dima and Dar Uma districts; they speak a special language, and are subdivided into numerous tribes, of which the most influential are the Masabat, the Kunjara and the Kera. They are of middle height, and have rather irregular features. The *For* are described as clean and industrious, somewhat fanatical, but generally amenable to civilization, and freedom-loving. The *Massalit* are a negro tribe which, breaking off from the For some centuries back, have now much Arab blood, and speak Arabic; while the *Tunjur* are an Arab tribe which must have arrived in the Sudan at a very early date, as they have incorporated a large For element, and no longer profess Mahommedanism. The *Dago* (*Tago*) formerly inhabited Jebel Marra, but they have been driven to the south and west, where they maintain a certain independence in Dar Sula, but are treated as inferiors by the For. The Zaghawa, who inhabit the northern borders, are on the contrary regarded by the For as their equals, and have all the prestige of a race that at one time made its influence felt as far as Bornu. Among other tribes may be mentioned the Berti and Takruri, the Birgirid, the Beraunas, and immigrants from Wadai and Bagirmi, and Fula from west of Lake Chad. Genuine Arab tribes, e.g. the Baggara and Homr, are numerous, and they are partly nomadic and partly settled. The Arabs have not, generally speaking, mixed with the negro tribes. They are great hunters, making expeditions into the desert for five or six days at a time in search of ostriches.

Slaves, ostrich feathers, gum and ivory used to be the chief articles of trade, a caravan going annually by the Arbain (“Forty Days”) road to Assiut in Egypt and taking back cloth, fire-arms and other articles. The slave trade has ceased, but feathers, gum and ivory still constitute the chief exports of the country. The principal imports are cotton goods, sugar and tea. There is also an active trade in camels and cattle.

The internal administration of the country is in the hands of the sultan, who is officially recognized as the agent of the Sudan government. The administrative system resembles that of other Mahommedan countries.

Towns.—The capital is El-Fasher, pop. about 10,000, on the western bank of the Wadi Tendelty in an angle formed by the junction of that wadi with the Wadi-el-Kho, one of the streams which flow towards the Bahr-el-Homr. Fasher is the residence of the sultan. There are a few fine buildings, but the town consists mainly of tukls and box-shaped straw sheds. It is 500 m. W.S.W. of Khartum. Dara, a small market town, is 110 m. S. of El-Fasher. Shakka is in the S.E. of the country near the Bahr-el-Homr, and was formerly the headquarters of the slave dealers.

History.—The Dago or Tago negroes, inhabitants of Jebel Marra, appear to have been the dominant race in Darfur in the earliest period to which the history of the country goes back. How long they ruled is uncertain, little being known of them save a list of kings. According to tradition the Tago dynasty was displaced, and Mahommedanism introduced, about the 14th century, by Tunjur Arabs, who reached Darfur by way of Bornu and Wadai. The first Tunjur king was Ahmed-el-Makur, who married the daughter of the last Tago monarch. Ahmed reduced many unruly chiefs to submission, and under him the country prospered. His great-grandson, the sultan Dali, a celebrated figure in Darfur histories, was on his mother’s side a For, and thus was effected a union between the negro and Arab races. Dali divided the country into provinces, and established a penal code, which, under the title of *Kitab Dali* or Dali’s Book, is still preserved, and shows principles essentially different from those of the Koran. His grandson Soleiman (usually distinguished by the Forian epithet *Solon*, the Arab or the Red) reigned from 1596 to 1637, and was a great warrior and a devoted Mahommedan. Soleiman’s grandson, Ahmed Bahr (1682-1722), made Islam the religion of the state, and increased the prosperity of the country by encouraging immigration from Bornu and Bagirmi. His rule extended east of the Nile as far as the banks of the Atbara. Under succeeding monarchs the country, involved in wars with Sennar and Wadai, declined in importance. Towards the end of the 18th century a sultan named Mahommed Terab led an army against the Funj, but got no further than Omdurman. Here he was stopped by the Nile, and found no means of getting his army across the river. Unwilling to give up his project, Terab remained at Omdurman for months. He was poisoned by his wife at the instigation of disaffected chiefs, and the army returned to Darfur. The next monarch was Abd-er-Rahman, surnamed el-Raschid or the Just. It was during his reign that Napoleon Bonaparte was campaigning in Egypt; and in 1799 Abd-er-Rahman wrote to congratulate the French general on his defeat of the Mamelukes. To this Bonaparte replied by asking the sultan to send him by the next caravan 2000 black slaves upwards of sixteen years old, strong and vigorous. To Abd-er-Rahman likewise is due the present situation of the *Fasher*, or royal township. The capital had formerly been at a place called Kobbé. Mahommed-el-Fadhl, his son, was for some time under the control of an energetic eunuch, Mahommed Kurra, but he ultimately made himself independent, and his reign lasted till 1839, when he died of leprosy. He devoted himself largely to the subjection of

the semi-independent Arab tribes who lived in the country, notably the Rizighat, thousands of whom he slew. In 1821 he lost the province of Kordofan, which in that year was conquered by the Egyptians. Of his forty sons, the third, Mahommed Hassin, was appointed his successor. Hassin is described as a religious but avaricious man. In the later part of his reign he became involved in trouble with the Arab slave raiders who had seized the Bahr-el-Ghazal, looked upon by the Darfurians as their especial "slave preserve." The negroes of Bahr-el-Ghazal paid tribute of ivory and slaves to Darfur, and these were the chief articles of merchandise sold by the Darfurians to the Egyptian traders along the Arbain road to Assiut. The loss of the Bahr-el-Ghazal caused therefore much annoyance to the people of Darfur. Hassin died in 1873, blind and advanced in years, and the succession passed to his youngest son Ibrahim, who soon found himself engaged in a conflict with Zobeir (q.v.), the chief of the Bahr-el-Ghazal slave traders, and with an Egyptian force from Khartum. The war resulted in the destruction of the kingdom. Ibrahim was slain in battle in the autumn of 1874, and his uncle Hassab Alla, who sought to maintain the independence of his country, was captured in 1875 by the troops of the khedive, and removed to Cairo with his family. The Darfurians were restive under Egyptian rule. Various revolts were suppressed, but in 1879 General Gordon (then governor-general of the Sudan) suggested the reinstatement of the ancient royal family. This was not done, and in 1881 Slatin Bey (Sir Rudolf von Slatin) was made governor of the province. Slatin defended the province against the forces of the Mahdi, who were led by a Rizighat sheik named Madibbo, but was obliged to surrender (December 1883), and Darfur was incorporated in the Mahdi's dominions. The Darfurians found Dervish rule as irksome as that of the Egyptians had been, and a state of almost constant warfare ended in the gradual retirement of the Dervishes from Darfur. Following the overthrow of the khalifa at Omdurman in 1898 the new (Anglo-Egyptian) Sudan government recognized (1899) Ali Dinar, a grandson of Mahommed-el-Fadhl, as sultan of Darfur, on the payment by that chief of an annual tribute of £500. Under Ali Dinar, who during the *Mahdia* had been kept a prisoner in Omdurman, Darfur enjoyed a period of peace.

The first European traveller known to have visited Darfur was William George Browne (q.v.), who spent two years (1793-1795) at Kobbé. Sheik Mahommed-el-Tounsi travelled in 1803 through various regions of Africa, including Darfur, in search of Omar, his father, and afterwards gave to the world an account of his wanderings, which was translated into French in 1845 by M. Perron. Gustav Nachtigal in 1873 spent some months in Darfur, and since that time the country has become well known through the journeys of Gordon, Slatin and others.

AUTHORITIES.—Browne's account of Darfur will be found in his *Travels in Africa, Egypt and Syria* (London, 1799); Nachtigal's *Sahara und Sudan* gives the results of that traveller's observations. The first ten chapters of Slatin Pasha's book *Fire and Sword in the Sudan* (English edition, London, 1896) contain much information concerning the country, its history, and a full account of the overthrow of Egyptian authority by the Mahdi. See also *The Anglo-Egyptian Sudan* (London, 1905), edited by Count Gleichen, and the bibliography given under SUDAN.

DARGAI, the name of a mountain peak and a frontier station in the north-west Frontier Province of India. The mountain peak is situated on the Samana Range, and the Kohat border, and is famous for the stand made there by the Afridis and Orakzais in the Tirah Campaign. (See TIRAH CAMPAIGN.) Dargai station is situated on the Peshawar border, and is the terminus of the frontier railway running from Nowshera to the Malakand Pass.

DARGOMIJSKY, ALEXANDER SERGEIVICH (1813-1869), Russian composer, was born in 1813, and educated in St Petersburg. He was already known as a talented musical amateur when in 1833 he met Glinka and was encouraged to devote himself to composition. His light opera *Esmeralda* was written in 1839, and his *Roussalka* was performed in 1856, but he had but small success or recognition either at home or abroad, except in Belgium, till the 'sixties, when he became one of Balakirev's circle. His opera *The Stone Guest* then became famous among the progressive Russian school, though it was not performed till 1872. Dargomijsky died in January 1869. His compositions include a number of songs, and some orchestral pieces.

DARIAL, a gorge in the Caucasus, at the east foot of Mt. Kasbek, pierced by the river Terek for a distance of 8 m. between vertical walls of rock (5900 ft.). It is mentioned in the Georgian annals under the names of Ralani, Dargani, Darialani; the Persians and Arabs knew it as the Gate of the Alans; Strabo calls it *Porta Caucasica* and *Porta Cumana*; Ptolemy, *Porta Sarmatica*; it was sometimes known as *Portae Caspiae* (a name bestowed also on the "gate" or pass beside the Caspian at Derbent); and the Tatars call it *Darioly*. Being the only available passage across the Caucasus, it has been fortified since a remote period—at least since 150 B.C. In Russian poetry it has been immortalized by Lermontov. The present Russian fort, Darial, which guards this section of the Georgian military road, is at the northern issue of the gorge, at an altitude of 4746 ft.

DARIEN, a district covering the eastern part of the isthmus joining Central and South America. It is mainly within the republic of Panama, and gives its name to a gulf of the Carribbean Sea. Darien is of great interest in the history of geographical discovery. It was reconnoitred in the first year of the 16th century by Rodrigo Bastidas of Seville; and the first settlement was Santa Maria la Antigua, situated on the small Darien river, north-west of the mouth of the Atrato. In 1513 Vasco Nuñez de Balboa stood "silent upon a peak in Darien,"[1] and saw the Pacific at his feet stretching inland in the Gulf of San Miguel; and for long this narrow neck of land seemed alternately to proffer and refuse a means of transit between the two oceans. The first serious attempt to turn the isthmus to permanent account as a trade route dates from the beginning of the 18th century, and forms an interesting chapter in Scottish history. In 1695 an act was passed by the Scottish parliament giving extensive powers to a company trading to Africa and the Indies; and this company, under the advice of one of the most remarkable economists of the period, William Paterson (q.v.), determined to establish a colony on the isthmus of Darien as a general emporium for the commerce of all the nations of the world. Regarded with disfavour

both in England and Holland, the project was taken up in Scotland with the enthusiasm of national rivalry towards England, and the "subscriptions sucked up all the money in the country." On the 26th of July 1698 the pioneers set sail from Leith amid the cheers of an almost envious multitude; and on the 4th of November, with the loss of only fifteen out of 1200 men, they arrived at Darien, and took up their quarters in a well-defended spot, with a good harbour and excellent outlook. The country they named New Caledonia, and two sites selected for future cities were designated respectively New Edinburgh and New St Andrews. At first all seemed to go well; but by and by lack of provisions, sickness and anarchy reduced the settlers to the most miserable plight; and in June 1699 they re-embarked in three vessels, a weak and hopeless company, to sail whithersoever Providence might direct. Meanwhile a supplementary expedition had been prepared in Scotland; two vessels were despatched in May, and four others followed in August. But this venture proved even more unfortunate than the former. The colonists arrived broken in health; their spirits were crushed by the fate of their predecessors, and embittered by the harsh fanaticism of the four ministers whom the general assembly of the Church of Scotland had sent out to establish a regular presbyterial organization. The last addition to the settlement was the company of Captain Alexander Campbell of Fonab, who arrived only to learn that a Spanish force of 1500 or 1600 men lay encamped at Tubacanti, on the river Santa Maria, waiting for the appearance of a Spanish squadron in order to make a combined attack on the fort. Captain Campbell, on the second day after his arrival, marched with 200 men across the isthmus to Tubacanti, stormed the camp in the night-time, and dispersed the Spanish force. On his return to the fort on the fifth day he found it besieged by the Spaniards from the men-of-war; and, after a vain attempt to maintain its defence, he succeeded with a few companions in making his escape in a small vessel. A capitulation followed, and the Darien colony was no more. Of those who had taken part in the enterprise only a miserable handful ever reached their native land.

See J. H. Burton, *The Darien Papers* (Bannatyne Club, 1849); Macaulay, *History of England* (London, 1866); and A. Lang, *History of Scotland*, vol. iv. (Edinburgh, 1907).

1 Keats, in his famous sonnet beginning:—"Much have I travelled in the realms of gold," of which this is the concluding line, inaccurately substitutes Cortez for Balboa.

DARIUS (Pers. *Dārayavaush*; Old Test. *Daryavesh*), the name of three Persian kings.

1. Darius the Great, the son of Hystaspes (q.v.). The principal source for his history is his own inscriptions, especially the great inscription of Behistun (q.v.), in which he relates how he gained the crown and put down the rebellions. In modern times his veracity has often been doubted, but without any sufficient reason; the whole tenor of his words shows that we can rely upon his account. The accounts given by Herodotus and Ctesias of his accession are in many points evidently dependent on this official version, with many legendary stories interwoven, e.g. that Darius and his allies left the question as to which of them should become king to the decision of their horses, and that Darius won the crown by a trick of his groom.

Darius belonged to a younger branch of the royal family of the Achaemenidae. When, after the suicide of Cambyses (March 521), the usurper Gaumata ruled undisturbed over the whole empire under the name of Bardiya (Smerdis), son of Cyrus, and no one dared to gainsay him, Darius, "with the help of Ahura-mazda," attempted to regain the kingdom for the royal race. His father Hystaspes was still alive, but evidently had not the courage to urge his claims. Assisted by six noble Persians, whose names he proclaims at the end of the Behistun inscription, he surprised and killed the usurper in a Median fortress (October 521; for the chronology of these times cf. E. Meyer, *Forschungen zur alten Geschichte*, ii. 472 ff.), and gained the crown. But this sudden change was the signal for an attempt on the part of all the eastern provinces to regain their independence. In Susiana, Babylon, Media, Sagartia, Margiana, usurpers arose, pretending to be of the old royal race, and gathered large armies around them; in Persia itself Vahyazdāta imitated the example of Gaumata and was acknowledged by the majority of the people as the true Bardiya. Darius with only a small army of Persians and Medes and some trustworthy generals overcame all difficulties, and in 520 and 519 all the rebellions were put down (Babylon rebelled twice, Susiana even three times), and the authority of Darius was established throughout the empire.

Darius in his inscriptions appears as a fervent believer in the true religion of Zoroaster. But he was also a great statesman and organizer. The time of conquests had come to an end; the wars which Darius undertook, like those of Augustus, only served the purpose of gaining strong natural frontiers for the empire and keeping down the barbarous tribes on its borders. Thus Darius subjugated the wild nations of the Pontic and Armenian mountains, and extended the Persian dominion to the Caucasus; for the same reasons he fought against the Sacae and other Turanian tribes. But by the organization which he gave to the empire he became the true successor of the great Cyrus. His organization of the provinces and the fixing of the tributes is described by Herodotus iii. 90 ff., evidently from good official sources. He fixed the coinage and introduced the gold coinage of the Daric (which is not named after him, as the Greeks believed, but derived from a Persian word meaning "gold"; in Middle Persian it is called *zarīg*). He tried to develop the commerce of the empire, and sent an expedition down the Kabul and the Indus, led by the Carian captain Scylax of Caryanda, who explored the Indian Ocean from the mouth of the Indus to Suez. He dug a canal from the Nile to Suez, and, as the fragments of a hieroglyphic inscription found there show, his ships sailed from the Nile through the Red Sea by Saba to Persia. He had connexions with Carthage (i.e. the *Karkā* of the Nakshi Rustam inscr.), and explored the shores of Sicily and Italy. At the same time he attempted to gain the good-will of the subject nations, and for this purpose promoted the aims of their priests. He allowed the Jews to build the Temple of Jerusalem. In Egypt his name appears on the temples which he built in Memphis, Edfu and the Great Oasis. He called the high-priest of Saïs, Uzahor, to Susa (as we learn from his inscription in the Vatican), and gave him full powers to reorganize the "house of life," the great medical school of the temple of Saïs. In the Egyptian traditions he is considered as one of the great benefactors and lawgivers of the country (Herod. ii. 110, Diod. i. 95). In similar relations he stood to the Greek sanctuaries (cf. his rescript to "his slave" Godatas, the inspector of a royal park near Magnesia, on the Maeander, in which he grants freedom of taxes and forced labour to the sacred territory of Apollo. See Cousin and Deschamps, *Bulletin de corresp. hellén.*, xiii. (1889), 529, and Dittenberger, *Sylloge inscr. graec.*, 2); all the Greek oracles in Asia Minor and Europe therefore stood on the side of Persia in the Persian wars and admonished the Greeks to attempt no resistance.

About 512 Darius undertook a war against the Scythians. A great army crossed the Bosporus, subjugated eastern Thrace, and crossed the Danube. The purpose of this war can only have been to attack the nomadic Turanian tribes in the rear and thus to secure peace on the northern frontier of the empire. It was based upon a wrong geographical conception; even Alexander and his Macedonians believed that on the Hindu Kush (which they called Caucasus) and on the shores of the Jaxartes (which they called Tanais, i.e. Don) they were quite near to the Black Sea. Of course the expedition undertaken on these grounds could not but prove a failure; having advanced for some weeks into the Russian steppes, Darius was forced to return. The details given by Herodotus (according to him Darius had reached the Volga!) are quite fantastical; and the account which Darius himself had given on a tablet, which was added to his great inscription in Behistun, is destroyed with the exception of a few words. (See R. W. Macan, *Herodotus*, vol. ii. appendix 3; G. B. Grundy, *Great Persian War*, pp. 48-64; J. B. Bury in *Classical Review*, July 1897.)

Although European Greece was intimately connected with the coasts of Asia Minor, and the opposing parties in the Greek towns were continually soliciting his intervention, Darius did not meddle with their affairs. The Persian wars were begun by the Greeks themselves. The support which Athens and Eretria gave to the rebellious Ionians and Carians made their punishment inevitable as soon as the rebellion had been put down. But the first expedition, that of Mardonius, failed on the cliffs of Mt. Athos (492), and the army which was led into Attica by Datis in 490 was beaten at Marathon. Before Darius had finished his preparations for a third expedition an insurrection broke out in Egypt (486). In the next year Darius died, probably in October 485, after a reign of thirty-six years. He is one of the greatest rulers the east has produced.

2. Darius II., Ochus. Artaxerxes I., who died in the beginning of 424, was followed by his son Xerxes II. But after a month and a half he was murdered by his brother Secydianus, or Sogdianus (the form of the name is uncertain). Against him rose a bastard brother, Ochus, satrap of Hyrcania, and after a short fight killed him, and suppressed by treachery the attempt of his own brother Arsites to imitate his example (Ctesias *ap.* Phot. 44; Diod. xii. 71, 108; Pausan. vi. 5, 7). Ochus adopted the name Darius (in the chronicles called *Nothos*, the bastard). Neither Xerxes II. nor Secydianus occurs in the dates of the numerous Babylonian tablets from Nippur; here the dates of Darius II. follow immediately on those of Artaxerxes I. Of Darius II.'s reign we know very little (a rebellion of the Medes in 409 is mentioned in Xenophon, *Hellen.* i. 2. 19), except that he was quite dependent on his wife Parysatis. In the excerpts from Ctesias some harem intrigues are recorded, in which he played a disreputable part. As long as the power of Athens remained intact he did not meddle in Greek affairs; even the support which the Athenians in 413 gave to the rebel Amorges in Caria would not have roused him (Andoc. iii. 29; Thuc. viii. 28, 54; Ctesias wrongly names his father Pissuthnes in his stead; an account of these wars is contained in the great Lycian stele from Xanthus in the British Museum), had not the Athenian power broken down in the same year before Syracuse. He gave orders to his satraps in Asia Minor, Tissaphernes and Pharnabazus, to send in the overdue tribute of the Greek towns, and to begin war with Athens; for this purpose they entered into an alliance with Sparta. In 408 he sent his son Cyrus to Asia Minor, to carry on the war with greater energy. In 404 he died after a reign of nineteen years, and was followed by Artaxerxes II.

3. Darius III., Codomannus. The eunuch Bagoas (q.v.), having murdered Artaxerxes III. in 338 and his son Arses in 336, raised to the throne a distant relative of the royal house, whose name, according to Justin x. 3, was Codomannus, and who had excelled in a war against the Cadusians (cf. Diod. xvii. 5 ff., where his father is called Arsames, son of Ostanes, a brother of Artaxerxes). The new king, who adopted the name of Darius, took warning by the fate of his predecessors, and saved himself from it by forcing Bagoas to drink the cup himself. Already in 336 Philip II. of Macedon had sent an army into Asia Minor, and in the spring of 334 the campaign of Alexander began. In the following year Darius himself took the field against the Macedonian king, but was beaten at Issus and in 331 at Arbela. In his flight to the east he was deposed and killed by Bessus (July 330).

The name Darius was also borne by many later dynasts of Persian origin, among them kings of Persis (q.v.), Darius of Media Atropatene who was defeated by Pompeius, and Darius, king of Pontus in the time of Antony.

(Ed. M.)

DARJEELING, a hill station and district of British India, in the Bhagalpur division of Bengal. The sanatorium is situated 367 m. by rail north of Calcutta. In 1901 it had a population of 16,924. It is the summer quarters of the Bengal government and has a most agreeable climate, which neither exceeds 80° F. in summer, nor falls below 30° in winter. The great attraction of Darjeeling is its scenery, which is unspeakably grand. The view across the hills to Kinchinjunga discloses a glittering white wall of perpetual snow, surrounded by towering masses of granite. There are several schools of considerable size for European boys and girls, and a government boarding school at Kurseong. The buildings and the roads suffered severely from the earthquake of the 12th of June 1897. But a more terrible disaster occurred in October 1899, when a series of landslips carried away houses and broke up the hill railway. The total value of the property destroyed was returned at £160,000.

The district of Darjeeling comprises an area of 1164 sq. m. It consists of two well-defined tracts, *viz.* the lower Himalayas to the south of Sikkim, and the *tarai*, or plains, which extend from the south of these ranges as far as the northern borders of Purnea district. The plains from which the hills take their rise are only 300 ft. above sea-level; the mountains ascend abruptly in spurs of 6000 to 10,000 ft. in height. The scenery throughout the hills is picturesque, and in many parts magnificent. The two highest mountains in the world, Kinchinjunga in Sikkim (28,156 ft.) and Everest in Nepal (29,002 ft.), are visible from the town of Darjeeling. The principal peaks within the district are—Phalut (11,811 ft.), Subargum (11,636), Tanglu (10,084), Situng and Sinchal Pahai (8163). The chief rivers are the Tista, Great and Little Ranjit, Ramman, Mahananda, Balasan and Jaldhaka. None of them is navigable in the mountain valleys; but the Tista, after it debouches on the plains, can be navigated by cargo boats of considerable burthen. Bears, leopards and musk deer are found on the higher mountains, deer on the lower ranges, and a few elephants and tigers on the slopes nearest to the plains. In the lowlands, tigers, rhinoceroses, deer and wild hogs are abundant. A few wolves are also found. Of small game, hares, jungle fowl, peacocks, partridges, snipe, woodcock, wild ducks and geese, and green pigeons are numerous in the *tarai*, and jungle fowl and pheasants in the hills. The mahseer fish is found in the Tista.

In 1901 the population was 249,117, showing an increase of 12% since 1891, compared with an increase of 43% in the previous decade. The inhabitants of the hilly tract consist to a large extent of Nepali immigrants and of aboriginal highland races; in the *tarai* the people are chiefly Hindus and Mahommedans. The Lepchas are considered to be the aboriginal inhabitants of the hilly portion of the district. They are a fine, frank race, naturally open-hearted and free-handed, fond of change and given to an out-door life; but they do not seem to improve on being brought into contact with civilization. It is thought that they are now being gradually driven out of the district, owing to the increase of regular cultivation, and to the government conservation of the forests. They have no word for plough in their language, and they still follow the nomadic form of tillage known as *jum* cultivation. This consists in selecting a spot of virgin soil, clearing it of forest and jungle by burning, and scraping the surface with the rudest agricultural implements. The productive powers of the land become exhausted in a few years, when the clearing is abandoned, a new site is chosen, and the same operations are carried on *de novo*. The Lepchas are also the ordinary out-door labourers on the hills. They have no caste distinctions but speak of themselves as belonging to one of nine septs or clans, who all eat together and intermarry with each other. In the upper or northern *tarai*, along the base of the hills, the Mechs form the principal ethnical feature. This tribe inhabits the deadly jungle with impunity, and cultivates cotton, rice and other ordinary crops, by the *jum* process described above. The cultivation of tea was introduced in 1856, and is now a large industry. Cinchona cultivation was introduced by the government in 1862, and has since been taken up by private enterprise. There is a coal mine at Daling. The Darjeeling Himalayan railway of 2 ft. gauge, opened in 1880, runs for 50 m. from Siliguri in the plains on the Eastern Bengal line.

The British connexion with Darjeeling dates from 1816, when, at the close of the war with Nepali, the British made over to the Sikkim raja the *tarai* tract, which had been wrested from him and annexed by Nepal. In 1835 the nucleus of the present district of British Sikkim or Darjeeling was created by a cession of a portion of the hills by the raja of Sikkim to the British as a sanatorium. A military expedition against Sikkim, rendered necessary in 1850 by the imprisonment of Dr A.

Campbell, the superintendent of Darjeeling, and Sir Joseph Hooker, resulted in the stoppage of the allowance granted to the raja for the cession of the hill station of Darjeeling, and in the annexation of the Sikkim *tarai* at the foot of the hills and of a portion of the hills beyond. In August 1866 the hill territory east of the Tista, acquired as the result of the Bhutan campaign of 1864, was added to the jurisdiction of Darjeeling.

DARLEY, GEORGE (1795-1846), Irish poet, was born in Dublin in 1795. His parents, who were gentle folks of independent means, emigrated to America, leaving the boy in charge of his grandfather at Springfield, Co. Dublin. He was educated at Trinity College, Dublin, graduating in 1820; but an unfortunate stammer prevented him from going into the church or to the bar, and he established himself in London, where he published his first volume of poems, the *Errors of Ecstasie*, in 1822, and became a regular contributor to *The London Magazine*. He was intimate with Cary, the translator of Dante, and with Charles Lamb. In 1826 he published under the name of "Grey Penseval" a volume of prose tales and sketches, *Labour in Idleness* (1826), one of which, "The Enchanted Lyre," is plainly autobiographical. *Sylvia, or the May Queen* (1827, reprint 1892), a fairy opera, met with no success, but about 1830 he became dramatic and art critic to the *Athenaeum*. His other works are: *Nepenthe* (1835, reprint 1897), his most considerable poem; introduction to the works of Beaumont and Fletcher (1840); with two plays, *Thomas à Becket* (1840), and *Ethelstan* (1841). He died in London on the 23rd of November 1846.

Selections from the Poems of George Darley, with an introduction by R. A. Streatfield, appeared in 1904. See also the edition by Ramsay Colles in the "Muses' Library" (1906).

DARLING, GRACE HORSLEY (1815-1842), British heroine, was born at Bamborough, Northumberland, on the 24th of November 1815. Her father, William Darling, was the keeper of the Longstone (Farne Islands) lighthouse. On the morning of the 7th of September 1838, the "Forfarshire," bound from Hull to Dundee, with sixty-three persons on board, struck on the Farne Islands, forty-three being drowned. The wreck was observed from the lighthouse, and Darling and his daughter determined to try and reach the survivors. They recognized that though they might be able to get to the wreck, they would be unable to return without the assistance of the shipwrecked crew, but they took this risk without hesitation. By a combination of daring, strength and skill, the father and daughter reached the wreck in their coble and brought back four men and a woman to the lighthouse. Darling and two of the rescued men then returned to the wreck and brought off the four remaining survivors. This gallant exploit made Grace Darling and her father famous. The Humane Society at once voted them its gold medal, the treasury made a grant, and a public subscription was organized. Grace Darling, who had always been delicate, died of consumption on the 20th of October 1842.

See *Grace Darling, her true story* (London, 1880).

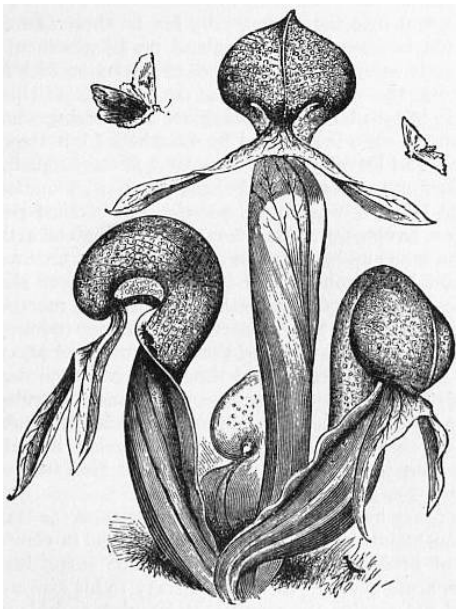
DARLING, a river of Australia. It rises in Queensland and flows into New South Wales, forming for a considerable distance the boundary of the two colonies; in its upper reaches it is known as the Barwon, but from Bourke to its junction on the Victorian border with the river Murray, it is called the Darling. Its length is 1160 m., and with its affluents it drains an area of about 200,000 sq. m. During the dry season its course is marked by a series of shallow pools, but during the winter, when it is subject to sudden floods, it is navigable as far as Bourke for steamers of light draft. Excepting a narrow strip on the banks of the river, the country through which it passes is, for the most part, an arid plain.

DARLINGTON, a market town and municipal and parliamentary borough of Durham, England, 232 m. N. by W. of London, on the North-Eastern railway. Pop. (1891) 38,060; (1901) 44,511. It lies in a slightly undulating plain on the small river Skerne, a tributary of the Tees, not far from the main river. Its appearance is almost wholly modern, but there is a fine old parish church dedicated to St Cuthbert. It is cruciform, and in style mainly transitional Norman. It has a central tower surmounted by a spire of the 14th century, which necessitated the building of a massive stone screen across the chancel arch to support the piers. Traces of an earlier church were discovered in the course of restoration. Educational establishments include an Elizabethan grammar school, a training college for school-mistresses (British and Foreign School Society), and a technical school. There is a park of forty-four acres. The industries of Darlington are large and varied. They include worsted spinning mills; collieries, ironstone mines, quarries and brickworks; the manufacture of iron and steel, both in the rough and in the form of finished articles, as locomotives, bridge castings, ships' engines, gun castings and shells, &c. The parliamentary borough returns one member. The town was incorporated in 1867, and the corporation consists of a mayor, six aldermen and eighteen councillors. Area, 3956 acres.

Not long after the bishop and monks of Lindisfarne had settled at Durham in 995, Styr the son of Ulf gave them the vill of Darlington (Dearthington, Darnington), which by 1083 had grown into importance, probably owing to its situation on the road from Watling Street to the mouth of the Tees. Bishop William of St Carileph in that year changed the church to a collegiate church, and placed there certain canons whom he removed from Durham. Bishop Hugh de Puiset rebuilt the church and built a manor house which was for many years the occasional residence of the bishops of Durham. Boldon Book, dated 1183, contains the first mention of Darlington as a borough, rated at £5, while half a mark was due from the dyers of cloth. The next account of the town is in Bishop Hatfield's Survey (*c.* 1380), which states that "Ingelram Gentill and his partners hold the borough of Derlyngton with the profits of the mills and dye houses and other profits pertaining to the borough rendering yearly four score and thirteen pounds and six shillings." Darlington possesses no early charter, but claimed its privileges as a borough by a prescriptive right. Until the 19th century it was governed by a bailiff appointed by the bishop. The mention of dyers in the Boldon Book and Hatfield's Survey probably indicates the existence of woollen manufacture. Before the 19th century Darlington was noted for the manufacture of linen, worsted and flax, but it owes its modern importance to the opening of the railway between Darlington and Stockton on the 27th of September 1825.

“Locomotive No. 1,” the first that ever ran on a public railway, stands in Bank Top station, a remarkable relic of the enterprise. As part of the palatinate of Durham, Darlington sent no members to parliament until 1862, when it was allowed to return one member. The fairs and markets in Darlington were formerly held by the bishop and were in existence as early as the 11th century. According to Leland, Darlington was in his time the best market town in the bishopric with the exception of Durham. In 1664 the bishop, finding that the inhabitants of the town had set up a market “in the season of the year unaccustomed,” i.e. from the fortnight before Christmas to Whit Monday, prohibited them from continuing it. The markets and fairs were finally in 1854 purchased by the local authority, and now belong to the corporation.

DARLINGTONIA (called after William Darlington, an American botanist), a Californian pitcher-plant, belonging to the order Sarraceniaceae. There is only one species, *D. californica*, which is found at 5000 ft. altitude on the Sierra Nevadas of California, growing in sphagnum-bogs along with sundews and rushes. The pitcher-like leaves form a cluster, and are 1 to 2 ft. high, slender, erect, and end in a rounded hooded top, from which hangs a blade shaped like a fish-tail which guards the entrance to the pitcher. Insects are attracted to the leaves by the bright colouring, especially of the upper part; entering they pass down the narrow funnel guided by downward pointing hairs which also prevent their ascent. They form a putrefying mass in the bottom of the pitcher, and the products of their decomposition are presumably absorbed by the leaf for food.



Darlingtonia californica.

DARLY, MATTHIAS, 18th-century English caricaturist, designer and engraver. This extremely versatile artist not only issued political caricatures, but designed ceilings, chimney-pieces, mirror frames, girandoles, decorative panels and other mobiliary accessories, made many engravings for Thomas Chippendale, and sold his own productions over the counter. He was apparently an architect by profession. The first publication which can be attributed to him with certainty is a coloured caricature, “The Cricket Players of Europe” (1741). In 1754 he issued *A new Book of Chinese Designs*, which was intended to minister to the passing craze for furniture and household decorations in the Chinese style. It was in this year that he engraved many of the plates for the *Director* of Thomas Chippendale. He published from many addresses, most of them in the Strand or its immediate neighbourhood, and his shop was for a long period perhaps the most important of its kind in London. In his book *Nollekens and his Times*, J. T. Smith, writing of Richard Cosway, says:—“So ridiculously foppish did he become that Matth. Darly, the famous caricature print seller, introduced an etching of him in his window in the Strand as the ‘Macaroni Miniature Painter.’” Darly was for many years in partnership with a man named Edwards, and together they published many political prints, which were originally issued separately and collected annually into volumes under the title of *Political and Satirical History*. Darly was a member both of the Incorporated Society of Artists and the Free Society of Artists, forerunners of the Royal Academy, and to their exhibitions he contributed many architectural drawings, together with a profile etching of himself (1775). Upon one of these etchings, published from 39 Strand, he is described as “Professor of Ornament to the Academy of Great Britain.” Darly’s most important publication was *The Ornamental Architect or Young Artists’ Instructor* (1770-1771), a title which was changed in the edition of 1773 to *A Compleat Body of Architecture, embellished with a great Variety of Ornaments*. He also issued *Sixty Vases by English, French and Italian Masters* (1767). In addition to his immense mass of other productions Darly executed many book plates, illustrated various books and cabinet-makers’ catalogues, and gave lessons in etching. His skill as a caricaturist brought him into close personal relations with the politicians of his time, and in 1763 he was instrumental in saving John Wilkes, whose partisan he was, from death at the hands of James Dunn, who had determined to kill him. Darly, who described himself as “Liveryman and block maker,” issued his last caricature in October 1780, and as his shop, No. 39 Strand, was let to a new tenant in the following year, it is to be presumed that he had by that time died, or become incapable of further work. As a designer of furniture Darly travelled in a dozen years or so from the extremes of pseudo-Chinese affectation to classical severity of the type popularized by the brothers Adam.

DARMESTETER, JAMES (1849-1894), French author and antiquarian, was born of Jewish parents on the 28th of March 1849 at Château Salins, in Alsace. The family name had originated in their earlier home of Darmstadt. He was educated in Paris, where, under the guidance of Michel Bréal and Abel Bergaigne, he imbibed a love for Oriental studies, to which for a time he entirely devoted himself. He was a man of vast intellectual range. In 1875 he published a thesis on the mythology of the *Zend Avesta*, and in 1877 became teacher of Zend at the École des Hautes Études. He followed up his researches with his *Études iraniennes* (1883), and ten years later published a complete translation of the *Zend Avesta*, with historical and philological commentary (3 vols., 1892-1893), in the *Annales du musée Guimet*. He also edited the Zend Avesta for Max Müller's *Sacred Books of the East*. Darmesteter regarded the extant texts as far more recent than was commonly believed, placing the earliest in the 1st century B.C., and the bulk in the 3rd century A.D. In 1885 he was appointed professor in the Collège de France, and was sent to India in 1886 on a mission to collect the popular songs of the Afghans, a translation of which, with a valuable essay on the Afghan language and literature, he published on his return. His impressions of English dominion in India were conveyed in *Lettres sur l'Inde* (1888). England interested him deeply; and his attachment to the gifted English writer, A. Mary F. Robinson, whom he shortly afterwards married (and who in 1901 became the wife of Professor E. Duclaux, director of the Pasteur Institute at Paris), led him to translate her poems into French in 1888. Two years after his death a collection of excellent essays on English subjects was published in English. He also wrote *Le Mahdi depuis les origines de l'Islam jusqu'à nos jours* (1885); *Les Origines de la poésie persane* (1888); *Prophètes d'Israël* (1892), and other books on topics connected with the east, and from 1883 onwards drew up the annual reports of the *Société Asiatique*. He had just become connected with the *Revue de Paris*, when his delicate constitution succumbed to a slight attack of illness on the 19th of October 1894.

His elder brother, Arsène Darmesteter (1846-1888), was a distinguished philologist and man of letters. He studied under Gaston Paris at the École des Hautes Études, and became professor of Old French language and literature at the Sorbonne. His *Life of Words* appeared in English in 1888. He also collaborated with Adolphe Hatzfeld in a *Dictionnaire général de la langue française* (2 vols., 1895-1900). Among his most important work was the elucidation of Old French by means of the many glosses in the medieval writings of Rashi and other French Jews. His scattered papers on romance and Jewish philology were collected by James Darmesteter as *Arsène Darmesteter, reliques scientifiques* (2 vols., 1890). His valuable *Cours de grammaire historique de la langue française* was edited after his death by E. Muret and L. Sudre (1891-1895; English edition, 1902).

There is an *éloge* of James Darmesteter in the *Journal asiatique* (1894, vol. iv. pp. 519-534), and a notice by Henri Cordier, with a list of his writings, in *The Royal Asiatic Society's Journal* (January 1895); see also Gaston Paris, "James Darmesteter," in *Penseurs et poètes* (1896, pp. 1-61).

DARMSTADT, a city of Germany, capital of the grand-duchy of Hesse-Darmstadt, on a plain gently sloping from the Odenwald to the Rhine, 21 m. by rail S.E. from Mainz and 17 m. S. from Frankfort-on-Main. Pop. (1905) 83,000. It is the residence of the grand-duke and the seat of government of the duchy. Darmstadt consists of an old and a new town, the streets of the former being narrow and gloomy and presenting no attractive features. The new town, however, which includes the greater part of the city, contains broad streets and several fine squares. Among the latter is the stately Luisenplatz, on which are the house of parliament, the old palace and the post office, and in the centre of which is a column surmounted by the statue of the grand-duke Louis I., the founder of the new town. The square is crossed by the Rhein-strasse, the most important thoroughfare in the city, leading directly from the railway station to the ducal palace. This last, a complex of buildings, dating from various centuries, but possessing few points of special interest, is surrounded by grounds occupying the site of the old moat. Opposite to it, on the north side, and adjoining the pretty palace gardens, are the court theatre and the armoury, and a little farther west the handsome buildings of the new museum, erected in 1905 and containing the valuable scientific and art collections of the state, which were formerly housed in the palace: a library of 600,000 volumes and 4000 MSS., a museum of Egyptian and German antiquities, a picture gallery with masterpieces of old German and Dutch schools, a natural history collection and the state archives. To the right of the entrance to the palace gardens is the tomb of the "great landgravine," Caroline Henrietta, wife of the landgrave Louis IX., surmounted by a marble urn, the gift of Frederick the Great of Prussia, bearing the inscription *femina sexu, ingenio vir*. To the south of the castle lies the old town, with the market square, the town hall (lately restored and enlarged) and the town church. Of the eight churches (seven Evangelical) only the Roman Catholic is in any way imposing. There are two synagogues. The town possesses a technical high school, having (since 1900) power to confer the degree of doctor of engineering, and attended by about 2000 students, two gymnasia, a school of agriculture, an artisans' school and a botanical garden. The chemist, Justus von Liebig, was born in Darmstadt in 1803. Among the chief manufactures are the production of machinery, carpets, playing cards, chemicals, tobacco, hats, wine and beer.

The surroundings of Darmstadt are attractive and contain many features of interest. To the east of the town lies the Mathildenhöhe, formerly a park and now converted into villa residences. Here are the Alice hospital and the pretty Russian church, built (1898-1899) by the emperor Nicholas II. of Russia in memory of the empress Maria, wife of Alexander II. In the vicinity is the Rosenhöhe, with the mausoleum of the ducal house, with the tomb of the grand-duchess Alice, daughter of Queen Victoria of England.

Darmstadt is mentioned in the 11th century, but in the 14th century it was still a village, held by the counts of Katzenelnbogen. It came by marriage into the possession of the house of Hesse in 1479, the male line of the house of Katzenelnbogen having in that year become extinct. The imperial army took it in the Schmalkaldic War, and destroyed the old castle. In 1567, after the death of Philip the Magnanimous, his youngest son George received Darmstadt and chose it as his residence. He was the founder of the line of Hesse-Darmstadt. Its most brilliant days were those of the reign of Louis X. (1790-1830), the first grand-duke, under whom the new town was built.

See Walther, *Darmstadt wie es war und wie es geworden* (Darms. 1865); and Zernin und Wörner, *Darmstadt und seine Umgebung* (Zürich, 1890).

DARNLEY, HENRY STEWART or **STUART**, Lord (1545-1567), earl of Ross and duke of Albany, second husband of Mary, queen of Scots, was the eldest son of Matthew Stewart, earl of Lennox (1516-1571), and through his mother Lady Margaret Douglas (1515-1578) was a great-grandson of the English king Henry VII. Born at Temple Newsam in Yorkshire on the 7th of December 1545, he was educated in England, and his lack of intellectual ability was compensated for by exceptional skill in military exercises. After the death of Francis II. of France in 1560 Darnley was sent into that country by his mother, who hoped that he would become king of England on Elizabeth's death, and who already entertained the idea

of his marriage with Mary, queen of Scots, the widow of Francis, as a means to this end. Consequently in 1561 both Lady Margaret and her son, who were English subjects, were imprisoned by Elizabeth; but they were soon released, and Darnley spent some time at the English court before proceeding to Scotland in February 1565. The marriage of Mary and Darnley was now a question of practical politics, and the queen, having nursed her new suitor through an attack of measles, soon made up her mind to wed him, saying he "was the properest and best proportioned long man that ever she had seen." The attitude of Elizabeth towards this marriage is difficult to understand. She had permitted Darnley to journey to Scotland, and it has been asserted that she entangled Mary into this union; but on the other hand she and her council declared their dislike of the proposed marriage, and ordered Darnley and his father to repair to London, a command which was disobeyed. In March 1565 there were rumours that the marriage had already taken place, but it was actually celebrated at Holyrood on the 29th of July 1565.

Although Mary had doubtless a short infatuation for Darnley, the union was mainly due to political motives, and in view of the characters of bride and bridegroom it is not surprising that trouble soon arose between them. Contrary to his expectations Darnley did not receive the crown matrimonial, and his foolish and haughty behaviour, his vicious habits, and his boisterous companions did not improve matters. He was on bad terms with the regent Murray and other powerful nobles, who disliked the marriage and were intriguing with Elizabeth. Scotland was filled with rumours of plot and assassination, and civil war was only narrowly avoided. Unable to take any serious part in affairs of state, Darnley soon became estranged from his wife. He believed that Mary's relations with David Rizzio injured him as a husband, and was easily persuaded to assent to the murder of the Italian, a crime in which he took part. Immediately afterwards, however, flattered and cajoled by the queen, he betrayed his associates to her, and assisted her to escape from Holyrood to Dunbar. Owing to these revelations he was deserted and distrusted by his companions in the murder, and soon lost the queen's favour. In these circumstances he decided to leave Scotland, but a variety of causes prevented his departure; and meanwhile at Craigmillar a band of nobles undertook to free Mary from her husband, who refused to be present at the baptism of his son, James, at Stirling in December 1566. The details of the conspiracy at Craigmillar are not clear, nor is it certain what part, if any, Mary took in these proceedings. The first intention may have been to obtain a divorce for the queen, but it was soon decided that Darnley must be killed. Rumours of the plot came to his ears, and he fled from Stirling to Glasgow, where he fell ill, possibly by poisoning, and where Mary came to visit him. Another reconciliation took place between husband and wife, and Darnley was persuaded to journey with Mary by easy stages to Edinburgh. Apartments were prepared for the pair at Kirk o' Field, a house just inside the city walls, and here they remained for a few days. On the evening of the 9th of February 1567 Mary took an affectionate farewell of her husband, and went to attend some gaieties in Edinburgh. A few hours later, on the morning of the 10th, Kirk o' Field was blown up with gunpowder. Darnley's body was found at some distance from the house, and it is supposed that he was strangled whilst making his escape. The remains were afterwards buried in the chapel at Holyrood.

Much discussion has taken place about this crime, and the guilt or innocence of Mary is still a question of doubt and debate. It seems highly probable, however, that the queen was accessory to the murder, which was organized by her lover and third husband, Bothwell (q.v.). As the father of King James I., Darnley is the direct ancestor of all the sovereigns of England since 1603. Personally he was a very insignificant character and his sole title to fame is his connexion with Mary, queen of Scots.

For further information, and also for a list of the works bearing on his life, see the article Mary, Queen of Scots.

DARRANG, a district of British India, in the province of Eastern Bengal and Assam. It lies between the Bhutan and Daphla Hills and the Brahmaputra, including many islands in the river. The administrative headquarters are at Tezpur. Its area is 3418 sq. m. It is for the most part a level plain watered by many tributaries of the Brahmaputra. The two subdivisions of Tezpur Mangaldai differ greatly in character. Tezpur is part of Upper Assam and shares in the prosperity which tea cultivation has brought to that part of the valley. In this portion of the district there are still large areas of excellent land awaiting settlement, and the cultivator finds a market for his produce in the flourishing tea-gardens, to which large quantities of coolies are imported every year. In Mangaldai, on the other hand, most of the good rice land was settled about 1880-1890 when the subdivision had a population of 146 to the square mile, as against 42 for Tezpur; the soil is not favourable for tea, and the population is stationary or receding. In 1901 the population of the whole district was 337,313, showing an increase of 10% in the decade. The principal grain-crop is rice. The principal means of communication is by river. A steam tramway of 2½ ft. gauge has been opened from Tezpur to Balipara, a distance of 20 m.

Darrang originally formed, according to tradition, part of the dominions of Bana Raja, who was defeated by Krishna in a battle near Tezpur ("the town of blood"). The massive granite ruins found near by prove that the place must have been the seat of powerful and civilized rulers. In the 16th century Darrang was subject to the Koch king of Kamarupa, Nar Narayan, and on the division of his dominions among his heirs passed to an independent line of rajas. Early in the 17th century the raja Bali Narayan invoked the aid of the Ahoms of Upper Assam against the Mussulman invaders; after his defeat and death in 1637 the Ahoms dominated the whole district, and the Darrang rajas sank into petty feudatories. About 1785 they took advantage of the decay of the Ahom kingdom to try and re-establish their independence, but they were defeated by a British expedition in 1792, and in 1826 Darrang, with the rest of Assam, passed under British control.

DARTFORD, a market town in the Dartford parliamentary division of Kent, England, on the Darent, 17 m. E.S.E. of London by the South-Eastern & Chatham railway. Pop. of urban district (1891), 11,962; (1901) 18,644. The town lies low, flanked by two chalky eminences, called East and West Hills. It possesses a town hall, a grammar school (1576), and a Martyr's Memorial Hall. The most noteworthy building, however, is the parish church, restored in 1863, which contains a curious old fresco and several interesting brasses, and has a Norman tower. The prosperity of the town depends on the important works in its vicinity, including powder works, paper mills, and engineering, iron, chemical and cement works. One of the first attempts at the manufacture of paper in England was made here by Sir John Spielman (d. 1607), jeweller to Queen Elizabeth. Dartford was the scene, in 1235, of the marriage, celebrated by proxy, between Isabella, sister of Henry III., and the Emperor Frederick II.; and in 1331 a famous tournament was held in the place by Edward III. The same monarch established an Augustinian nunnery on West Hill in 1355, of which, however, few remains exist. After the Dissolution it was used as a private residence by Henry VIII., Anne of Cleves and Elizabeth. The chantry of St Edmund the Martyr which stood on the opposite side of the town was a part of Edward III.'s endowment to the priory, and became so famous as a place of pilgrimage, especially for those on their way to Canterbury, that the part of Watling Street which crossed there towards London was sometimes called "St Edmund's Way." It was here also that Wat Tyler's insurrection began in 1377, and the house in which he resided is shown. On Dartford Heath is a lunatic asylum of the London County

Council, and, at Long Reach, the infectious diseases hospital of the Metropolitan Asylums Board. Stone church, 2 m. E. of Dartford, mainly late Early English (1251-1274), and carefully restored by G. E. Street in 1860, is remarkable; the richness of the work within increases from west to east, culminating in a choir arcade decorated with work among the finest of its period extant; the period is that of the choir of Westminster Abbey, and from a comparison of building materials, choir arcades and sculpture of foliage, a common architect has been suggested. Greenhithe, on the banks of the Thames, has large chalk quarries in its neighbourhood, from which lime and cement are manufactured.

DARTMOOR, a high plateau in the south-west of Devonshire, England. Its length is about 23 m. from N. to S. and its extreme breadth 20 m., the mean altitude being about 1500 ft. The area exceeding 1000 ft. in elevation is about 200 sq. m. It is the highest and easternmost in a broken chain of granitic elevations which extends through Cornwall to the Scilly Isles. The higher parts are open, bleak and wild, strongly contrasting with the more gentle scenery of the well-wooded lowlands surrounding it. Sloping heights rise from the main tableland in all directions, crested with broken masses of granite, locally named *tors*, and often singularly fantastic in outline. The highest of these are Yes Tor and High Willhays in the north-west, reaching altitudes of 2028 and 2039 ft. Large parts of the moor, especially in the centre, are covered with morasses; and head-waters of all the principal streams of Devonshire (q.v.) are found here. Two main roads cross the moor, one between Exeter and Plymouth, and the other between Ashburton and Tavistock, intersecting at Two Bridges. Both avoid the higher part of the moor, which, for the rest, is traversed only in part by a few rough tracks. The central part of Dartmoor was a royal forest from a date unknown, but apparently anterior to the Conquest. Its woods were formerly more extensive than now, but a few small tracts in which dwarf oaks are characteristic remain in the lower parts. Previous to 1337, the forest had been granted to Richard, earl of Cornwall, by Henry III., and from that time onward it has belonged to the duchy of Cornwall. The districts immediately surrounding the moor are called the Venville or Fenfield districts. The origin of this name is not clear. The holders of land by Venville tenure under the duchy have rights of pasture, fishing, &c. in the forest, and their main duty is to “drive” the moor at certain times in order to ascertain what head of cattle are pastured thereon, and to prevent trespassing. The antiquarian remains of Dartmoor are considered among those of Devonshire.

Dartmoor convict prison, near Princetown, was adapted to its present purpose in 1850; but the original buildings were erected in 1809 for the accommodation of French prisoners. A tract of moorland adjacent to the prison has been brought under cultivation by the inmates.

See S. Rowe, *Perambulation of the ... forest of Dartmoor* (Plymouth, 1848); J. L. W. Page, *Exploration of Dartmoor* (London, 1889); S. Baring-Gould, *Book of Dartmoor* (London, 1900).

DARTMOUTH, a town in Halifax county, Nova Scotia, Canada, on the north-eastern side of Halifax harbour, connected by a steam ferry with Halifax, of which it is practically a suburb. Pop. (1901) 4806. It contains a large sugar refinery, foundries, machine shops, saw mills, skate, rope, nail, soap and sash factories.

DARTMOUTH, a seaport, market town, and municipal borough in the Torquay parliamentary division of Devonshire, England, 27 m. E. of Plymouth. Pop. (1901) 6579. It is beautifully situated on the west bank and near the mouth of the river Dart, which here forms an almost land-locked estuary. The town is connected by a steam ferry with Kingswear on the opposite bank, which is served by a branch of the Great Western railway. The houses of Dartmouth, many of which are ancient, rise in tiers from the shore, beneath a range of steep hills. An embankment planted with trees fronts the river. The cruciform church of St Saviour is of the 14th and 15th centuries, and contains a graceful rood-screen of the 16th century, an ancient stone pulpit and interesting monuments. Dartmouth Castle, in part of Tudor date, commands the river a little below the town. Portions of the cottage of Thomas Newcomen, one of the inventors of the steam-engine, are preserved. Dartmouth is a favourite yachting centre, and shipbuilding, brewing, engineering and paint-making are carried on. Coal is imported, and resold to ships calling at the harbour. The borough is under a mayor, four aldermen and twelve councillors. Area, 1924 acres.

History.—Probably owing its origin to Saxon invaders, Dartmouth (*Darentamuthan*, *Dertemue*) was a seaport of importance when Earl Beorn was buried in its church in 1049. From its sheltered harbour William II. embarked for the relief of Mans, and the crusading squadron set sail in 1190, while John landed here in 1214. The borough, first claimed as such in the reign of Henry I., was in existence by the middle of the 13th century, since a deed of Gilbert Fitz-Stephen, lord of the manor, mentions the services due from “his burgesses of Dertemue,” and a borough seal of 1280 is extant. The king in 1224 required the bailiffs and good men of Dartmouth to keep all ships in readiness for his service, and in 1302 they were to furnish two ships for the Scottish expedition, an obligation maintained throughout the century. The men of the vill were made quit of toll in 1337, and in 1342 the town was incorporated by a charter frequently confirmed by later sovereigns. Edward III. in 1372 granted that the burgesses should be sued only before the mayor and bailiffs, and Richard II. in 1393 granted extended jurisdiction and a coroner; further charters were obtained in 1604 and 1684. A French attack on the town was repulsed in 1404, and in 1485 the burgesses received a royal grant of £40 for walling the town and stretching a chain across the river mouth. Dartmouth fitted out two ships against the Armada, and was captured by both the royalists and parliamentarians in the Civil War. It returned two representatives to parliament in 1298, and from 1350 to 1832. In the latter year the representation was reduced to one, and was merged in that of the county in 1868. Manorial markets were granted for Dartmouth in 1231 and 1301. These were important since as early as 1225 the fleet resorted there for provisions. During the 14th and 15th centuries there was a regular trade with Bordeaux and Brittany, and complaints of piracies by Dartmouth men were frequent.

DARTMOUTH COLLEGE, an American institution of higher education, in Hanover, New Hampshire. It is Congregational in its affiliations, but is actually non-sectarian. The college is open only to men except during the summer session, when women also are admitted. Dartmouth embraces, in addition to the original college, incorporated in 1769, a medical school, dating from the establishment of a professorship of medicine in the college in 1798; the Thayer school of civil engineering, established in 1867 by the bequest of Gen. Sylvanus Thayer; and the Amos Tuck school of administration and finance, established in 1900 by Edward Tuck—a remarkable feature, as it was the first, and, until the establishment at Harvard of a similar graduate school, the only commercial school in the country whose work is largely post-graduate. The Chandler school of science and the arts was founded by Abiel Chandler in 1851, in connexion with Dartmouth, and was incorporated into the collegiate department in 1893 as the Chandler scientific course in the college. From 1866 to 1893 the New Hampshire college of agriculture and the mechanic arts, now at Durham, was connected with Dartmouth. The medical school offers a four years' course, and each of the other two professional schools a two years' course, the first year of which may, under certain conditions, be counted as the senior year of the undergraduate department. The college has a beautiful campus or "yard"; a library of more than 100,000 volumes, housed in Wilson Hall (1885); instruction halls, residence halls—Thornton and Wentworth (1828), Hallgarten (1874), Richardson (1897), and Fayerweather (1900); a gymnasium (Bissell Hall, built in 1867); an athletic field, known as Alumni Oval; Bartlett Hall (1890-1891), the house of the College Young Men's Christian Association; Rollins Chapel (1885); College Hall (1901), a social headquarters; an astronomical and meteorological observatory (Shattuck Observatory, 1854); the Mary Hitchcock hospital (1893), associated with the medical college; museums (especially the Butterfield Museum); Culver Hall (1871), the chemical laboratory; and Wilder Hall (1899), the physical laboratory. The college in 1908 had 100 officers of administration and instruction and 1219 students. It is maintained chiefly by the proceeds of a productive endowment fund amounting to $2,700,000 and by tuition fees ($125 a year for each student). The government is entrusted to a board of twelve trustees, five of whom are elected upon the nomination of the alumni.

Dartmouth is the outgrowth of Moor's Indian charity school, founded by Eleazer Wheelock (1711-1779) about 1750 at Lebanon, Connecticut; this school was named in 1755 in honour of Joshua Moor, who in this year gave to it lands and buildings. In 1765 Samson Occom (*c.* 1723-1792), an Indian preacher and former student of the school, visited England and Scotland in its behalf and raised £10,000, whereupon plans were made for enlargement and for a change of site to Hanover. In 1769 the school was incorporated by a charter granted by George III. as Dartmouth College, being named after the earl of Dartmouth, president of the trustees of the funds raised in Great Britain. The first college building, Dartmouth Hall (closely resembling Nassau Hall at Princetown and the University Hall of Brown University), was built in 1784-1791 and is still standing, as are the typical college church, built in 1796 and enlarged in 1877 and 1889, and Moor Hall, the second building for Moor's charity school, since 1852 called the Chandler building. During the War of Independence the support from Great Britain was mostly withdrawn. In 1815 President John Wheelock (1754-1817), who had succeeded his father in 1779, and was a Presbyterian and a Republican, was removed by the majority of the board of trustees, who were Congregationalists and Federalists, and Francis Brown was chosen in his place. Wheelock, upon his appeal to the legislature, was reinstated at the head of a new corporation, called Dartmouth University. The state courts upheld the legislature and the "University," but in 1819 after the famous argument of Daniel Webster (q.v.) in behalf of the "College" board of trustees as against the "University" board before the United States Supreme Court, that body decided that the private trust created by the charter of 1769 was inviolable, and Dr Francis Brown and the old "College" board took possession of the institution's property. This was one of the most important decisions ever made by the United States Supreme Court.

See Frederick Chase, *A History of Dartmouth College and the Town of Hanover* (Cambridge, 1891). For the Dartmouth College Case see Shirley, *The Dartmouth College Causes* (St Louis, Missouri, 1879); Kent, *Commentaries on American Law* (vol. i. Boston, 1884); and Joseph Story, *Commentaries on the Constitution* (vol. ii., Boston, 1891).

DARTMOUTH, EARL OF, an English title borne by the family of Legge from 1710 to the present day.

William Legge (*c.* 1609-1670), the eldest son of Edward Legge (d. 1616), vice-president of Munster, gained some military experience on the continent of Europe and then returning to England assisted Charles I. in his war against the Scots in 1638. He was also very useful to the king during the months which preceded the outbreak of the Civil War, although his attempt to seize Hull in January 1642 failed. During the war Legge distinguished himself at Chalgrove and at the first battle of Newbury, and in 1645 he became governor of Oxford. However, he only held this position for a few months, as he shared the disgrace of Prince Rupert, to whom he was very devoted; but he was largely instrumental in putting an end to the quarrel between the king and the prince. Legge helped Charles to escape from Hampton Court in 1647, and after attending upon him he was arrested in May 1648. He was soon released, but was again captured in the following year while proceeding to Ireland in the interests of Charles II. Regaining his freedom in 1653, he spent some years abroad, but in 1659 he was once more in England inciting the royalists to rise. Legge enjoyed the favour of Charles II., who offered to make him an earl. The old royalist died on the 13th of October 1670.

Legge's eldest son, George, Baron Dartmouth (1647-1691), served as a volunteer in the navy during the Dutch war of 1665-1667, and quickly won his way to high rank. He was also a member of the household of the duke of York, afterwards James II.; was governor of Portsmouth and master-general of the army; in 1678 he commanded as colonel the troop at Nieuport, and in 1682 he was created Baron Dartmouth. In 1683 as "admiral of a fleet" he sailed to Tangiers, dismantled the fortifications and brought back the English troops, a duty which he discharged very satisfactorily. Under James II. Dartmouth was master of the horse and governor of the Tower of London; and in 1688, when William of Orange was expected, James II. made him commander-in-chief of his fleet. Although himself loyal to James, the same cannot be said of many of his officers, and an engagement with the Dutch fleet was purposely avoided. Dartmouth, however, refused to assist in getting James Edward, prince of Wales, out of the country, and even reproved the king for attempting this proceeding. He then left the fleet and took the oath of allegiance to William and Mary, but in July 1691 he was arrested for treason, and was charged with offering to hand over Portsmouth to France and to command a French fleet. Macaulay believed that this accusation was true, but there are those who hold that Dartmouth spoke the truth when he protested his innocence. Further proceedings against him were prevented by his death, which took place in the Tower of London on the 25th of October 1691.

Lord Dartmouth's only son, William, 1st Earl of Dartmouth (1672-1750), succeeded to his father's barony in 1691. In 1702 he was appointed a member of the board of trade and foreign plantations, and eight years later he became secretary of state for the southern department and joint keeper of the signet for Scotland. In 1711 he was created viscount Lewisham and earl of Dartmouth; in 1713 he exchanged his offices for that of keeper of the privy seal, which he held until the end of 1714. After a long period of retirement from public life he died on the 15th of December 1750. Dartmouth's eldest son George, viscount Lewisham (*c.* 1703-1732), predeceased his father. Other sons were: Heneage Legge (1704-1759), judge of the court of exchequer; Henry Legge (q.v.), afterwards Bilson-Legge; and Edward Legge (1710-1747), who served for some time in the navy and died on the 19th of September 1747.

William, 2nd Earl of Dartmouth (1731-1801), was a son of George, viscount Lewisham, and a grandson of the 1st earl, whom he succeeded in 1750. For a few months in 1765 and 1766 he was president of the board of trade and foreign plantations; in 1772 he returned to the same office holding also that of secretary for the colonies; and in 1775 he became lord privy seal. With regard to the American colonies Dartmouth advised them in 1777 to accept the conciliatory proposals put forward by Lord North, but in 1776 he opposed similar proposals and advocated the employment of force. In March 1782 he resigned his office as lord privy seal and in 1783 he was lord steward of the household; he died on the 15th of July 1801. Dartmouth was a friend of Selina, countess of Huntingdon, and his piety and his intimacy with the early Methodists won for him the epithet of the *Psalm-singer*. Dartmouth College was named after him, and among his papers preserved at Patshull House, Wolverhampton, are many letters from America relating to the struggle for independence. His sixth son, Sir Arthur Kaye Legge (d. 1835), was an admiral of the blue, and his seventh son, Edward Legge (d. 1827), was bishop of Oxford.

George, 3rd Earl of Dartmouth (1755-1810), the eldest son of the 2nd earl, was lord warden of the stannaries and president of the board of control; later he was lord steward and then lord chamberlain of the royal household. He died on the 1st of November 1810, when his eldest son, William (1784-1853), became 4th earl. William's son, William Walter (1823-1891), became 5th earl in 1853 and was succeeded in 1891 by his son William Heneage Legge (b. 1851) as 6th earl of Dartmouth. As Lord Lewisham this nobleman was a member of parliament from 1878 to 1891, and was vice-chamberlain of the household in 1885-1886, and again from 1886 to 1892.

DARU, PIERRE ANTOINE NOËL BRUNO, Count (1767-1829), French soldier and statesman, was born at Montpellier on the 12th of January 1767. He was educated at the military school of Tournon, conducted by the Oratorians, and entered the artillery at an early age. His fondness for literature, however, soon made itself felt, and he published several slight pieces, until the outbreak of the French Revolution called him to a sterner occupation. In 1793 he became commissary to the army, protecting the coasts of Brittany from projected descents of the British, or of French royalists. Thrown into prison on a frivolous charge of friendliness to the royalists and England, he was released after the fall of Robespierre in the summer of 1794, and rose in the service until, in 1799, he became chief commissary to the French army serving under Masséna in the north of Switzerland. In that position he won repute for his organizing capacity, great power of work and unswerving probity—the last of which qualities was none too common in the French armies at that time. These exacting tasks did not absorb all his energies. He found time, even during the campaign, to translate part of Horace and to compose two poems, the *Poème des Alpes* and the *Chant de guerre*. The latter celebrated in indignant strains the murder of the French envoys to the congress of Rastadt.

The accession of Napoleon Bonaparte to power in November 1799 led to the employment of Daru as chief commissary to the Army of Reserve intended for North Italy, and commanded nominally by Berthier, but really by the First Consul. Conjointly with Berthier and Dejean, he signed the armistice with the Austrians which closed the campaign in North Italy in June 1800. Daru now returned, for a time, mainly to civil life, and entered the tribunate, where he ably maintained the principles of democratic liberty. On the renewal of war with England, in May 1803, he again resumed his duties as chief commissary for the army on the northern coasts. It was afterwards asserted that, on Napoleon's resolve to turn the army of England against Austria, Daru had set down at the emperor's dictation all the details of the campaign which culminated at Ulm. The story is apocryphal; but Napoleon's confidence in him was evinced by his being appointed to similar duties in the Grand Army, which in the autumn of 1805 overthrew the armies of Austria and Russia. After the battle of Austerlitz, he took part in the drafting of the treaty of Presburg. At this time, too, he became intendant-general of the military household of Napoleon. In the campaigns of 1806-1807 he served, in his usual capacity, in the army which overthrew the forces of Russia and Prussia; and he had a share in drawing up the treaty of Tilsit (7th of July 1807). After this he supervised the administrative and financial duties in connexion with the French army which occupied the principal fortresses of Prussia, and was one of the chief agents through whom Napoleon pressed hard on that land. At the congress of Erfurt, Daru had 840
the privilege of being present at the interview between Goethe and Napoleon, and interposed tactful references to the works of the great poet. Daru fulfilled his usual duties in the campaign of 1809 against Austria. Afterwards, when the subject of the divorce of Josephine and the choice of a Russian or of an Austrian princess came to be discussed, Daru, on being consulted by Napoleon, is said boldly to have counselled his marriage with a French lady; and Napoleon, who admired his frankness and honesty, took the reply in good part.

In 1811 he became secretary of state in succession to Maret, duc de Bassano, and showed his usual ability in the administration of the vast and complex affairs of the French empire, including the arrangements connected with the civil list and the imperial domains. But neither his devotion to civic duty nor to the administration of the affairs of the Grand Army could ward off disaster. Late in the year 1813 he took up the portfolio of military affairs. After the first abdication of Napoleon in 1814, Daru retired into private life, but aided Napoleon during the Hundred Days. After the second Restoration he became a member of the Chamber of Peers, in which he ably defended the cause of popular liberty against the attacks of the ultra-royalists. He died at Meulan on the 5th of September 1829.

Few men of the Napoleonic empire have been more generally admired and respected than Daru. On one occasion when he expressed a fear that he lacked all the gifts of a courtier, Napoleon replied, "Courtiers! They are common enough about me; I shall never be in want of them. What I want is an enlightened, firm and vigilant administrator; and that is why I have chosen you." At another time Napoleon said, "Daru is good on all sides; he has good judgment, a good intellect, a great power for work, and a body and mind of iron." The only occasion on which he is known to have sunk beneath the weight of his duties was in the course of writing letters at the emperor's dictation for the third night in succession.

Of Daru's literary works may be mentioned his *Histoire de Venise*, published at Paris in 7 vols. in 1819; the *Histoire de Bretagne*, in 3 vols. (Paris, 1826); a poetical translation of Horace (of which Le Brun remarked: "Je ne lis point Daru, j'aime trop mon Horace"); *Discours en vers sur les facultés de l'homme* (Paris, 1825), and *Astronomie*, a didactic poem in six cantos (Paris, 1820).

See the "Notice" by Viennet prefixed to the fourth edition of Daru's *Histoire de la république de Venise* (9 vols., 1853), and three articles by Sainte-Beuve in *Causeries du lundi*, vol. ix. For the many letters of Napoleon to Daru see the *Correspondance de Napoléon I^er^* (32 vols., Paris, 1858-1870).

(J. Hl. R.)

DARWEN, a municipal borough in the Darwen parliamentary division of Lancashire, England, 20 m. N.W. from Manchester by the Lancashire & Yorkshire railway. Pop. (1891) 34,192; (1901) 38,212. It lies on the river Darwen, which

traverses a densely populated manufacturing district, and is surrounded by high-lying moors. Darwen is a centre of the cotton trade and has also blast furnaces, and paper-making, paper-staining and fire-clay works. In the neighbourhood are collieries and stone quarries. The market hall is the chief public building; there are technical schools, a free library, and two public parks. Darwen was incorporated in 1788. The corporation consists of a mayor, six aldermen and eighteen councillors.

DARWIN, CHARLES ROBERT (1809-1882), English naturalist, author of the *Origin of Species*, was born at Shrewsbury on the 12th of February 1809. He was the younger of the two sons and the fourth child of Dr Robert Waring Darwin, son of Dr Erasmus Darwin (q.v.). His mother, a daughter of Josiah Wedgwood (1730-1795), died when Charles Darwin was eight years old. Charles Darwin's elder brother, Erasmus Alvey (1804-1881), was interested in literature and art rather than science: on the subject of the wide difference between the brothers Charles wrote that he was "inclined to agree with Francis Galton in believing that education and environment produce only a small effect on the mind of anyone, and that most of our qualities are innate" (*Life and Letters*, London, 1887, p. 22). Darwin considered that his own success was chiefly due to "the love of science, unbounded patience in long reflecting over any subject, industry in observing and collecting facts, and a fair share of invention as well as of common sense" (*l.c.* p. 107). He also says: "I have steadily endeavoured to keep my mind free so as to give up any hypothesis, however much beloved (and I cannot resist forming one on every subject), as soon as facts are shown to be opposed to it" (*l.c.* p. 103). The essential causes of his success are to be found in this latter sentence, the creative genius ever inspired by existing knowledge to build hypotheses by whose aid further knowledge could be won, the calm unbiassed mind, the transparent honesty and love of truth which enabled him to abandon or to modify his own creations when they ceased to be supported by observation. The even balance between these powers was as important as their remarkable development. The great naturalist appeared in the ripeness of time, when the world was ready for his splendid generalizations. Indeed naturalists were already everywhere considering and discussing the problem of evolution, although Alfred Russel Wallace was the only one who, independently of Darwin, saw his way clearly to the solution. It is true that hypotheses essentially the same as natural selection were suggested much earlier by W. C. Wells (*Phil. Trans.*, 1813), and Patrick Matthew (*Naval Timber and Arboriculture*, 1831), but their views were lost sight of and produced no effect upon the great body of naturalists. In the preparation for Darwin Sir Charles Lyell's *Principles of Geology* played an important part, accustoming men's minds to the vast changes brought about by natural processes, and leading them, by its lucid and temperate discussion of Lamarck's and other views, to reflect upon evolution.

Darwin's early education was conducted at Shrewsbury, first for a year at a day-school, then for seven years at Shrewsbury School under Dr Samuel Butler (1774-1839). He gained but little from the narrow system which was then universal. In 1825 he went to Edinburgh to prepare for the medical profession, for which he was unfitted by nature. After two sessions his father realized this, and in 1828 sent him to Cambridge with the idea that he should become a clergyman. He matriculated at Christ's College, and took his degree in 1831, tenth in the list of those who do not seek honours. Up to this time he had been keenly interested in sport, and in entomology, especially the collecting of beetles. Both at Edinburgh, where in 1826 he read his first scientific paper, and at Cambridge he gained the friendship of much older scientific men—Robert Edmond Grant and William Macgillivray at the former, John Stevens Henslow and Adam Sedgwick at the latter. He had two terms' residence to keep after passing his last examination, and studied geology with Sedgwick. Returning from their geological excursion together in North Wales (August 1831), he found a letter from Henslow urging him to apply for the position of naturalist on the "Beagle," about to start on a surveying expedition. His father at first disliked the idea, but his uncle, the second Josiah Wedgwood, pleaded with success, and Darwin started on the 27th of December 1831, the voyage lasting until the 2nd of October 1836. It is practically certain that he never left Great Britain after this latter date. After visiting the Cape de Verde and other islands of the Atlantic, the expedition surveyed on the South American coasts and adjacent islands (including the Galapagos), afterwards visiting Tahiti, New Zealand, Australia, Tasmania, Keeling Island, Maldives, Mauritius, St Helena, Ascension; and Brazil, de Verdes and Azores on the way home. His work on the geology of the countries visited, and that on coral islands, became the subject of volumes which he published after his return, as well as his *Journal of a Naturalist*, and his other contributions to the official narrative. The voyage must be regarded as the real preparation for his life-work. His observations on the relation between animals in islands and those of the nearest continental areas, near akin and yet not the same, and between living animals and those most recently extinct and found fossil in the same country, here again related but not the same, led him even then to reflect deeply upon the modification of species. He had also been much impressed by "the manner in which closely allied animals replace one another in proceeding southwards" in South America. On his return home Darwin worked at his collections, first at Cambridge for three months and then in London. His pocket-book for 1837 contains the words: "In July opened first note-book on Transmutation of Species. Had been greatly struck from about the month of previous March [while still on the voyage and just over twenty-eight years old] on character of South American fossils, and species on Galapagos Archipelago. These facts (especially latter) origin of all my views." From 1838 to 1841 he was secretary of the Geological Society, and saw a great deal of Sir Charles Lyell, to whom he dedicated the second edition of his *Journal*. On the 29th of January 1839 he married his cousin, Emma Wedgwood, the daughter of Josiah Wedgwood of Maer. They lived in London until September 1842, when they moved to Down, which was Darwin's home for the rest of his life. His health broke down many times in London, and remained precarious during the whole of his life. The immense amount of work which he got through was only made possible by the loving care of his wife. For eight years (1846 to 1854) he was chiefly engaged upon four monographs on the recent and fossil Cirripede Crustacea (*Roy. Soc.*, 1851 and 1854; *Palaeontograph. Soc.*, 1851 and 1854). Towards the close of this work Darwin became very wearied of it, especially of the synonymy. For a time he hoped to start a movement which should discourage the habit of appending the name of the describer to the name of the species, a custom which he thought led to bad and superficial work. From this time he was engaged upon the numerous lines of inquiry which led to the great work of his life, the *Origin of Species*, published in November 1859.

Soon after opening his note-book in July 1837 he began to collect facts bearing upon the formation of the breeds of domestic animals and plants, and quickly saw "that selection was the keystone of man's success. But how selection could be applied to organisms living in a state of nature remained for some time a mystery to me." Various ideas as to the causes of evolution occurred to him, only to be successively abandoned. He had the idea of "laws of change" which affected species and finally led to their extinction, to some extent analogous to the causes which bring about the development, maturity and finally death of an individual. He also had the conception that species must give rise to other species or else die out, just as an individual dies unrepresented if it bears no offspring. These and other ideas, of which traces exist in his Diary, arose in his mind, together with perhaps some general conception of natural selection, during the fifteen months after the opening of his note-book. In October 1838 he read *Malthus on Population*, and his observations having long since convinced him of the struggle for existence, it at once struck him "that under these circumstances favourable variations would tend to be preserved, and unfavourable ones to be destroyed. The result of this would be the formation of new species. Here, then, I had a theory by which to work." In June 1842 he wrote out a sketch, which two years later he expanded to an essay occupying 231 pages folio. The idea of progressive divergence as an advantage in itself, because the competition is most severe between organisms most closely related, did not occur to him until long after he had come to

Down. During the growth of the *Origin* Sir Joseph Hooker was his most intimate friend, and on the 11th of January 1844 he wrote: “At last gleams of light have come, and I am almost convinced (quite contrary to the opinion I started with) that species are not (it is like confessing a murder) immutable” (*l.c.* ii. 13). In 1855 he began a correspondence with the great American botanist Asa Gray, and in 1857 explained his views in a letter which afterwards became classical. In 1856, urged by Lyell, he began the preparation of a third and far more expanded treatise, and had completed about half of it when, on the 18th of June 1858, he received a manuscript essay from A. R. Wallace, who was then at Ternate in the Moluccas. Wallace wanted Darwin’s opinion on the essay, which he asked should be forwarded to Lyell. Darwin was much startled to find in the essay a complete abstract of his own theory of natural selection. He forwarded it the same day, writing to Lyell, “your words have come true with a vengeance—that I should be forestalled.” He placed himself in the hands of Lyell and Hooker, who decided to send Wallace’s essay to the Linnean Society, together with an abstract of Darwin’s work, which they asked him to prepare, the joint essay being accompanied by a preface in the form of an explanatory letter written by them to the secretary. The title of the joint communication was “On the Tendency of Species to form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection.” It was read on the 1st of July 1858, and appears in the *Linn. Soc. Journal* (Zoology) for that year. In this statement of the theory of natural selection, Darwin’s part consisted of two sections, the first being extracts from his 1844 essay, including a brief account of sexual selection, and the second an abstract of his letter to Asa Gray dated the 5th of September 1857. This latter, probably his first attempt to expound natural selection, cannot be surpassed as a clear statement of the theory. Darwin explained at the outset, what he insisted on elsewhere, that the facts of adaptation or contrivance in nature are the real difficulty to be explained by a theory of evolution, the stumbling-block of every previous suggestion. Until he could explain “the mistletoe, with its pollen carried by insects, and seed by birds—the woodpecker, with its feet and tail, beak and tongue, to climb the tree and secure insects,” he was “scientifically orthodox.” Nevertheless he was led to believe in evolution, apart from any possible motive-cause, by “general facts in the affinities, embryology, rudimentary organs, geological history, and geographical distribution of organic beings.” He then proceeds to describe the manner in which he met the difficulty of adaptation by “his notions on the means by which Nature makes her species.” The essentials of the statement are as follows:—I. Man has made his domestic breeds of animals and plants by selection, conscious or unconscious, of very slight or greater variations. II. The material for selection exists in nature, namely, slight variations of all parts of the organism. III. The “unerring power” which sifts these variations is “*natural selection* ... which selects exclusively for the good of each organic being.” The rate of increase is such that only a few in each generation can live: hence the never sufficiently appreciated struggle for life. “What a trifling difference must often determine which shall survive and which perish!” The remaining heads explain the complex nature of the struggle, the reasons for deficient direct evidence, the advantage of divergence, &c. In the joint essay the phrases “natural selection” and “sexual selection” were first made public by Darwin, the “struggle for existence” by Wallace. Darwin and Wallace had met only once before the departure of the latter for the East. Their rivalry in the discovery of the great principle of natural selection was the beginning of a lifelong friendship. Wallace was lying ill with intermittent fever at Ternate in February 1858 when he began to think of Malthus’s *Essay on Population*, read several years before: suddenly the idea of the survival of the fittest flashed upon him. In two hours he had “thought out almost the whole of the theory,” and in three evenings had finished his essay. Darwin, also inspired after reading Malthus, in October 1838, did not publish until nearly twenty years had elapsed, and then only when Wallace sent him his essay. Canon H. B. Tristram was the first to apply the new theory, explaining by its aid the colours of desert birds, &c. (*Ibis*, October 1859).

Acting under the advice of Lyell and Hooker, Darwin then began to prepare what was to become the great work of his life. It appeared on the 24th of November 1859, with the full title, *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*. The whole edition of 1250 copies was exhausted on the day of issue. The first four chapters explain the operation of artificial selection by man and of natural selection in consequence of the struggle for existence. The fifth chapter deals with the laws of variation and causes of modification other than natural selection. The five succeeding chapters consider difficulties in the way of a belief in evolution generally as well as in natural selection. The three remaining chapters (omitting the recapitulation which occupies the last) deal with the evidence for evolution. The theory which suggested a cause of evolution is thus given the foremost place, and the evidence for the existence of evolution considered last of all. This method of presentation was no doubt adopted because it was just the want of a reasonable motive-cause which more than anything else prevented the acceptance of evolution. But the other side of the book must not be eclipsed by the brilliant theory of Darwin and Wallace. The evidence for evolution itself had never before been thought out and marshalled in a manner which bears any comparison with that of Darwin in the *Origin*, and the work would have been in the highest degree epoch-making had it consisted of the later chapters alone. In the fifth chapter Darwin incorporated a certain proportion of the doctrines of Buffon,—modifications due to the direct influence of environment; and of Lamarck,—the hereditary effects of use and disuse. Lyell for a long time hesitated to accept the new teaching, and Darwin carried on a long correspondence with him. His public confession of faith was made at the anniversary dinner of the Royal Society in 1864. A storm of controversy arose over the book, reaching its height at the meeting of the British Association at Oxford in 1860, when the celebrated duel between T. H. Huxley and Bishop Wilberforce of Oxford took place. Throughout these struggles Huxley was the foremost champion for evolution and for fair play to natural selection, although he never entirely accepted the latter theory, holding that until man by his selection had made his domestic breed sterile *inter se*, there was no sufficient evidence that selection accounts for natural species which are thus separated by the barrier of sterility. The theory of natural selection was at first greatly misunderstood. Thus some writers thought it implied conscious choice in the animals themselves, others that it was the personification of some active power. By many it was thought to be practically the same idea as Lamarck’s. Herbert Spencer’s alternative phrase, “the survival of the fittest,” probably helped to spread a clear appreciation of Darwin’s meaning.

The history of opinion since 1859 may be summed up as follows. Evolution soon gained general acceptance, except among a certain number of those of middle or more advanced age at the time when the *Origin* appeared. Although natural selection had been an essential force in producing this conviction, there gradually grew up a tendency to minimize its importance in relation to the causes originally suggested by Buffon and Lamarck, which were ably presented and further elaborated by Herbert Spencer. In America a school of Neo-Lamarckians appeared, and for a time flourished under the inspiration of the vigorous personality of E. D. Cope. The writings of August Weismann next raised a controversy over the scope of heredity, assailing the very foundation of the hypotheses of Buffon, Lamarck and Herbert Spencer by demanding evidence that the “acquired characters” upon which they rest are capable of hereditary transmission. The quantitative determination of heredity has been the subject of much patient investigation under the leadership of Francis Galton. The question of isolation as a factor in species-formation has been greatly discussed, G. J. Romanes proposing, in his hypothesis of “Physiological Selection,” that the barrier of sterility may arise spontaneously by variation between two sets of individuals as the beginning instead of the climax of specific distinction. Others have fixed their attention upon the variations, which provided the material for natural selection, and have advocated the view that evolution proceeds by immense strides instead of the minute steps in which Darwin and Wallace believed. Others, again, have found significance in the artificial production of “monstrosities” or huge modifications during individual development. All through the period a varying proportion of naturalists, probably larger now than at any other time, has followed the founders of the theory, and has sought the motive-cause of evolution in “the accumulative power of natural selection,” which Darwin, as his first public statement indicates, looked upon “as by far the most important element in the production of new forms.” They hold, with Darwin and Wallace, that although variation provides the essential material, natural selection, from its accumulative power, is of such paramount importance that it may be said to create new species as truly as a man may be said to make a building out of the material provided by stones of various shapes, a metaphor suggested and elaborated by Darwin, and

forming the concluding sentences of *The Variation of Animals and Plants under Domestication*. This, probably the second in importance of all his works, was published in 1868, and may be looked upon as a complete account of the material of which he had given a very condensed abstract in the first chapter of the *Origin*, together with the conclusions suggested by it. He finally brought together an immense number of apparently disconnected sets of observations under his "provisional hypothesis of pangenesis," which assumes that every cell in the body, at every stage of growth and in maturity, is represented in each germ-cell by a gemmule. The germ-cell is only the meeting-place of gemmules, and the true reproductive power lies in the whole of the body-cells which despatch their representatives, hence "pangenesis." There are reasons for believing that this infinitely complex conception, in which, as his letters show, he had great confidence, was forced upon Darwin in order to explain the hereditary transmission of acquired characters involved in the small proportion of Lamarckian doctrine which he incorporated. If such transmission does not occur, a far simpler hypothesis based on the lines of Weismann's "continuity of the germ-plasm" is sufficient to account for the facts.

The *Descent of Man, and Selection in Relation to Sex*, was published in 1871; as the title implies, it really consists of two distinct works. The first, and by far the shorter, was the full justification of his statement in the Origin that "light would be thrown on the origin of man and his history." In the second part he brought together a large mass of evidence in support of his hypothesis of sexual selection which he had briefly described in the 1858 essay. This hypothesis explains the development of colours and structures peculiar to one sex and displayed by it in courtship, by the preferences of the other sex. The majority of naturalists probably agree with Darwin in believing that the explanation is real, but relatively unimportant. It is interesting to note that only in this subject and those treated of in the *Variation under Domestication* had Darwin exhausted the whole of the material which he had collected. The *Expression of the Emotions*, published in 1872, offered a natural explanation of phenomena which appeared to be a difficulty in the way of the acceptance of evolution. In 1876 Darwin brought out his two previously published geological works on *Volcanic Islands* and *South America* as a single volume. The widely read *Formation of Vegetable Mould through the Action of Worms* appeared in 1881. He also published various volumes on botanical subjects. The *Fertilization of Orchids* appeared in 1862. The subject of cross-fertilization of flowers was in Darwin's mind, as shown by his note-book in 1837. In 1841 Robert Brown directed his attention to Christian Conrad Sprengel's work (Berlin, 1793), which confirmed his determination to pursue this line of research. *The Effects of Cross- and Self-Fertilization in the Vegetable Kingdom* (1876) contained the direct evidence that the offspring of cross-fertilized individuals are more vigorous, as well as more numerous, than those produced by a self-fertilized parent. *Different Forms of Flowers on Plants of the Same Species* appeared in 1877. It is here shown that each different form, although possessing both kinds of sexual organs, is specially adapted to be fertilized by the pollen of another form, and that when artificially fertilized by its own pollen less vigorous offspring, bearing some resemblance to hybrids, are produced. He says, "no little discovery of mine ever gave me so much pleasure as the making out the meaning of heterostyled flowers" (*Autobiography*). *Climbing Plants* was published in 1875, although it had, in large part, been communicated to the Linnean Society, in whose publications much of the material of several of his other works appeared. This inquiry into the nature of the movements of twining plants was suggested to him in a paper by Asa Gray. *The Power of Movement in Plants* (1880) was produced by him in conjunction with his son Francis. It was an inquiry into the minute power of movement possessed, he believed, by plants generally, out of which the larger movements of climbing plants of many different groups had been evolved. The work included an investigation of other kinds of plant movement due to light, gravity, &c., all of which he regarded as modifications of the one fundamental movement (circumnutation) which exists in a highly specialized form in climbing plants. *Insectivorous Plants* (1875) is principally concerned with the description of experiments on the Sun-dew (*Drosera*), although other insect-catching plants, such as *Dionaea*, are also investigated.

Charles Darwin's long life of patient, continuous work, the most fruitful, the most inspiring, in the annals of modern science, came to an end on the 19th of April 1882. He was buried in Westminster Abbey on the 26th. It is of much interest to attempt to set forth some of the main characteristics of the man who did so much for modern science, and in so large a measure moulded the form of modern thought. Although his ill-health prevented Darwin, except on rare occasions, from attending scientific and social meetings, and thus from meeting and knowing the great body of scientific and intellectual workers of his time, probably no man has ever inspired a wider and deeper personal interest and affection. This was in part due to the intimate personal friends who represented him in the circles he was unable frequently to enter, but chiefly to the kindly, generous, and courteous nature which was revealed in his large correspondence and published writings, and especially in his treatment of opponents.

In a deeply interesting chapter of the *Life and Letters* Francis Darwin has given us his reminiscences of his father's everyday life. Rising early, he took a short walk before breakfasting alone at 7.45, and then at once set to work, "considering the 1½ hours between 8.0 and 9.30 one of his best working times." He then read his letters and listened to reading aloud, returning to work at about 10.30. At 12 or 12.15 "he considered his day's work over," and went for a walk, whether wet or fine. For a time he rode, but after accidents had occurred twice, was advised to give it up. After lunch he read the newspaper and wrote his letters or the MS. of his books. At about 3.0 he rested and smoked for an hour while being read to, often going to sleep. He then went for a short walk, and returning about 4.30, worked for an hour. After this he rested and smoked, and listened to reading until tea at 7.30, a meal which he came to prefer to late dinner. He then played two games of backgammon, read to himself, and listened to music and to reading aloud. He went to bed, generally very much tired, at 10.30, and was often much troubled by wakefulness and the activity of his thoughts. It is thus apparent that the number of hours devoted to work in each day was comparatively few. The immense amount he achieved was due to concentration during these hours, also to the unfailing and, because of his health, the necessary regularity of his life.

The appearance of Charles Darwin has been made well known in numerous portraits and statues. He was tall and thin, being about six feet high, but looked less because of a stoop, which increased towards the end of his life. As a young man he had been active, with considerable powers of endurance, and possessed in a marked degree those qualities of eye and hand which make the successful sportsman.

Charles Darwin was, as a young man, a believer in Christianity, and was sent to Cambridge with the idea that he would take orders. It is probable, however, that he had merely yielded to the influences of his home, without thinking much on the subject of religion. He first began to reflect deeply on the subject during the two years and a quarter which intervened between his return from the "Beagle" (October 2nd, 1836) and his marriage (January 29th, 1839). His own words are, "disbelief crept over me at a very slow rate, but was at last complete. The rate was so slow that I felt no distress." His attitude was that of the tolerant unaggressive agnostic, sympathizing with and helping in the social and charitable influences of the English Church in his parish. He was evidently most unwilling that his opinions on religious matters should influence others, holding, as his son, Francis Darwin, says, "that a man ought not to publish on a subject to which he has not given special and continuous thought" (*l.c.* i. p. 305).

In addition to the personal qualities and powers of Charles Darwin, there were other contributing causes without which the world could never have reaped the benefit of his genius. It is evident that Darwin's health could barely have endured the strain of working for a living, and that nothing would have been left over for his researches. A deep debt of gratitude is owing to his father for placing him in a position in which all his energy could be devoted to scientific work and thought. But his ill-health was such that this important and essential condition would have been insufficient without another even more essential. Francis Darwin, in the *Life and Letters* (i. pp. 159-160), writes these eloquent and pathetic words:—"No one indeed, except my mother, knows the full amount of suffering he endured, or the full amount of his wonderful patience. For all the latter years of his life she never left him for a night; and her days were so planned that all his resting

hours might be shared with her. She shielded him from every avoidable annoyance, and omitted nothing that might save him trouble, or prevent him becoming over-tired, or that might alleviate the many discomforts of his ill-health. I hesitate to speak thus freely of a thing so sacred as the lifelong devotion which prompted all this constant and tender care. But it is, I repeat, a principal feature of his life, that for nearly forty years he never knew one day of the health of ordinary men, and that thus his life was one long struggle against the weariness and the strain of sickness. And this cannot be told without speaking of the one condition which enabled him to bear the strain and fight out the struggle to the end."

Charles Darwin was honoured by the chief societies of the civilized world. He was made a knight of the Prussian order, "Pour le Mérite," in 1867, a corresponding member of the Berlin Academy of Sciences in 1863, a fellow in 1878, and later in the same year a corresponding member of the French Institute in the botanical section. He received the Bressa prize of the Royal Academy of Turin, and the Baly medal of the Royal College of Physicians in 1879, the Wollaston medal of the Geological Society in 1859, a Royal medal of the Royal Society in 1853, and the Copley medal in 1864. His health prevented him from accepting the honorary degree which Oxford University wished to confer on him, but his own university had stronger claims, and he received its honorary LL.D. in 1877.

Two daughters and five sons survived him, four of the latter becoming prominent in the scientific world,—Sir George Howard (b. 1845), who became professor of astronomy and experimental philosophy at Cambridge in 1883; Francis (b. 1848), the distinguished botanist; Leonard (b. 1850), a major in the royal engineers, and afterwards well known as an economist; and Horace (b. 1851), civil engineer.

See *The Life and Letters of Charles Darwin, including an autobiographical chapter*, edited by his son Francis Darwin (3 vols., London, 1887); *Charles Darwin and the Theory of Natural Selection*, by E. B. Poulton (London, 1896); *Life and Letters of Thomas Henry Huxley*, by Leonard Huxley (2 vols., London, 1900); A. R. Wallace, *Darwinism* (1889); G. J. Romanes, *Darwin and after Darwin* (1895). Also the article on T. H. Huxley.

(E. B. P.)

DARWIN, ERASMUS (1731-1802), English man of science and poet, was born at Elton, in Nottinghamshire, on the 12th of December 1731. After studying at St John's College, Cambridge, and at Edinburgh, he settled in 1756 as a physician at Nottingham, but meeting with little success he moved in the following year to Lichfield. There he gained a large practice, and did much, both by example and by more direct effort, to diminish drunkenness among the lower classes. In 1781 he removed to Derby, where he died suddenly on the 18th of April 1802. The fame of Erasmus Darwin as a poet rests upon his *Botanic Garden*, though he also wrote *The Temple of Nature, or the Origin of Society, a Poem, with Philosophical Notes* (1803), and *The Shrine of Nature* (posthumously published). The *Botanic Garden* (the second part of which—*The Loves of the Plants*—was published anonymously in 1789, and the whole of which appeared in 1791) is a long poem in the decasyllabic rhymed couplet. Its merit lies in the genuine scientific enthusiasm and interest in nature which pervade it; and of any other poetic quality—except a certain, sometimes felicitous but oftener ill-placed, elaborated pomp of words—it may without injustice be said to be almost destitute. It was for the most part written laboriously, and polished with unsparing care, line by line, often as he rode from one patient to another, and it occupied the leisure hours of many years. The artificial character of the diction renders it in emotional passages stilted and even absurd, and makes Canning's clever caricature—*The Loves of the Triangles*—often remarkably like the poem it satirizes: in some passages, however, it is not without a stately appropriateness. Gnomes, sylphs and nereids are introduced on almost every page, and personification is carried to an extraordinary excess. Thus he describes the *Loves of the Plants* according to the Linnaean system by means of a most ingenious but misplaced and amusing personification of each plant, and often even of the parts of the plant. It is significant that botanical notes are added to the poem, and that its eulogies of scientific men are frequent. Erasmus Darwin's mind was in fact rather that of a man of science than that of a poet. His most important scientific work is his *Zoonomia* (1794-1796), which contains a system of pathology, and a treatise on generation, in which he, in the words of his famous grandson, Charles Robert Darwin, "anticipated the views and erroneous grounds of opinions of Lamarck." The essence of his views is contained in the following passage, which he follows up with the conclusion "that one and the same kind of living filaments is and has been the cause of all organic life":—

> "Would it be too bold to imagine that, in the great length of time since the earth began to exist, perhaps millions of ages before the commencement of the history of mankind,—would it be too bold to imagine that all warm-blooded animals have arisen from one living filament, which the great First Cause endued with animality, with the power of acquiring new parts, attended with new propensities, directed by irritations, sensations, volitions and associations, and thus possessing the faculty of continuing to improve by its own inherent activity, and of delivering down these improvements by generation to its posterity, world without end!"

In 1799 Darwin published his *Phytologia, or the Philosophy of Agriculture and Gardening* (1799), in which he states his opinion that plants have sensation and volition. A paper on *Female Education in Boarding Schools* (1797) completes the list of his works.

Robert Waring Darwin (1766-1848), his third son by his first marriage, a doctor at Shrewsbury, was the father of the famous Charles Darwin; and Violetta, his eldest daughter by his second marriage, was the mother of Francis Galton.

See Anna Seward, *Memoirs of the Life of Dr Darwin* (1804); and Charles Darwin, *Life of Erasmus Darwin, an introduction to an essay on his works by Ernst Krause* (1879).

DASENT, SIR GEORGE WEBBE (1817-1896), English writer, was born in St Vincent, West Indies, on the 22nd of May 1817, the son of the attorney-general of that island. He was educated at Westminster school, King's College, and Oxford, where he was a contemporary of J. T. Delane (q.v.), whose friend he had become at King's College. On leaving the university in 1840 he was appointed to a diplomatic post in Stockholm. Here he met Jacob Grimm, and at his suggestion first interested himself in Scandinavian literature and mythology. In 1842 he published the results of his studies, a version of *The Prose or Younger Edda*, and in the following year he issued a *Grammar of the Icelandic or Old-Norse Tongue*, taken from the Swedish. Returning to England in 1845, he became assistant editor of *The Times* under Delane, whose sister he married; but he still continued his Scandinavian studies, publishing translations of various Norse stories. In 1853 he was appointed professor of English literature and modern history at King's College, London. In 1861-1862 he visited Iceland, and subsequently published *Gisli the Outlaw* and other translations from the Icelandic. In 1870 he was appointed a civil service commissioner and consequently resigned his post on *The Times*. In 1876 he was knighted. He retired from the public service in 1892, and died at Ascot on the 11th of June 1896. In addition to the works mentioned above, he published

The Story of Burnt Njal, from the Icelandic of the *Njals Saga* (1861).

See the *Life of Delane* (1908), by Arthur Irwin Dasent.

DASHKOV, CATHERINA ROMANOVNA VORONTSOV, Princess (1744-1810), Russian *littérateur*, was the third daughter of Count Roman Vorontsov, a member of the Russian senate, distinguished for his intellectual gifts. (For the family see Vorontsov.) She received an exceptionally good education, having displayed from a very early age the masculine ability and masculine tastes which made her whole career so singular. She was well versed in mathematics, which she studied at the university of Moscow, and in general literature her favourite authors were Bayle, Montesquieu, Boileau, Voltaire and Helvetius. While still a girl she was connected with the Russian court, and became one of the leaders of the party that attached itself to the grand duchess (afterwards empress) Catherine. Before she was sixteen she married Prince Mikhail Dashkov, a prominent Russian nobleman, and went to reside with him at Moscow. In 1762 she was at St Petersburg and took a leading part, according to her own account *the* leading part, in the *coup d'état* by which Catherine was raised to the throne. (See Catherine II.) Another course of events would probably have resulted in the elevation of the Princess Dashkov's elder sister, Elizabeth, who was the emperor's mistress, and in whose favour he made no secret of his intention to depose Catherine. Her relations with the new empress were not of a cordial nature, though she continued devotedly loyal. Her blunt manners, her unconcealed scorn of the male favourites that disgraced the court, and perhaps also her sense of unrequited merit, produced an estrangement between her and the empress, which ended in her asking permission to travel abroad. The cause of the final breach was said to have been the refusal of her request to be appointed colonel of the imperial guards. Her husband having meanwhile died, she set out in 1768 on an extended tour through Europe. She was received with great consideration at foreign courts, and her literary and scientific reputation procured her the *entrée* to the society of the learned in most of the capitals of Europe. In Paris she secured the warm friendship and admiration of Diderot and Voltaire. She showed in various ways a strong liking for England and the English. She corresponded with Garrick, Dr Blair and Principal Robertson; and when in Edinburgh, where she was very well received, she arranged to entrust the education of her son to Principal Robertson. In 1782 she returned to the Russian capital, and was at once taken into favour by the empress, who strongly sympathized with her in her literary tastes, and specially in her desire to elevate Russ to a place among the literary languages of Europe. Immediately after her return the princess was appointed "directeur" of the St Petersburg Academy of Arts and Sciences; and in 1784 she was named the first president of the Russian Academy, which had been founded at her suggestion. In both positions she acquitted herself with marked ability. She projected the Russian dictionary of the Academy, arranged its plan, and executed a part of the work herself. She edited a monthly magazine; and wrote at least two dramatic works, *The Marriage of Fabian*, and a comedy entitled *Toissiokoff*. Shortly before Catherine's death the friends quarrelled over a tragedy which the princess had allowed to find a place in the publications of the Academy, though it contained revolutionary principles, according to the empress. A partial reconciliation was effected, but the princess soon afterwards retired from court. On the accession of the emperor Paul in 1796 she was deprived of all her offices, and ordered to retire to a miserable village in the government of Novgorod, "to meditate on the events of 1762." After a time the sentence was partially recalled on the petition of her friends, and she was permitted to pass the closing years of her life on her own estate near Moscow, where she died on the 4th of January 1810.

Her son, the last of the Dashkov family, died in 1807 and bequeathed his fortune to his cousin Illarion Vorontsov, who thereupon by imperial licence assumed the name Vorontsov-Dashkov; and Illarion's son, Illarion Ivanovich Vorontsov-Dashkov (b. 1837), held an appointment in the tsar's household from 1881 to 1897.

The *Memoirs of the Princess Dashkoff written by herself* were published in 1840 in London in two volumes. They were edited by Mrs W. Bradford, who, as Miss Wilmot, had resided with the princess between 1803 and 1808, and had suggested their preparation.

DASS, PETTER (1647-1708), the "father" of modern Norwegian poetry, was the son of Peter Dundas, a Scottish merchant of Dundee, who, leaving his country about 1630 to escape the troubles of the Presbyterian church, settled in Bergen, and in 1646 married a Norse girl of good family. Petter Dass was born in 1647 on the island of Nord Herö; on the north coast of Norway. Seven years later his father died, and his mother placed him with his aunt, the wife of the priest of another little island-parish. In 1660 he was sent to school at Bergen, in 1665 to the university of Copenhagen, and in 1667 he began to earn his daily bread as a private tutor. In 1672 he was ordained priest, and remained till 1681 as under-chaplain at Nesne, a little parish near his birthplace; for eight years more he was resident chaplain at Nesne; and at last in 1689 he received the living of Alstahoug, the most important in the north of Norway. The rule of Alstahoug extended over all the neighbouring districts, including Dass's native island of Herö, and its privileges were accompanied by great perils, for it was necessary to be constantly crossing stormy firths of sea. Dass lived here in quietude, with something of the honours and responsibilities of a bishop, brought up his family in a God-fearing way, and wrote endless reams of verses. In 1700 he asked leave to resign his living in favour of his son Anders Dass, but this was not permitted; in 1704, however, Anders became his father's chaplain. About this time Petter went to Bergen, where he visited Dorothea Engelbrechtsdatter, with whom he had been for many years in correspondence. He continued to write till 1707, and died in August 1708. The materials for his biography are very numerous; he was regarded with universal curiosity and admiration in his lifetime; and, besides, he left a garrulous autobiography in verse. A portrait, painted in middle age, now in the church of Melhus, near Trondhjem, represents him in canonicals, with deep red beard and hair, the latter waved and silky, and a head of massive proportions. The face is full of fire and vigour. His writings passed in MS. from hand to hand, and few of them were printed in his lifetime. *Nordlands Trompet* (The Trumpet of Nordland), his greatest and most famous poem, was not published till 1739; *Den norska Dale-Vise* (The Norwegian Song of the Valley) appeared in 1696; the *Aandelig Tidsfordriv* (Spiritual Pastime), a volume of sacred poetry, was published in 1711. *The Trumpet of Nordland* remains as fresh as ever in the memories of the inhabitants of the north of Norway; boatmen, peasants, priests will alike repeat long extracts from it at the slightest notice, and its popularity is unbounded. It is a rhyming description of the province of Nordland, its natural features, its trades, its advantages and its drawbacks, given in dancing verse of the most breathless kind, and full of humour, fancy, wit and quaint learning. The other poems of Petter Dass are less universally read; they abound, however, in queer turns of thought, and fine homely fancies.

The collected writings of Dass were edited (3 vols., Christiania, 1873-1877) by Dr A. E. Eriksen.

DASYURE, a bookname for any member of the zoological family *Dasyuridae*. (See Marsupialia.) The name is better restricted to animals of the typical genus *Dasyurus*, sometimes called true Dasyures. These are mostly inhabitants of the Australian continent and Tasmania, where in the economy of nature they take the place of the smaller predaceous Carnivora, the cats, civets and weasels of other parts of the world. They hide themselves in the daytime in holes among rocks or in hollow trees, but prowl about at night in search of the small living mammals and birds which constitute their prey, and are to some extent arboreal in habit. The spot-tailed dasyure (*D. maculatus*), about the size of a cat, inhabiting Tasmania and Southern Australia, has transversely striated pads on the soles of the feet. These organs are also present in the North Australian dasyure (*D. hallucatus*) and the Papuan *D. albopunctatus*, and are regarded by Oldfield Thomas as indication of arboreal habits; in the common dasyure (*D. viverrinus*) from Tasmania and Victoria, and the black-tailed dasyure (*D. geoffroyi*) from South Australia, these feet-pads are absent, whence these species are believed to seek their prey on the ground. The ursine dasyure (*Sarcophilus ursinus*), often called the "Tasmanian Devil," constitutes a distinct genus. In size it may be compared to an English badger; the general colour of the fur is black tinged with brown, with white patches on the neck, shoulders, rump and chest. It is a burrowing animal, of nocturnal habits, intensely carnivorous, and commits great depredations on the sheepyards and poultry-lofts of the settlers. In writing of this species Krefft says that one—by no means a large one—escaped from confinement and killed in two nights fifty-four fowls, six geese, an albatross and a cat. It was recaptured in what was considered a stout trap, with a door constructed of iron bars as thick as a lead pencil, but escaped by twisting this solid obstacle aside.

DATE PALM. The dates[1] of commerce are the fruit of a species of palm, *Phoenix dactylifera*, a tree which ranges from the Canary Islands through Northern Africa and the south-east of Asia to India. It has been cultivated and much prized throughout most of these regions from the remotest antiquity. Its cultivation and use are described on the mural tablets of the ancient Assyrians. In Arabia it is the chief source of national wealth, and its fruit forms the staple article of food in that country. The tree has also been introduced along the Mediterranean shores of Europe; but as its fruit does not ripen so far north, the European plants are only used to supply leaves for the festival of Palm Sunday among Christians, and for the celebration of the Passover by Jews. It was introduced into the new world by early Spanish missionaries, and is now cultivated in the dry districts of the south-western United States and in Mexico. The date palm is a beautiful tree, growing to a height of from 60 to 80 ft., and its stem, which is strongly marked with old leaf-scars, terminates in a crown of graceful shining pinnate leaves. The flowers spring in branching spadices from the axils of the leaves, and as the trees are unisexual it is necessary in cultivation to fertilize the female flowers by artificial means. The fruit is oblong, fleshy and contains one very hard seed which is deeply furrowed on the inside. The fruit varies much in size, colour and quality under cultivation. Regarding this fruit, W. G. Palgrave (*Central and Eastern Arabia*) remarked: "Those who, like most Europeans at home, only know the date from the dried specimens of that fruit shown beneath a label in shop-windows, can hardly imagine how delicious it is when eaten fresh and in Central Arabia. Nor is it, when newly gathered, heating,—a defect inherent to the preserved fruit everywhere; nor does its richness, however great, bring satiety; in short it is an article of food alike pleasant and healthy." In the oases of Sahara, and in other parts of Northern Africa, dates are pounded and pressed into a cake for food. The dried fruit used for dessert in European countries contains more than half its weight of sugar, about 6% of albumen, and 12% of gummy matter. All parts of the date palm yield valuable economic products. Its trunk furnishes timber for house-building and furniture; the leaves supply thatch; their footstalks are used as fuel, and also yield a fibre from which cordage is spun.

Date sugar is a valuable commercial product of the East Indies, obtained from the sap or toddy of *Phoenix sylvestris*, the toddy palm, a tree so closely allied to the date palm that it has been supposed to be the parent stock of all the cultivated varieties. The juice, when not boiled down to form sugar, is either drunk fresh, or fermented and distilled to form arrack. The uses of the other parts and products of this tree are the same as those of the date palm products. *Date palm meal* is obtained from the stem of a small species, *Phoenix farinifera*, growing in the hill country of southern India.

For further details see Sir G. Watt, *Dictionary of the Economic Products of India* (1892); and *The Date Palm*, U.S. Department of Agriculture, Bureau of Plant Industry, Bulletin No. 53 (W. T. Swingle), 1904.

1 Lat. *dactylus*, finger, hence fruit of the date palm, gave O. Fr. *date*, mod. *datte*; distinguish "date," in chronology, from Lat. *datum*, *data*, given, used at the beginning of a letter, &c., to show time and place of writing, e.g. *Datum Romae*.

DATIA, a native state of Central India, in the Bundelkhand agency. It lies in the extreme north-west of Bundelkhand, near Gwalior, and is surrounded on all sides by other states of Central India, except on the east where it meets the United Provinces. The state came under the British government after the treaty of Bassein in 1802. Area, 911 sq. m. Pop. (1901) 173,759. Estimated revenue, £70,000; tribute to Sindhia paid through the British Government, £1000. The chief, whose title is maharaja, is a Rajput of the Bundela clan, being descended from a younger son of a former chief of Orchha. The state suffered from famine in 1896-1897, and again to a less extent in 1899-1900. It is traversed by the branch of the Indian Midland railway from Jhansi to Gwalior. The town of Datia has a railway station, 16 m. from Jhansi. Pop. (1901) 24,071. It is surrounded by a stone wall, enclosing handsome palaces, with gardens; the palace of Bir Singh Deo, of the 17th century, is "one of the finest examples of Hindu domestic architecture in India" (*Imperial Gazetteer of India*, 1908).

DATIVE (Lat. *dativus*, giving or given, from *dare*, to give), the name, in grammar, of the case of the "indirect object," the person or thing to or for whom or which anything is given or done. In law, the word signifies something, such as an office, which may be disposed of at will or pleasure, and is opposed to perpetual. In Scots law the term is applied to persons, duties or powers, appointed or granted by a court of law; thus an "executor-dative" is an executor appointed by the court and not by a testator. It answers, therefore, to the English administrator (q.v.). In Roman law, a *tutor* was either *dativus*, if expressly nominated in a testament, or *optivus*, if a power of selection was given.

DATOLITE, a mineral species consisting of basic calcium and boron orthosilicate, $Ca(BOH)SiO_4$. It was first observed by J. Esmark in 1806, and named by him from δατεῖσθαι, “to divide,” and λίθος, “stone,” in allusion to the granular structure of the massive mineral. It usually occurs as well-developed glassy crystals bounded by numerous bright faces, many of which often have a more or less pentagonal outline. The crystals were for a long time considered to be orthorhombic, and indeed they approach closely to this system in habit, interfacial angles and optical orientation; humboldtite was the name given by A. Lévy in 1823 to monoclinic crystals supposed to be distinct from datolite, but the two were afterwards proved to be identical. The mineral also occurs as masses with a granular to compact texture; when compact the fractured surfaces have the appearance of porcelain. A fibrous variety with a botryoidal or globular surface is known as botryolite. Datolite is white or colourless, often with a greenish tinge; it is transparent or opaque. Hardness 5-5½; specific gravity 3.0.

Datolite is a mineral of secondary origin, and in its mode of occurrence it resembles the zeolites, being found with them in the amygdaloidal cavities of basic igneous rocks such as basalt; it is also found in gneiss and serpentine, and in metalliferous veins and in beds of iron ore. At Arendal in Norway, the original locality for both the crystallized and botryoidal varieties, it is found in a bed of magnetite. In amygdaloidal basaltic rocks it is found at Bishopton in Renfrewshire and near Edinburgh; and as excellent crystallized specimens at several localities in the United States, e.g. at Westfield in Massachusetts, Bergen and Paterson in New Jersey, and in the copper-mining region of Lake Superior. At St Andreasberg in the Harz it occurs both in diabase and in the veins of silver ore. Fine specimens have recently been obtained from Tasmania.

Large crystals of datolite completely altered to chalcedony were formerly found with magnetite in the Haytor iron mine on Dartmoor in Devonshire; to these pseudomorphs the name haytorite has been applied.

(L. J. S.)

DAUB, KARL (1765-1836), German Protestant theologian, was born at Cassel on the 20th of March 1765. He studied philosophy, philology and theology at Marburg in 1786, and eventually (1795) became professor ordinarius of theology at Heidelberg, where he died on the 22nd of November 1836. Daub was one of the leaders of a school which sought to reconcile theology and philosophy, and to bring about a speculative reconstruction of orthodox dogma. In the course of his intellectual development, he came successively under the influence of Kant, Schelling and Hegel, and on account of the different phases through which he passed he was called the Talleyrand of German thought. There was one great defect in his speculative theology: he ignored historical criticism. His purpose was, as Otto Pfleiderer says, “to connect the metaphysical ideas, which had been arrived at by means of philosophical dialectic, directly with the persons and events of the Gospel narratives, thus raising these above the region of ordinary experience into that of the supernatural, and regarding the most absurd assertions as philosophically justified. Daub had become so hopelessly addicted to this perverse principle that he deduced not only Jesus as the embodiment of the philosophical idea of the union of God and man, but also Judas Iscariot as the embodiment of the idea of a rival god, or Satan.” The three stages in Daub’s development are clearly marked in his writings. His *Lehrbuch der Katechetik* (1801) was written under the spell of Kant. His *Theologumena* (1806), his *Einleitung in das Studium der christl. Dogmatik* (1810), and his *Judas Ischarioth* (2 vols., 1816, 2nd ed., 1818), were all written in the spirit of Schelling, the last of them reflecting a change in Schelling himself from theosophy to positive philosophy. Daub’s *Die dogmatische Theologie jetziger Zeit oder die Selbstsucht in der Wissenschaft des Glaubens* (1833), and *Vorlesungen über die Prolegomena zur Dogmatik* (1839), are Hegelian in principle and obscure in language.

See Rosenkranz, *Erinnerungen an Karl Daub* (1837); D. Fr. Strauss, *Charakteristiken und Kritiken* (2nd ed., 1844); and cf. F. Lichtenberger, *History of German Theology* (1889); Otto Pfleiderer, *Development of Theology* (1890).

(M. A. C.)

DAUBENTON, LOUIS-JEAN-MARIE (1716-1800), French naturalist, was born at Montbar (Côte d’Or) on the 29th of May 1716. His father, Jean Daubenton, a notary, destined him for the church, and sent him to Paris to learn theology, but the study of medicine was more to his taste. The death of his father in 1736 set him free to follow his own inclinations, and accordingly in 1741 he graduated in medicine at Reims, and returned to his native town with the intention of practising as a physician. But about this time Buffon, also a native of Montbar, had formed the plan of bringing out a grand treatise on natural history, and in 1742 he invited Daubenton to assist him by providing the anatomical descriptions for that work. The characters of the two men were opposed in almost every respect. Buffon was violent and impatient; Daubenton, gentle and patient; Buffon was rash in his judgments, and imaginative, seeking rather to divine than to discover truths; Daubenton was cautious, and believed nothing he had not himself been able to see or ascertain. From nature each appeared to have received the qualities requisite to temper those of the other; and a more suitable coadjutor than Daubenton it would have been difficult for Buffon to obtain. In the first section of the natural history Daubenton gave descriptions and details of the dissection of 182 species of quadrupeds, thus procuring for himself a high reputation, and exciting the envy of Réaumur, who considered himself as at the head of the learned in natural history in France. A feeling of jealousy induced Buffon to dispense with the services of Daubenton in the preparation of the subsequent parts of his work, which, as a consequence, lost much in precision and scientific value. Buffon afterwards perceived and acknowledged his error, and renewed his intimacy with his former associate. The number of dissertations on natural history which Daubenton published in the memoirs of the French Academy is very great. Zoological descriptions and dissections, the comparative anatomy of recent and fossil animals, vegetable physiology, mineralogy, experiments in agriculture, and the introduction of the merino sheep into France gave active occupation to his energies; and the cabinet of natural history in Paris, of which in 1744 he was appointed keeper and demonstrator, was arranged and considerably enriched by him. From 1775 Daubenton lectured on natural history in the college of medicine, and in 1783 on rural economy at the Alfort school. He was also professor of mineralogy at the Jardin du Roi. As a lecturer he was in high repute, and to the last retained his popularity. In December 1799 he was appointed a member of the senate, but at the first meeting which he attended he fell from his seat in an apoplectic fit, and after a short illness died at Paris on the 1st of January 1800.

DAUBENY, CHARLES GILES BRIDLE (1795-1867), English chemist, botanist and geologist, was the third son of the Rev. James Daubeny, and was born at Stratton in Gloucestershire on the 11th of February 1795. In 1808 he went to

Winchester, and in 1810 he was elected to a demyship at Magdalen College, Oxford, where the lectures of Dr Kidd first awakened in him a desire for the cultivation of natural science. In 1814 he graduated with second-class honours, and in the next year he obtained the prize for the Latin essay. From 1815 to 1818 he studied medicine in London and Edinburgh. He took his M.D. degree at Oxford, and was a fellow of the College of Physicians. In 1819, in the course of a tour through France, he made the volcanic district of Auvergne a special study, and his *Letters on the Volcanos of Auvergne* were published in *The Edinburgh Journal*, 1820-21. He was elected F.R.S. in 1822. By subsequent journeys in Hungary, Transylvania, Italy, Sicily, France and Germany he extended his knowledge of volcanic phenomena; and in 1826 the results of his observations were given in a work entitled *A Description of Active and Extinct Volcanos* (2nd ed., 1848). In common with Gay Lussac and Davy, he held subterraneous thermic disturbances to be probably due to the contact of water with metals of the alkalis and alkaline earths. In November 1822 Daubeny succeeded Dr Kidd as professor of chemistry at Oxford, and retained this post until 1855; and in 1834 he was appointed to the chair of botany, to which was subsequently attached that of rural economy. At the Oxford botanic garden he conducted numerous experiments upon the effect of changes in soil, light and the composition of the atmosphere upon vegetation. In 1830 he published in the *Philosophical Transactions* a paper on the iodine and bromine of mineral waters. In the following year appeared his *Introduction to the Atomic Theory*, which was succeeded by a supplement in 1840, and in 1850 by a second edition. In 1831 Daubeny represented the universities of England at the first meeting of the British Association, which at his request held their next session at Oxford. In 1836 he communicated to the Association a report on the subject of mineral and thermal waters. In 1837 he visited the United States, and acquired there the materials for papers on the thermal springs and the geology of North America, read in 1838 before the Ashmolean Society and the British Association. In 1856 he became president of the latter body at its meeting at Cheltenham. In 1841 Daubeny published his *Lectures on Agriculture*; in 1857 his *Lectures on Roman Husbandry*; in 1863 *Climate: an inquiry into the causes of its differences and into its influence on Vegetable Life*; and in 1865 an *Essay on the Trees and Shrubs of the Ancients*, and a *Catalogue of the Trees and Shrubs indigenous to Greece and Italy*. His last literary work was the collection of his *Miscellanies*, published in two volumes, in 1867. In all his undertakings Daubeny was actuated by a practical spirit and a desire for the advancement of knowledge; and his personal influence on his contemporaries was in keeping with the high character of his various literary productions. He died in Oxford on the 12th of December 1867.

See Obituary by John Phillips in *Proceedings of Ashmolean Soc.*, 1868.

DAUBIGNY, CHARLES FRANÇOIS (1817-1878), French landscape painter, allied in several ways with the Barbizon School, was born in Paris, on the 15th of February 1817, but spent much time as a child at Valmondois, a village on the Oise to the north-west of Paris. Daubigny was the son of an artist, and most of his family were painters. He began to paint very early in life, and at the age of seventeen he took a studio of his own. Within twelve months he had saved enough to go to Italy, where he studied and painted for nearly two years; he then returned to Paris, not to leave it again until, in 1860, he took a house at Auvers on the Oise. By 1837 Daubigny had become famous as a river and landscape painter, although he had been devoting himself as well to drawing in black-and-white, to etching, wood engraving, and lithography. In 1855 his picture, “Lock at Optevoz,” now in the Louvre, was purchased by the state; four years later Daubigny was created knight of the Legion of Honour, and in 1874 he was promoted to be an officer. In 1866, at the invitation of Lord, then Mr Leighton and others, he visited London, where, however, he was hurt by his now famous “Moonlight” being badly hung in the Old Royal Academy. But the personal encouragement of his admirers in England made up for the disappointment, and the sale of his picture to a Royal Academician greatly pleased him. In 1870-1871 he again visited London, and subsequently Holland, where he painted a number of river scenes with windmills. In 1874, having returned to Paris, he fell ill, and from that time until he died (on the 19th of February 1878) his work won less distinction than before. In 1904 the municipality of Auvers-sur-Oise decided to erect a bronze monument to Daubigny’s memory.

Daubigny’s finest pictures were painted between 1864 and 1874, and these for the most part consist of carefully completed landscapes with trees, river and a few ducks. It has curiously been said, yet with some appearance of truth, that when Daubigny liked his pictures himself he added another duck or two, so that the number of ducks often indicates greater or less artistic quality in his pictures. One of his sayings was, “The best pictures do not sell,” as he frequently found his finest achievements little understood. Yet although during the latter part of his life he was considered a highly successful painter, the money value of his pictures since his death has increased nearly tenfold. Daubigny is chiefly preferred in his riverside pictures, of which he painted a great number, but although there are two large landscapes by Daubigny in the Louvre, neither is a river view. They are for that reason not so typical as many of his smaller Oise and Seine pictures.

The works of Daubigny are, like Corot’s, to be found in many modern collections. His most ambitious canvases are: “Springtime” (1857), in the Louvre; “Borde de la Cure, Morvan” (1864); “Villerville sur Mer” (1864); “Moonlight” (1865); “Andrésy sur Oise” (1868); and “Return of the Flock—Moonlight” (1878).

His followers and pupils were his son Karl (who sometimes painted so well that his works are occasionally mistaken for those of his father, though in few cases do they equal his father’s mastery), Oudinot, Delpy and Damoye.

See Fred Henriet, *C. Daubigny et son œuvre* (Paris, 1878); D. Croal Thomson, *The Barbizon School of Painters* (London, 1890); J. W. Mollett, *Daubigny* (London, 1890); J. Claretie, *Peintres et sculpteurs contemporains: Daubigny* (Paris, 1882); Albert Wolff, *La Capitale de l’art: Ch. François Daubigny* (Paris, 1881).

(D. C. T.)

DAUBRÉE, GABRIEL AUGUSTE (1814-1896), French geologist, was born at Metz, on the 25th of June 1814, and educated at the École Polytechnique in Paris. At the age of twenty he had qualified as a mining engineer, and in 1838 he was appointed to take charge of the mines in the Bas-Rhin (Alsace), and subsequently to be professor of mineralogy and geology at the Faculty of Sciences, Strassburg. In 1859 he became engineer in chief of mines, and in 1861 he was appointed professor of geology at the museum of natural history in Paris and was also elected member of the Academy of Sciences. In the following year he became professor of mineralogy at the École des Mines, and in 1872 director of that school. In 1880 the Geological Society of London awarded to him the Wollaston medal. His published researches date from 1841, when the origin of certain tin minerals attracted his attention; he subsequently discussed the formation of bog-iron ore, and worked out in detail the geology of the Bas-Rhin (1852). From 1857 to 1861, while engaged in engineering works connected with the springs of Plombières, he made a series of interesting observations on thermal waters and their influence on the Roman masonry through which they made their exit. He was, however, especially distinguished for his

long-continued and often dangerous experiments on the artificial production of minerals and rocks. He likewise discussed the permeability of rocks by water, and the effects of such infiltration in producing volcanic phenomena; he dealt with the subject of metamorphism, with the deformations of the earth's crust, with earthquakes, and with the composition and classification of meteorites. He died in Paris on the 29th of May 1896.

His publications were: *Études et expériences synthétiques sur le métamorphisme et sur la formation des roches cristallines* (1860); *Études synthétiques de géologie expérimentale* (1879); *Les Eaux souterraines à l'époque actuelle* (2 vols., 1887); *Le Eaux souterraines aux époques anciennes* (1887).

DAUDET, ALPHONSE (1840-1897), French novelist, was born at Nîmes on the 13th of May 1840. His family, on both sides, belonged to the *bourgeoisie*. The father, Vincent Daudet, was a silk manufacturer—a man dogged through life by misfortune and failure. The lad, amid much truancy, had but a depressing boyhood. In 1856 he left Lyons, where his schooldays had been mainly spent, and began life as an usher at Alais, in the south. The position proved to be intolerable. As Dickens declared that all through his prosperous career he was haunted in dreams by the miseries of his apprenticeship to the blacking business, so Daudet says that for months after leaving Alais he would wake with horror thinking he was still among his unruly pupils. On the 1st of November 1857 he abandoned teaching, and took refuge with his brother Ernest, only some three years his senior, who was trying, "and thereto soberly," to make a living as a journalist in Paris. Alphonse betook himself to his pen likewise,—wrote poems, shortly collected into a small volume *Les Amoureuses* (1858), which met with a fair reception,—obtained employment on the *Figaro*, then under Cartier de Villemessant's energetic editorship, wrote two or three plays, and began to be recognized, among those interested in literature, as possessing individuality and promise. Morny, the emperor's all-powerful minister, appointed him to be one of his secretaries,—a post which he held till Morny's death in 1865,—and showed him no small kindness. He had put his foot on the road to fortune.

In 1866 appeared *Lettres de mon moulin*, which won the attention of many readers. The first of his longer books, *Le petit chose* (1868), did not, however, produce any very popular sensation. It is, in its main feature, the story of his own earlier years told with much grace and pathos. The year 1872 produced the famous *Aventures prodigieuses de Tartarin de Tarascon*, and the three-act piece *L'Arlésienne*. But *Fromont jeune et Risler aîné* (1874) at once took the world by storm. It struck a note, not new certainly in English literature, but comparatively new in French. Here was a writer who possessed the gift of laughter and tears, a writer not only sensible to pathos and sorrow, but also to moral beauty. He could create too. His characters were real and also typical; the *ratés*, the men who in life's battle had flashed in the pan, were touched with a master hand. The book was alive. It gave the illusion of a real world. *Jack*, the story of an illegitimate child, a martyr to his mother's selfishness, which followed in 1876, served only to deepen the same impression. Henceforward his career was that of a very successful man of letters,—publishing novel on novel, *Le Nabab* (1877), *Les Rois en exil* (1879), *Numa Roumestan* (1881), *Sapho* (1884), *L'Immortel* (1888),—and writing for the stage at frequent intervals,—giving to the world his reminiscences in *Trente ans de Paris* (1887), and *Souvenirs d'un homme de lettres* (1888). These, with the three *Tartarins*,—Tartarin the mighty hunter, Tartarin the mountaineer, Tartarin the colonist,—and the admirable short stories, written for the most part before he had acquired fame and fortune, constitute his life work.

Though Daudet defended himself from the charge of imitating Dickens, it is difficult altogether to believe that so many similarities of spirit and manner were quite unsought. What, however, was purely his own was his style. It is a style that may rightly be called "*impressionist*," full of light and colour, not descriptive after the old fashion, but flashing its intended effect by a masterly juxtaposition of words that are like pigments. Nor does it convey, like the style of the Goncourts, for example, a constant feeling of effort. It is full of felicity and charm,—*un charmeur* Zola has called him. An intimate friend of Edmond de Goncourt (who died in his house), of Flaubert, of Zola, Daudet belonged essentially to the naturalist school of fiction. His own experiences, his surroundings, the men with whom he had been brought into contact, various persons who had played a part, more or less public, in Paris life—all passed into his art. But he vivified the material supplied by his memory. His world has the great gift of life. *L'Immortel* is a bitter attack on the French Academy, to which august body Daudet never belonged.

Daudet wrote some charming stories for children, among which may be mentioned *La Belle Nivernaise*, the story of an old boat and her crew. His married life—he married in 1867 Julia Allard—seems to have been singularly happy. There was perfect intellectual harmony, and Madame Daudet herself possessed much of his literary gift; she is known by her *Impressions de nature et d'art* (1879), *L'Enfance d'une Parisienne* (1883), and by some literary studies written under the pseudonym of Karl Steen. In his later years Daudet suffered from insomnia, failure of health and consequent use of chloral. He died in Paris on the 17th of December 1897.

The story of Daudet's earlier years is told in his brother Ernest Daudet's *Mon frère et moi*. There is a good deal of autobiographical detail in Daudet's *Trente ans de Paris* and *Souvenirs d'un homme de lettres*, and also scattered in his other books. The references to him in the *Journal des Goncourt* are numerous. See also L. A. Daudet, *Alphonse Daudet* (1898), and biographical and critical essays by R. H. Sherard (1894); by A. Gerstmann (1883); by B. Diederich (1900); by A. Hermant (1903), and a bibliography by J. Brivois (1895); also *The Works of Alphonse Daudet*, translated by L. Ensor, H. Frith, E. Bartow (1902, etc.). Criticism of Daudet is also to be found in F. Brunetière, *Le Roman naturaliste* (new ed., 1897); J. Lemaître, *Les Contemporains* (vols. ii. and iv.); G. Pellissier, *Le Mouvement littéraire au XIX*^{e} *siècle* (1890); A. Symons, *Studies in Prose and Verse* (1904).

(F. T. M.)

DAULATABAD, a hill-fortress in Hyderabad state, India, about 10 m. N.W. of the city of Aurangabad. The former city of Daulatabad (Deogiri) has shrunk into a mere village, though to its earlier greatness witness is still borne by its magnificent fortress, and by remains of public buildings noble even in their decay. The fortress stands on a conical rock crowning a hill that rises almost perpendicularly from the plain to a height of some 600 ft. The outer wall, 2¾ m. in circumference, once enclosed the ancient city of Deogiri (Devagiri), and between this and the base of the upper fort are three lines of defences. The fort is a place of extraordinary strength. The only means of access to the summit is afforded by a narrow bridge, with passage for not more than two men abreast, and a long gallery, excavated in the rock, which has for the most part a very gradual upward slope, but about midway is intercepted by a steep stair, the top of which is covered by a grating destined in time of war to form the hearth of a huge fire kept burning by the garrison above. Besides the fortifications Daulatabad contains several notable monuments, of which the chief are the Chand Minar and the Chini Mahal. The Chand Minar, considered one of the most remarkable specimens of Mahommedan architecture in southern India, is a tower 210 ft. high and 70 ft. in circumference at the base, and was originally covered with beautiful Persian glazed tiles. It was erected in

1445 by Ala-ud-din Bahmani to commemorate his capture of the fort. The Chini Mahal, or China Palace, is the ruin of a building once of great beauty. In it Abul Hasan, the last of the Kutb Shahi kings of Golconda, was imprisoned by Aurangzeb in 1687.

Deogiri is said to have been founded *c.* A.D. 1187 by Bhillama I. the prince who renounced his allegiance to the Chalukyas and established the power of the Yadava dynasty in the west. In 1294 the fort was captured by Ala-ud-din Khilji, and the rajas, so powerful that they were held by the Mussulmans at Delhi to be the rulers of all the Deccan, were reduced to pay tribute. The tribute falling into arrear, Deogiri was again occupied by the Mahommedans under Malik Kafur, in 1307 and 1310, and in 1318 the last raja, Harpal, was flayed alive. Deogiri now became an important base for the operations of the Mussulman conquering expeditions southwards, and in 1339 Mahommed ben Tughlak Shah determined to make it his capital, changed its name to Daulatabad ("Abode of Prosperity"), and made arrangements for transferring to it the whole population of Delhi. The project was interrupted by troubles which summoned him to the north; during his absence the Mussulman governors of the Deccan revolted; and Daulatabad itself fell into the hands of Zafar Khan, the governor of Gulbarga. It remained in the hands of the Bahmanis till 1526, when it was taken by the Nizam Shahis. It was captured by the emperor Akbar, but in 1595 it again surrendered to Ahmad Nizam Shah of Ahmednagar, on the fall of whose dynasty in 1607 it passed into the hands of the usurper, the Nizam Shahi minister Malik Amber, originally an Abyssinian slave, who was the founder of Kharki (the present Aurangabad). His successors held it until their overthrow by Shah Jahan, the Mogul emperor, in 1633; after which it remained in the possession of the Delhi emperors until, after the death of Aurangzeb, it fell to the first nizam of Hyderabad. Its glory, however, had already decayed owing to the removal of the seat of government by the emperors to Aurangabad.

DAUMIER, HONORÉ (1808-1879), French caricaturist and painter, was born at Marseilles. He showed in his earliest youth an irresistible inclination towards the artistic profession, which his father vainly tried to check by placing him first with a *huissier*, and subsequently with a bookseller. Having mastered the technique of lithography, Daumier started his artistic career by producing plates for music publishers, and illustrations for advertisements; these were followed by anonymous work for publishers, in which he followed the style of Charlet and displayed considerable enthusiasm for the Napoleonic legend. When, in the reign of Louis Philippe, Philipon launched the comic journal, *La Caricature*, Daumier joined its staff, which included such powerful artists as Devéria, Raffet and Grandville, and started upon his pictorial campaign of scathing satire upon the foibles of the bourgeoisie, the corruption of the law and the incompetence of a blundering government. His caricature of the king as "Gargantua" led to Daumier's imprisonment for six months at Ste Pélagie in 1832. The publication of *La Caricature* was discontinued soon after, but Philipon provided a new field for Daumier's activity when he founded the *Charivari*. For this journal Daumier produced his famous social caricatures, in which bourgeois society is held up to ridicule in the figure of Robert Macaire, the hero of a then popular melodrama. Another series, "*L'histoire ancienne*," was directed against the pseudo-classicism which held the art of the period in fetters. In 1848 Daumier embarked again on his political campaign, still in the service of *Charivari*, which he left in 1860 and rejoined in 1864. In spite of his prodigious activity in the field of caricature—the list of Daumier's lithographed plates compiled in 1904 numbers no fewer than 3958—he found time for flight in the higher sphere of painting. Except for the searching truthfulness of his vision and the powerful directness of his brushwork, it would be difficult to recognize the creator of *Robert Macaire*, of *Les Bas bleus*, *Les Bohémiens de Paris*, and the *Masques*, in the paintings of "Christ and His Apostles" at the Ryks Museum in Amsterdam, or in his "Good Samaritan," "Don Quixote and Sancho Panza," "Christ Mocked," or even in the sketches in the Ionides Collection at South Kensington. But as a painter, Daumier, one of the pioneers of naturalism, was before his time, and did not meet with success until in 1878, a year before his death, when M. Durand-Ruel collected his works for exhibition at his galleries and demonstrated the full range of the genius of the man who has been well called the Michelangelo of caricature. At the time of this exhibition Daumier, totally blind, was living in a cottage at Valmondois, which was placed at his disposal by Corot, and where he breathed his last in 1879. An important exhibition of his works was held at the École des Beaux-Arts in 1900.

His life and art were made the subject of an important volume by Arséne Alexandre in 1888; see also Gustave Geffroy, *Daumier* (Paris, Libraire de l'Art), and Henri Frantz and Octave Uzanne, *Daumier and Gavarni* (London, *The Studio*, 1904), with a large selection of the artist's work.

DAUN (DHAUN), LEOPOLD JOSEF, Count Von (1705-1766), prince of Thiano, Austrian field marshal, was born at Vienna on the 24th of September 1705. He was intended for the church, but his natural inclination for the army, in which his father and grandfather had been distinguished generals, proved irresistible. In 1718 he served in the campaign in Sicily, in his father's regiment. He had already risen to the rank of colonel when he saw further active service in Italy and on the Rhine in the War of the Polish Succession (1734-35). He continued to add to his distinctions in the war against the Turks (1737-39), in which he attained the rank of a general officer. In the War of the Austrian Succession (1740-42), Daun, already a lieutenant field marshal in rank, distinguished himself by the careful leadership which was afterwards his greatest military quality. He was present at Chotusitz and Prague, and led the advanced guard of Khevenhüller's army in the victorious Danube campaign of 1743. Field Marshal Traun, who succeeded Khevenhüller in 1744, thought equally highly of Daun, and entrusted him with the rearguard of the Austrian army when it escaped from the French to attack Frederick the Great. He held important commands in the battles of Hohenfriedberg and Soor, and in the same year (1745) was promoted to the rank of *Feldzeugmeister*. After this he served in the Low Countries, and was present at the battle of Val. He was highly valued by Maria Theresa, who made him commandant of Vienna and a knight of the Golden Fleece, and in 1754 he was elevated to the rank of field marshal.

During the interval of peace that preceded the Seven Years' War he was engaged in carrying out an elaborate scheme for the reorganization of the Austrian army; and it was chiefly through his instrumentality that the military academy was established at Wiener-Neustadt in 1751. He was not actively employed in the first campaigns of the war, but in 1757 he was placed at the head of the army which was raised to relieve Prague. On the 18th of June 1757 Daun defeated Frederick for the first time in his career in the desperately fought battle of Kolin (q.v.). In commemoration of this brilliant exploit the queen immediately instituted a military order bearing her name, of which Daun was nominated first grand cross. The union of the relieving army with the forces of Prince Charles at Prague reduced Daun to the position of second in command, and as such he took part in the pursuit of the Prussians and the victory of Breslau. Frederick now reappeared and won the most brilliant victory of the age at Leuthen. Daun was present on that field, but was not held accountable for the disaster, and when Prince Charles resigned his command, Daun was appointed in his place. With the campaign of 1758 began the war of manœuvre in which Daun, if he missed, through over-caution, many opportunities of crushing the Prussians, at least

maintained a steady and cool resistance to the fiery strategy of Frederick. In 1758 Major-General Loudon, acting under Daun's instructions, forced the king to raise the siege of Olmütz, and later in the same year Daun himself surprised Frederick at Hochkirch and inflicted a severe defeat upon him (October 14th). In the following year the war of manœuvre continued, and on the 20th and 21st of November he surrounded the entire corps of General Finck at Maxen, forcing the Prussians to surrender. These successes were counterbalanced in the following year by the defeat of Loudon at Liegnitz, which was attributed to the dilatoriness of Daun, and Daun's own defeat in the great battle of Torgau (q.v.). In this engagement Daun was so severely wounded that he had to return to Vienna to recruit.

He continued to command until the end of the war, and afterwards worked with the greatest energy at the reorganization of the imperial forces. In 1762 he had been appointed president of the *Hofkriegsrath*. He died on the 5th of February 1766. By the order of Maria Theresa a monument to his memory was erected in the church of the Augustinians, with an inscription styling him the "saviour of her states." In 1888 the 56th regiment of Austrian infantry was named after him. As a general Daun has been reproached for the dilatoriness of his operations, but wariness was not misplaced in opposing a general like Frederick, who was quick and unexpected in his movements beyond all precedent. Less defence perhaps may be made for him on the score of inability to profit by a victory.

See *Der deutsche Fabius Cunctator, oder Leben u. Thaten S. E. des H. Leopold Reichsgrafen v. Dhaun K.K.F.M.* (Frankfort and Leipzig, 1759-1760), and works dealing with the wars of the period.

DAUNOU, PIERRE CLAUDE FRANÇOIS (1761-1840), French statesman and historian, was born at Boulogne-sur-Mer, and after a brilliant career in the school of the Oratorians there, joined the order in Paris in 1777. He was professor in various seminaries from 1780 till 1787, when he was ordained priest. He was already known in literary circles by several essays and poems, when the revolution opened a wider career. He threw himself with ardour into the struggle for liberty, and refused to be silenced in his advocacy of the civil constitution of the clergy by the offer of high office in the church. 850 Elected to the Convention by Pas-le-Calais, he associated himself with the Girondists, but strongly opposed the death sentence on the king. He took little part in the struggle against the Mountain, but was involved in the overthrow of his friends, and was imprisoned for a year. In December 1794 he returned to the Convention, and was the principal author of the constitution of the year III. It seems to have been due to his Girondist ideas that the Ancients were given the right of convoking the *corps législatif* outside Paris, an expedient which made possible Napoleon's *coup d'état* of the 18th and 19th Brumaire. The creation of the Institute was also due to Daunou, who drew up the plan for its organization. His energy was largely responsible for the suppression of the royalist insurrection of the 13th Vendémiaire, and the important place he occupied at the beginning of the Directory is indicated by the fact that he was elected by twenty-seven departments as member of the Council of Five Hundred, and became its first president. He had himself set the age qualification of the directors at forty, and thus debarred himself as candidate, as he was only thirty-four. The direction of affairs having passed into the hands of Talleyrand and his associates, Daunou turned once more to literature, but in 1798 he was sent to Rome to organize the republic there, and again, almost against his will, he lent his aid to Napoleon in the preparation of the constitution of the year VIII. His attitude towards Napoleon was not lacking in independence, but in this controversy with the pope, the emperor was able again to secure from him the learned treatise *Sur la puissance temporelle du Pape* (1809). Still he took little part in the new régime, with which at heart he had no sympathy, and turned more and more to literature. At the Restoration he was deprived of the post of archivist of the empire, which he had held from 1807, but from 1819 to 1830 (when he again became archivist of the kingdom) he held the chair of history and ethics at the Collège de France, and his courses were among the most famous of that age of public lectures. During the reign of Louis Philippe he received many honours. In 1839 he was made a peer. He died in 1840.

In politics Daunou was a Girondist without combativeness; a confirmed republican, who lent himself always to the policy of conciliation, but whose probity remained unchallenged. He belonged essentially to the centre, and lacked both the genius and the temperament which would secure for him a commanding place in a revolutionary era. As an historian his breadth of view is remarkable for his time; for although thoroughly imbued with the classical spirit of the 18th century, he was able to do justice to the middle ages. His *Discours sur l'état des lettres au XIII^e^ siècle*, in the sixteenth volume of the *Histoire littéraire de France*, is a remarkable contribution to that vast collection, especially as coming from an author so profoundly learned in the ancient classics. Daunou's lectures at the Collège de France, collected and published after his death, fill twenty volumes (*Cours d'études historiques*, 1842-1846). They treat principally of the criticism of sources and the proper method of writing history, and occupy an important place in the evolution of the scientific study of history in France. All his works were written in the most elegant style and chaste diction; but apart from his share in the editing of the *Historiens de la France*, they were mostly in the form of separate articles on literary and historical subjects. Personally Daunou was reserved and somewhat austere, preserving in his habits a strange mixture of bourgeois and monk. His indefatigable work as archivist in the time when Napoleon was transferring so many treasures to Paris is not his least claim to the gratitude of scholars.

See Mignet, *Notice historique sur la vie et les travaux de Daunou* (Paris, 1843); Taillandier, *Documents bibliographiques sur Daunou* (Paris, 1847), including a full list of his works; Sainte-Beuve, *Daunou* in his *Portraits Contemporains*, t. iii. (unfavourable and somewhat unfair).

DAUPHIN (Lat. *Delphinus*), an ancient feudal title in France, borne only by the counts and dauphins of Vienne, the dauphins of Auvergne, and from 1364 by the eldest sons of the kings of France. The origin of this curious title is obscure and has been the subject of much ingenious controversy; but it now seems clear that it was in the first instance a proper name. Among the Norsemen, and in the countries colonized by them, the name Dolphin or Dolfin (*dolfr*, "a wound") was fairly common, e.g. in the north of England; thus a Dolfin is mentioned among the tenants-in-chief in Domesday Book, and there was a Dolphin, lord of Carlisle, towards the end of the 11th century. It has thus been conjectured by some that the dauphins of Vienne derived their title from Teutonic sources through Germany. But in the south, too, the name—not necessarily derived from the same root—was not unknown, though exceedingly rare, and was moreover illustrated by two conspicuous figures in the Catholic martyrology: St Delphinus, bishop of Bordeaux from 380 to 404, and St Annemundus, surnamed Dalfinus, bishop of Lyons from *c.* 650 to 657. Whatever its origin, this name was borne by Guigo, or Guigue IV. (d. 1142), count of Albon and Grenoble, as an additional name, during the lifetime of his father, and was also adopted by his son Guigue V. Beatrice, daughter and heiress of Guigue V., whose second husband was Hugh III., duke of Burgundy, bestowed the name on their son André, to recall his descent from the ancient house of the counts of Albon, and in the charters he is called sometimes Andreas Dalphinus, sometimes Dalphinus simply, but his style is still "count of Albon and

Vienne." His successors Guigue VI. (d. 1270) and John I. (d. 1282) call themselves sometimes Delphinus, sometimes Delphini, the name being obviously treated as a patronymic, and in the latter form it was borne by the sons of the reigning "dauphin." But even under Guigue VI. foreigners had begun to confuse the name with a title of dignity, an imperial diploma of 1248 describing Guigue as "Guigo Dalphinus Viennensis."

It was not until the third dynasty, founded by the marriage of Anne, heiress of John I., with Humbert, lord of La Tour du Pin, that "dauphin" became definitely established as a title. Humbert not only assumed the name of Delphinus, but styled himself regularly Dauphin of the Viennois (Dalphinus Viennensis), and in a treaty concluded in 1285 between Humbert and Robert, duke of Burgundy, the word *delphinatus* (Dauphiné) appears for the first time, as a synonym for *comitatus* (county). In 1349 Humbert II., the last of his race, sold Dauphiné to Charles of Valois, who, when he became king of France in 1364, transferred it to his eldest son. From that time the eldest sons of the kings of France were always either actual or titular dauphins of the Viennois. The "canting arms" of a dolphin, which they quartered with the royal *fleurs de lys*, were originally assumed by Dauphin, count of Clermont, instead of the arms of Auvergne (the earliest extant example is appended to a deed of 1199), and from him they were borrowed by the counts of the Viennois. Guigue VI. used this device on his secret seal from his accession, the earliest extant example dating from 1237, but, though no specimens have survived, M. Prudhomme thinks it probable that the dolphin was also borne by André Dauphin. It was also assumed by Guigue V., count of Forez (1203-1241), a descendant of Guigue Raymond of the Viennois, count of Forez, in right of his wife Ida Raymonde. It is thus abundantly clear that the name of Dauphin was not assumed from the armorial device, but vice versa.

The eldest son of the French king was sometimes called "the king dauphin" (*le roy daulphin*), to distinguish him from the dauphin of Auvergne, who was known, since Auvergne became an appanage of the royal house, as "the prince dauphin." The dauphinate of Auvergne, which is to be distinguished from the county, dates from 1155, when William VII., count of Auvergne, was deposed by his uncle William VIII. "the Old." William VII. had married a daughter of Guigue IV. Dauphin, after whom their son was named Dauphin (Delphinus). The name continued, as in Viennois, as a patronymic, and was not used as a title until 1281, when Robert II., count of Clermont, in his will, styles himself for the first time Dauphin of Auvergne (*Alvernie delphinus*) for the portion of the county of Auvergne left to his house. In 1428 Jeanne, heiress of the dauphin Béraud III., married Louis de Bourbon, count of Montpensier (d. 1486), thus bringing the dauphinate into the royal house of France. It was annexed to the crown in 1693.

See A. Prudhomme, "De l'origine et du sens des mots dauphin et dauphiné" in *Bibliothèque de l'École des Chartes*, liv. an. 1893 (Paris, 1893).

DAUPHINÉ, one of the old provinces (the name being still in current use in the country) of pre-Revolutionary France, in the south-east portion of France, between Provence and Savoy; since 1790 it forms the departments of the Isère, the Drôme and the Hautes Alpes.

After the death of the last king of Burgundy, Rudolf III., in 1032, the territories known later as Dauphiné (as part of his realm) reverted to the far-distant emperor. Much confusion followed, out of which the counts of Albon (between Valence and Vienne) gradually came to the front. The first dynasty ended in 1162 with Guigue V., whose daughter and heiress, Beatrice, carried the possessions of her house to her husband, Hugh III., duke of Burgundy. Their son, André, continued the race, this second dynasty making many territorial acquisitions, among them (by marriage) the Embrunais and the Gapençais in 1232. In 1282 the second dynasty ended in another heiress, Anna, who carried all to her husband, Humbert, lord of La Tour du Pin (between Lyons and Grenoble). The title of the chief of the house was Count (later Dauphin) of the Viennois, *not* of Dauphiné. (For the origin of the terms Dauphin and Dauphiné see Dauphin.) Humbert II. (1333-1349), grandson of the heiress Anna, was the last independent Dauphin, selling his dominions in 1349 to Charles of Valois, who on his accession to the throne of France as Charles V. bestowed Dauphiné on his eldest son, and the title was borne by all succeeding eldest sons of the kings of France. In 1422 the Diois and the Valentinois, by the will of the last count, passed to the eldest son of Charles VI., and in 1424 were annexed to the Dauphiné. Louis (1440-1461), later Louis XI. of France, was the last Dauphin who occupied a semi-independent position, Dauphiné being annexed to the crown in 1456. The suzerainty of the emperor (who in 1378 had named the Dauphin "Imperial Vicar" within Dauphiné and Provence) gradually died out. In the 16th century the names of the reformer Guillaume Farel (1489-1565) and of the duke of Lesdiguières (1543-1626) are prominent in Dauphiné history. The "States" of Dauphiné (dating from about the middle of the 14th century) were suspended by Louis XIII. in 1628, but their unauthorized meeting (on the 21st of July 1788) in the tennis court (*Salle du Jeu de Paume*) of the castle of Vizille, near Grenoble, was one of the earliest premonitory signs of the great French Revolution of 1789. It was at Laffrey, near Grenoble, that Napoleon (March 7th, 1815) was first acclaimed by his old soldiers sent to arrest him.

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(W. A. B. C.)

DAURAT (or Dorat), **JEAN** (in Lat. Auratus), (1508-1588), French poet and scholar, and member of the Pléiade, was born at Limoges in 1508. His name was originally Dinemandy. He belonged to a noble family, and, after studying at the college of Limoges, came up to Paris to be presented to Francis I., who made him tutor to his pages. He rapidly gained an immense reputation as a classical scholar. As a private tutor in the house of Lazare de Baïf, he had J. A. de Baïf for his pupil. His son, Louis, showed great precocity, and at the age of ten translated into French verse one of his father's Latin pieces; his poems were published with his father's. Jean Daurat became the director of the Collège de Coqueret, where he had among his pupils, besides Baïf, Ronsard, Remy, Belleau and Pontus de Tyard. Joachim du Bellay was added by Ronsard

to this group; and these five young poets, under the direction of Daurat, formed a society for the reformation of the French language and literature. They increased their number to seven by the initiation of the dramatist Étienne Jodelle, and thereupon they named themselves La Pléiade, in emulation of the seven Greek poets of Alexandria. The election of Daurat as their president proved the weight of his personal influence, and the value his pupils set on the learning to which he introduced them, but as a writer of French verse he is the least important of the seven. Meanwhile he collected around him a sort of Academy, and stimulated the students on all sides to a passionate study of Greek and Latin poetry. He himself wrote incessantly in both those languages, and was styled the Modern Pindar. His influence extended beyond the bounds of his own country, and he was famous as a scholar in England, Italy and Germany. In 1556 he was appointed professor of Greek at the Collège Royale, a post which he continued to hold until, in 1567, he resigned it in favour of his nephew, Nicolas Goulu. Charles IX. gave him the title of *poeta regius*. His flow of language was the wonder of his time; he is said to have composed more than 15,000 Greek and Latin verses. The best of these he published at Paris in 1586 as *J. Aurati Lemovicis poëtae et interpretis regii poëmata*. He died at Paris on the 1st of November 1588, having survived all his illustrious pupils of the Pléiade, except Pontus de Tyard. He was a little, restless man, of untiring energy, rustic in manner and appearance. His unequalled personal influence over the most graceful minds of his age gives him an importance in the history of literature for which his own somewhat vapid writings do not fully account.

The *Œuvres poétiques* in the vernacular of Jean Daurat were edited (1875) with biographical notice and bibliography by Ch. Marty-Laveaux in his *Pléiade française*.

DAVENANT, CHARLES (1656-1714), English economist, eldest son of Sir William Davenant, the poet, was born in London, and educated at Cheam grammar school and Balliol College, Oxford, but left the university without taking a degree. At the age of nineteen he had composed a tragedy, *Circe*, which met with some success, but he soon turned his attention to law, and having taken the degree of LL.D., he became a member of Doctors' Commons. He was member of parliament successively for St Ives, Cornwall, and for Great Bedwyn. He held the post of commissioner of excise from 1683 to 1689, and that of inspector-general of exports and imports from 1705 till his death in 1714. He was also secretary to the commission appointed to treat for the union with Scotland. As an economist, he must be classed as a strong supporter of the mercantile theory, and in his economic pamphlets—as distinct from his political writings—he takes up an eclectic position, recommending governmental restrictions on colonial commerce as strongly as he advocates freedom of exchange at home. Of his writings, a complete edition of which was published in London in 1771, the following are the more important:—*An Essay on the East India Trade* (1697); *Two Discourses on the Public Revenues and Trade of England* (1698); *An Essay on the probable means of making the people gainers in the balance of Trade* (1699); *A Discourse on Grants and Resumptions and Essays on the Balance of Power* (1701).

DAVENANT (or D'Avenant), **SIR WILLIAM** (1606-1668), English poet and dramatist, was baptized on the 3rd of March 1606; he was born at the Crown Inn, Oxford, of which his father, a wealthy vintner, was proprietor. It was stated that Shakespeare always stopped at this house in passing through the city of Oxford, and out of his known or rumoured admiration of the hostess, a very fine woman, there sprang a scandalous story which attributed Davenant's paternity to Shakespeare, a legend which there is reason to believe Davenant himself encouraged, but which later criticism has cast aside as spurious. In 1621 the vintner was made mayor of Oxford, and in the same year his son left the grammar school of All Saints, where his master had been Edward Sylvester, and was entered an undergraduate of Lincoln College, Oxford. He did not stay at the university, however, long enough to take a degree, but was hurried away to appear at court as a page, in the retinue of the gorgeous duchess of Richmond. From her service he passed into that of Fulke Greville, Lord Brooke, in whose house he remained until the murder of that eminent man in 1628. This blow threw him upon the world, not altogether without private means, but greatly in need of a profitable employment.

He turned to the stage for subsistence, and in 1629 produced his first play, the tragedy of *Albovine*. It was not a very brilliant performance, but it pleased the town, and decided the poet to pursue a dramatic career. The next year saw the production at Blackfriars of *The Cruel Brother*, a tragedy, and *The Just Italian*, a tragi-comedy. Inigo Jones, the court architect, for whom Ben Jonson had long supplied the words of masques and complimentary pieces, quarrelled with his great colleague in the year 1634, and applied to William Davenant for verses. The result was *The Temple of Love*, performed by the queen and her ladies at Whitehall on Shrove Tuesday, 1634, and printed in that year. Another masque, *The Triumphs of the Prince D'Amour*, followed in 1636. The poet returned to the legitimate drama by the publication of the tragi-comedy of *The Platonic Lovers*, and the famous comedy of *The Wits*, in 1636, the latter of which, however, had been licensed in 1633. The masque of *Britannica Triumphans* (1637) brought him into some trouble, for it was suppressed as a punishment for its first performance having been arranged for a Sunday. By this time Davenant had, however, thoroughly ingratiated himself with the court; and on the death of Ben Jonson in 1637 he was rewarded with the office of poet-laureate, to the exclusion of Thomas May, who considered himself entitled to the honour. It was shortly after this event that Davenant collected his minor lyrical pieces in a volume entitled *Madagascar and other Poems* (1638); and in 1639 he became manager of the new theatre in Drury Lane. The civil war, however, put a check upon this prosperous career; and he was among the most active partisans of royalty through the whole of that struggle for supremacy.

As early as May 1642, Davenant was accused before the Long Parliament of being mainly concerned in a scheme to seduce the army to overthrow the Commons. He was accordingly apprehended at Faversham, and imprisoned for two months in London; he then attempted to escape to France, and succeeded in reaching Canterbury, where he was recaptured. Escaping a second time, he made good his way to the queen, with whom he remained in France until he volunteered to carry over to England some military stores for the army of his old friend the earl of Newcastle, by whom he was induced to enter the service as lieutenant-general of ordnance. He acquitted himself with so much bravery and skill that, after the siege of Gloucester, in 1643, he was knighted by the king. After the battle of Naseby he retired to Paris, where he became a Roman Catholic, and spent some months in the composition of his epic poem of *Gondibert*. In 1646 he was sent by the queen on a mission to Charles I., then at Newcastle, to advise him to "part with the church for his peace and security." The king dismissed him with some sharpness, and Davenant returned to Paris, where he was the guest of Lord Jermyn. In 1650 he took the command of a colonizing expedition that set sail from France to Virginia, but was captured in the Channel by a parliamentary man-of-war, which took him back to the Isle of Wight. Imprisoned in Cowes castle until 1651, he tempered the discomfort and suspense of his condition by continuing the composition of *Gondibert*. He was sent up to the Tower to await his trial for high treason, but just as the storm was about to break over his head, all cleared away. It is believed that the personal intercession of Milton led to this result. Another account is that he was released by the desire of two aldermen of York, once his prisoners, whom he had allowed to escape. Davenant, released

from prison, immediately published *Gondibert*, the work on which his fame mainly rests, a chivalric epic in the four-line stanza which Sir John Davies had made popular by his *Nosce teipsum*, the influence of which is strongly marked in the philosophical passages of *Gondibert*. It is a cumbrous, dull production, but is relieved with a multitude of fine and felicitous passages, and lends itself most happily to quotation.

During the civil war one of his plays had been printed, the tragedy of *The Unfortunate Lovers*, in 1643. One of his best plays, *Love and Honour*, was published in 1649, but appears to have been acted long before. He found that there were many who desired him to recommence his theatrical career. Such a step, however, was absolutely forbidden by Puritan law. Davenant, therefore, by the help of some influential friends, obtained permission to open a sort of theatre at Rutland House, in Charterhouse Yard, where, on the 21st of May 1656, he began a series of representations, which he called *operas*, as an inoffensive term. This word was then first introduced into the English language. The opening piece was a kind of dialogue defending the drama in the abstract. This was followed by his own *Siege of Rhodes*, printed the same year, which was performed with stage decorations and machinery of a kind hitherto quite unthought of in England. Two other innovations in its production were the introduction of recitative and the appearance of a woman, Mrs Coleman, on the stage. He continued until the Restoration to produce ephemeral works of this kind, only one of which, *The Cruelty of the Spaniards in Peru*, in 1658, was of sufficient literary merit to survive. In 1660 he had the infinite satisfaction of being able to preserve the life of that glorious poet who had, nine years before, saved his own from a not less imminent danger. The mutual relations of Milton and Davenant do honour to the generosity of two men who, sincerely opposed in politics, knew how to forget their personal anger in their common love of letters. In 1659 Davenant suffered a short imprisonment for complicity in Sir George Booth's revolt. Under Charles II. Davenant flourished in the dramatic world; he opened a new theatre in Lincoln's Inn Fields, which he called the Duke's; and he introduced a luxury and polish into the theatrical life which it had never before known in England. Under his management, the great actors of the Restoration, Betterton and his coevals, took their peculiar French style and appearance; and the ancient simplicity of the English stage was completely buried under the tinsel of decoration and splendid scenery. Davenant brought out six new plays in the Duke's Theatre, *The Rivals* (1668), an adaptation of *The Two Noble Kinsmen*, which Davenant never owned, *The Man's the Master* (1669), comedies translated from Scarron, *News from Plymouth*, *The Distresses*, *The Siege*, *The Fair Favourite*, tragi-comedies, all of which were printed after his death, and only one of which survived their author on the stage. He died at his house in Lincoln's Inn Fields on the night of the 7th of April 1668, and two days afterwards was buried in Poets' Corner, Westminster Abbey, with the inscription "O rare Sir William Davenant!" In 1672 his writings were collected in folio. His last work had been to travesty Shakespeare's *Tempest* in company with Dryden.

The personal character, adventures and fame of Davenant, and more especially his position as a leading reformer, or rather debaser, of the stage, have always given him a prominence in the history of literature which his writings hardly justify. His plays are utterly unreadable, and his poems are usually stilted and unnatural. With Cowley he marks the process of transition from the poetry of the imagination to the poetry of the intelligence; but he had far less genius than Cowley, and his influence on English drama must be condemned as wholly deplorable.

(E. G.)

DAVENPORT, EDWARD LOOMIS (1816-1877), American actor, born in Boston, made his first appearance on the stage in Providence in support of Junius Brutus Booth. Afterwards he went to England, where he supported Mrs Anna Cora Mowatt (Ritchie) (1819-1870), Macready and others. In 1854 he was again in the United States, appearing in Shakespearian plays and in dramatizations of Dickens's novels. As Bill Sykes he was especially successful, and his Sir Giles Overreach and Brutus were also greatly admired. He died at Canton, Pennsylvania, on the 1st of September 1877. In 1849 he had married Fanny Vining (Mrs Charles Gill) (d. 1891), an English actress also in Mrs Mowatt's company. Their daughter Fanny (Lily Gipsy) Davenport (1850-1898) appeared in America at the age of twelve as the king of Spain in *Faint Heart Never Won Fair Lady*. Later (1869) she was a member of Daly's company; and afterwards, with a company of her own, acted with especial success in Sardou's *Fédora* (1883), *Cleopatra* (1890), and similar plays. Her last appearance was on the 25th of March 1898, shortly before her death.

DAVENPORT, ROBERT (fl. 1623-1639), English dramatist, is mentioned as the author of a play licensed in 1624 under the title of *Henry I.* In 1653 *Henry I. and Henry II.* was entered at Stationers' Hall by Humphrey Moseley with a second part said to be the work of Davenport and Shakespeare. Of this play or plays nothing has been discovered, but *King John and Matilda* (printed 1655), which probably dates from about the same time, has survived. Throughout the play, as in its closing scene quoted by Charles Lamb in his *Dramatic Specimens*, there is much "passion and poetry" which saves the piece from being classed as pure melodrama. *The City-Night-Cap* was licensed in 1624, but not printed until 1661. The underplot of this unsavoury play was borrowed from Cervantes and Boccaccio, and Mrs Aphra Behn's *Amorous Prince* (1671) is an adaptation from it. *A New Tricke to Cheat the Divell* (printed 1639) is a farcical comedy, which contains among other things the idea of the popular supper story which reappears in Hans Andersen's *Little Claus and Big Claus*. As told by Davenport the story closely resembles the *Scottish Freires of Berwick*, which was printed in 1603. Three other plays entered in the Stationers' Register as Davenport's are lost, and he collaborated in two plays with Thomas Drue.

Davenport's plays were reprinted by A. H. Bullen in *Old English Plays* (new series, 1890). The volume includes two didactic poems, which first saw the light in 1623.

DAVENPORT, a city and the county seat of Scott county, Iowa, U.S.A., on the Mississippi river, opposite Rock Island, Illinois, with which it is connected by two fine bridges and by a ferry. It is the third largest city in the state. Pop. (1890) 26,872; (1900) 35,254, including 8479 foreign-born (6111 German), and 19,230 of foreign parentage (13,294 German); (1905, state census) 39,797; (1910) 43,028. Davenport is served by the Chicago, Burlington & Quincy, the Chicago, Milwaukee & St Paul, the Chicago, Rock Island & Pacific, the Iowa & Illinois (interurban), and the Davenport, Rock Island & North Western railways; opposite the city is the western terminus of the Illinois and Mississippi, or Hennepin, Canal (which connects the Mississippi and Illinois rivers). Davenport lies on the slope of a bluff affording extensive views of landscape and river scenery. In the city are an excellent public library, an Academy of Sciences, several turn-halls and

other German social organizations, the Iowa soldiers' orphans' home, Brown business college, and several minor Roman Catholic institutions. Davenport is an episcopal see of the Roman Catholic and the Protestant Episcopal churches. The city has a large commerce and trade by water and rail in coal and grain, which are produced in the vicinity, is of special importance. With Rock Island and Moline it forms one great commercial unit. Among Davenport's manufactures are the products of foundries and machine shops, and of flouring, grist and planing mills; glucose syrup and products; locomotives, steel cars and car parts, washing machines, waggons, carriages, agricultural implements, buttons, macaroni, crackers and brooms. The value of the total factory product for 1905 was $13,695,978, an increase of 38.7% over that of 1900. Davenport was founded in 1835, under the leadership of Colonel George Davenport; it was incorporated as a town in 1838, and was chartered as a city in 1851.

DAVENTRY, a market town and municipal borough in the Southern parliamentary division of Northamptonshire, England, 74 m. N.W. from London by the London & North Western railway. Pop. (1901) 3780. It is picturesquely situated on a sloping site in a rich undulating country. On the adjacent Borough Hill are extensive earthworks, and the discovery of remains here and at Burnt Walls, immediately south, proves the existence of a considerable Roman station. The chief industry of the town is the manufacture of boots and shoes. The borough is under a mayor, four aldermen and twelve councillors. Area, 3633 acres.

In spite of the Roman remains on Borough Hill, nothing is known of the town itself until the time of the Domesday Survey, when the manor consisting of eight hides belonged to the countess Judith, the Conqueror's niece. According to tradition, Daventry was created a borough by King John, but there is no extant charter before that of Elizabeth in 1576, by which the town was incorporated under the name of the bailiff, burgesses and commonalty of the borough of Daventry. The bailiff was to be chosen every year in the Moot Hall and to be assisted by fourteen principal burgesses and a recorder. James I. confirmed this charter in 1605-1606, and Charles II. in 1674-1675 granted a new charter. The "quo warranto" rolls show that a market every Wednesday and a fair on St Augustine's day were granted to Simon son of Walter by King John. The charter of 1576 confirms this market and fair to the burgesses, and grants them two new fairs each continuing for two days, on Tuesday after Easter and on the feast of St Matthew the Apostle. Wednesday is still the market day. The town was an important coaching centre, and there was a large local industry in the manufacture of whips. During the civil wars Daventry was the headquarters of Charles I. in the summer of 1645, immediately before the battle of Naseby, at which he was defeated. A Cluniac priory founded here shortly after the Conquest has left no remains.

DAVEY OF FERNHURST, HORACE DAVEY, Baron (1833-1907), English judge, son of Peter Davey, of Horton, Bucks, was born on the 30th of August 1833, and educated at Rugby and University College, Oxford. He took a double first-class in classics and mathematics, was senior mathematical scholar and Eldon law scholar, and was elected a fellow of his college. In 1861 he was called to the Bar at Lincoln's Inn, and read in the chambers of Mr (afterwards Vice-Chancellor) Wickens. Devoting himself to the Chancery side, he soon acquired a large practice, and in 1875 became a Q.C. In 1880 he was returned to parliament as a Liberal for Christchurch, Hants, but lost his seat in 1885. On Gladstone's return to power in 1886 he was appointed solicitor-general and was knighted, but had no seat in the House, being defeated at both Ipswich and Stockport in 1886; in 1888 he found a seat at Stockton-on-Tees, but was rejected by that constituency in 1892. As an equity lawyer Sir Horace Davey ranked among the finest intellects and the most subtle pleaders ever known at the English bar. He was standing counsel to the university of Oxford, and senior counsel to the Charity Commissioners, and was engaged in all the important Chancery suits of his time. Among the chief leading cases in which he took a prominent part were those of *The Mogul Steamship Company* v. *M'Gregor*, 1892, *Boswell* v. *Coaks*, 1884, *Erlanger* v. *New Sombrero Company*, 1878, and the *Ooregum Gold Mines Company* v. *Roper*, 1892; he was counsel for the promoters in the trial of the bishop of Lincoln, and leading counsel in the Berkeley peerage case. In 1862 he married Miss Louisa Donkin, who, with two sons and four daughters, survived him. In 1893 he was raised to the bench as a lord justice of appeal, and in the next year was made a lord of appeal in ordinary and a life peer. He died in London on the 20th of February 1907. Lord Davey's great legal knowledge was displayed in his judgments no less than at the bar. In legislation he took no conspicuous part, but he was a keen promoter of the act passed in 1906 for the checking of gambling.

DAVID (a Hebrew name meaning probably *beloved*[1]), in the Bible, the son of Jesse, king of Judah and Israel, and founder of the royal Judaean dynasty at Jerusalem. The chronology of his period is uncertain: the usual date, 1055-1015 B.C., is probably thirty years to half a century too early. The books of Samuel (strictly, 1 Sam. xvi.-1 Kings ii.), which are our principal source for the history of David, show how deep an impression the personality of the king, his character, his genius and the romantic story of his early years had left on the mind of the nation. Of no hero of antiquity do we possess so life-like a portrait. Minute details and traits of character are portrayed with a vividness which bears all the marks of contemporary narrative. But the record is by no means all of one piece or of one date. This history, as we now have it, is extracted from various sources of unequal value, which are fitted together in a way which offers considerable difficulties to the critic. In the history of David's early adventures, for example, the narrative is not seldom disordered, and sometimes seems to repeat itself with puzzling variations of detail, which have led critics to the unanimous conclusion that the First Book of Samuel is drawn from at least two sources. It is indeed easy to understand that the romantic incidents of this period were much in the mouths of the people—to whom David was a popular hero—and in course of time were written down in various forms which were not combined into perfect harmony by later editors, who gave excerpts from several sources rather than a new and independent history. These excerpts, however, have been so pieced together, that it is often impossible to separate them with precision, and to distinguish accurately between earlier and later elements. It even appears from a study of the Greek text that some copies of the books of Samuel incorporated narratives which other copies did not acknowledge. For the literary problems of these books, see also Samuel (Books).

Source.

The parallel history of David in 1 Chron. xi.-xxix. contains a great deal of additional matter, which can rarely be treated as of equal historical value with the preceding. Where it follows the chapters in Samuel it is important for textual and other critical problems, but it omits narratives in which it is not interested (David's youth, persecution by Saul, Absalom's

revolt, &c.), and adds long passages (David's arrangements for the temple, &c.) which reflect the views of a much later age than David's. The lists of officers, &c., are fuller than those in Samuel, and here and there contain notices of value. A comparison of the two records, however, is especially important for its illustration of the later tendency to idealize the figure of David, and the historical critic has to bear in mind the possibility that this tendency had begun long before the Chronicler's time, and that it may be found in the relatively older records preserved in Samuel.

Introduction to Saul.

David's father, Jesse, was a citizen of Bethlehem in Judah, 5 m. south of Jerusalem; the polite deprecation in 1 Sam. xviii. 18 means little (cf. Saul in ix. 21). Tradition made him a descendant of the ancient nobles of Judah through Boaz and the Moabitess Ruth, but the tendency to furnish a noble ancestry for a noble figure—especially one of obscure birth—is widespread (cf. Genealogy). He was the youngest of eight sons,[2] and spent his youth in an occupation which the Hebrews as well as the Arabs seem to have held in low esteem. He kept his father's sheep in the desert steppes of Judah, and there developed the strength, agility, endurance and courage which distinguished him throughout life (cf. 1 Sam. xvii. 34, xxiv. 2; 2 Sam. xvii. 9). There, too, he acquired that skill in music which led to his first introduction to Saul (1 Sam. xvi. 14-23, and the apocryphal Psalm of David, Ps. cli. in the Septuagint). He found favour in the king's eye, and became his armour-bearer.[3] But traditions varied. In 1 Sam. xvii. he does not follow his master to the field against the Philistines; he is an obscure untried shepherd lad sent by his father with supplies for his brothers in the Israelite camp. He does not even present himself before the king, and his brothers treat him with a petulance hardly conceivable if he stood well at court, and it appears from the close that neither Saul nor his captain Abner had heard of him before (vv. 55-58). There is, indeed, a flat contradiction between the two accounts, but a family of Greek MSS. represented by the Vatican text omit xvii. 12-31, xvii. 55-xviii. 5, and thus the difficulty is greatly lessened. Characteristic of the omitted portions are the friendship which sprang up between Jonathan and David and the latter's appointment to a command in the army. A further difficulty is caused by 2 Sam. xxi. 19, which makes Elhanan the slayer of Goliath. David's exploit is not referred to in 1 Sam. xxi. 10-15, xxix., and on this and other grounds the simpler tradition in 2 Sam. is usually preferred. (See Goliath.) But it must have been by some valiant deed that Saul was led to notice him (cf. xiv. 52), and David soon became both a popular hero and an object of jealousy to Saul. According to the Hebrew text of 1 Sam. xviii., Saul's jealousy leaped at once to the conclusion that David's ambition would not stop short of the kingship. Such a suspicion would be intelligible if we could suppose that the king had heard something of the significant act of Samuel, which now stands at the head of the history of David in witness of that divine election and unction with the spirit of Yahweh on which his whole career hung (xvi. 1-13). But this passage is the sequel to the rejection of Saul in xv., and Samuel's position agrees with that of the late writer in vii., viii. and xii.[4]

Conflicts with Saul.

The shorter text, represented by the Septuagint, gives an account of Saul's jealousy which is psychologically more intelligible.[5] According to this text Saul was simply possessed with such a personal dislike and dread of David as might easily occupy his disordered brain. To be quit of his hateful presence he gave him a military command. In this charge David increased his reputation as a soldier and became a general favourite. Saul's daughter Michal loved him; and her father, whose jealousy continued to increase, resolved to put the young captain on a perilous enterprise, promising him the hand of Michal as a reward of success, but secretly hoping that he would perish in the attempt. David's good fortune did not desert him; he won his wife, and in this new advancement continued to grow in the popular favour, and to gain fresh laurels in the field. At this point it is necessary to look back on the proposed marriage of David with Saul's eldest daughter Merab (xviii. 17-19; cf. xvii. 2-5). When the time came for Saul to fulfil his promise, Merab was given to Adriel of Abel-Meholah (perhaps an Aramaean). What is said of this affair interrupts the original context of chap. xviii., to which the insertion has been clumsily fitted by an interpolation in the second half of ver. 21 (LXX omits). We have here, therefore, a notice drawn from a distinct source which connects itself with the other omitted passage, xvii. 12-31, where Saul had promised his daughter to the one who should overthrow Goliath (ver. 25). Since Merab and Michal are confounded in 2 Sam. xxi. 8, the whole episode of Merab and David perhaps rests on a similar confusion of names.

As the king's son-in-law, David was necessarily again at court. He became chief of the bodyguard, as Ewald rightly interprets 1 Sam. xxii. 14, and ranked next to Abner (xx. 25), so that Saul's insane fears were constantly exasperated by personal contact with him. On at least one occasion the king's frenzy broke out in an attempt to murder David with his own hand.[6] At another time Saul actually gave commands to assassinate his son-in-law, but the breach was made up by Jonathan, whose chivalrous spirit had united him to David in a covenant of closest friendship (xix. 1-7). The circumstances of the final outburst of Saul's hatred, which drove David into exile, are not easily disentangled. The narrative of 1 Sam. xx., which is the principal account of the matter, cannot originally have been preceded by xix. 11-24; in chap. xx. David appears to be still at court, and Jonathan is even unaware that he is in any danger, whereas the preceding verses represent him as already a fugitive. It may also be doubted whether the narrative of David's escape from his own house by the aid of his wife Michal (xix. 11-17) has any close connexion with ver. 10, and does not rather belong to a later period.[7] David's daring spirit might very well lead him to visit his wife even after his first flight. The danger of such an enterprise was diminished by the reluctance to violate the apartments of women and attack a sleeping foe, which appears also in Judges xvi. 2, and among the Arabs.[8]

According to chap. xx. David was still at court in his usual position when he became certain that the king was aiming at his life. He betook himself to Jonathan, who thought his suspicions groundless, but undertook to test them. A plan was arranged by which Jonathan should draw from the king an expression of his feelings, and a tremendous explosion revealed that Saul regarded David as the rival of his dynasty, and Jonathan as little better than a fellow-conspirator. After a final interview (xx. 40-42), which must be regarded as a later expansion, they parted and David fled. He sought the sanctuary at Nob, where he had been wont to consult the priestly oracle (xxii. 15), and here, concealing his disgrace by a fictitious story, he also obtained bread from the consecrated table and the sword of Goliath (chap. xxi. i-9).[9] His hasty flight—without food and weapon—suggests that the narrative should follow upon xix. 17.

Outlaw life.

It was perhaps after this that David made a last attempt to find a place of refuge in the prophetic circle of Samuel at Ramah (xix. 18-24). The episode now stands in another connexion, where it is certainly out of place. It might, however, fit into the break that plainly exists in the history at xxi. 10 after the affair at Nob. Deprived of the protection of religion as well as of justice, David tried his fortune among the Philistines at Gath. Recognized and suspected as a redoubtable foe, he made his escape by feigning madness, which in the East has inviolable privileges (xxi. 11-16).[10] The passage anticipates chap. xxvii., and it is hardly probable that the slayer of Goliath or of any other Philistine giant fled to the Philistines with their dead hero's sword. He returned to the wilds of Judah, and was joined at Adullam[11] by his father's house and by a small band of outlaws, of which he became the head. Placing his parents under the charge of the king of Moab, he took up the life of a guerilla captain, cultivating friendly relations with the townships of Judah (xxx. 26), which were glad to have on their frontiers a protector so valiant as David, even at the expense of the blackmail which he levied in return. A clear conception of his life at this time, and of the respect which he inspired by the discipline in which he held his men, and of the generosity which tempered his fiery nature, is given in chap. xxv. His force gradually swelled, and he was joined by the prophet Gad (note his message xxii. 5) and by the priest Abiathar, the only survivor of a terrible massacre by which Saul took revenge for the favours which David had received at the sanctuary of Nob. He was even able to strike at the Philistines, and to rescue Kĕīlah (south of Adullam and to the east of Beit Jibrīn) from their attack (xxiii. 1-13). Forced to flee by the treachery of the very men whom he had succoured, he lived for a time in constant fear of being captured by Saul, and at length took refuge with Achish king of Gath and established himself in

Ziklag. Popular tradition, as though unwilling to let David escape from Saul, told of that king's continual pursuit of the outlaw, of the attempt of the men of Ziph (S.E. of Hebron) to betray him, of David's magnanimity displayed on two occasions, and of Jonathan's visit to console his bosom friend (xxiv.-xxvi.).[12] The situation was one which lent itself to the imagination.

The site of Ziklag is unknown. It hardly lay near Gath (probably Tell es-Sāfi, 12 m. E. of Ashdod), but rather to the south of Judah (Josh. xix. 5). Here he occupied himself in chastening the Amalekites and other robber tribes who made raids on Judah and the Philistines without distinction (xxvii.). The details of the text are obscure, and seem to imply that David systematically attacked populations friendly to Achish whilst pretending that he had been making forays against Judah. If this were an attempt to steer a middle course his true actions could not have been kept secret long, and as it is implied that the Philistines subsequently acquiesced in David's sovereignty in Hebron, it is not easy to see what interest they had in embroiling him with the men of Judah. At length, in the second year, he was called to join his master in a great campaign against Saul. The Philistines for once directed their forces towards the plain of Jezreel (Esdraelon) in the north; and Saul, forsaken by Yahweh, already gave himself up for lost. David accompanied the army as a matter of course. But his presence was not observed until they reached their destination, when the jealousy of the Philistines overrode his protestations of fidelity and he was ordered to return. He reached Ziklag only to find the town pillaged by the Amalekites. Pursuing the foes, he inflicted upon them a signal chastisement and took a great booty, part of which he spent in politic gifts to the leading men of the towns in the south country.[13]

Meantime Saul had fallen in battle, and northern Israel was in a state of chaos. The Philistines took possession of the fertile lowlands of Jezreel and the Jordan, and the shattered forces of Israel were slowly rallied by Abner in the remote city of Mahanaim in Gilead, under the nominal sovereignty of Saul's son Ishbaal. David now took the first great step to the throne. He was no longer an outlaw with a band of wandering companions, but a petty chieftain, head of a small colony of men, allied with families of Caleb and Jezreel (in Judah), and on friendly footing with the sheikhs south of Hebron. In response to an oracle he was bidden to move northwards to Judah and successfully occupied it with Hebron as his capital. Here he was anointed king, the first ruler of the southern kingdom. If the chronological notice may be trusted, he was then thirty years of age, and he reigned there for seven and a half years (2. Sam. ii. 1-4*a*, 11, v. 4 sq.). The noble elegy on the death of Saul and Jonathan, quoted from the Book of Jashar (2 Sam. i.), is marked by the absence both of religious feeling and of allusions to his earlier experiences with Saul which David might have been expected to make. It was deemed only natural that he should sympathize deeply with the disasters of the northern kingdom. His vengeance on the Amalekite who slew Saul—the account is a doublet of 1 Sam. xxxi.—is consistent with his generous treatment of his late adversary in his outlaw life, and with this agrees his embassy of thanks to the men of Jabesh-Gilead for their chivalrous rescue of the bodies of the fallen heroes (2 Sam. ii. 4*b*-7). The embassy threw out a hint,—their lord was dead and David himself had been anointed king over Judah; but the relation between Jabesh-Gilead and Saul had been a close one, and it was not to be expected that its eyes would be turned upon the king of Judah when Saul's son was installed at the not distant Mahanaim. The interest of the narratives is now directed away from the Philistines to the decaying fortunes of Saul's house. (See Abner and Saul.) Abner had taken Saul's son Ishbaal and his authority was gradually consolidated in the north. War broke out between the two parties at Gibeon a few miles north of Jerusalem. A sham contest was changed into a fatal fray by the treachery of Ishbaal's men; and in the battle which ensued Abner was not only defeated, but, by slaying Asahel, drew upon himself a blood-feud with Joab. The war continued. Ishbaal's party became weaker and weaker; and at length Abner quarrelled with his nominal master and offered the kingdom to David. The king seized the opportunity to demand the return of Michal, his wife. The passage (iii. 12-16) is not free from difficulties, but it is intelligible that David should desire to ally himself as closely as possible with Saul's family (cf. xii. 8). The base murder of Abner by Joab did not long defer the inevitable issue of events. Ishbaal lost hope, and after he had been foully assassinated by two of his own followers, all Israel sought David as king.

King at Hebron.

The biblical narrative is admittedly not so constructed as to enable us to describe in chronological order the thirty-three years of David's reign over all Israel. It is possible that some of the incidents ascribed to this period properly belong to an earlier part of his life, and that tradition has idealized the life of David the king even as it has not failed to colour the history of David the outlaw and king of Hebron.

Critical considerations.

In the preceding account the biblical narratives have been followed as closely as possible in the light of the critical results generally accepted. That they have been affected by the growth of popular tradition is patent from the traces of duplicate narratives, from the difficulty caused, for example, by the story of Goliath (q.v.), and from a closer study of the chapters. The later views of the history of this period are represented in the book of Chronicles, where immediately after Saul's death David is anointed at Hebron king over all Israel (1 Chron. xi.). It is quite in harmony with this that the same source speaks of the Israelites who joined David at Ziklag (1 Chron. xii. 1-22), and of the host which came to him at Hebron to turn over to him Saul's kingdom (xii. 23-40). This treatment of history can be at once corrected by the books of Samuel, but it is only from a deeper study of the internal evidence that these, too, appear to give expression to doubtful and conflicting views. It is questionable whether David could have become king over all Israel immediately after the death of Ishbaal. The chronological notices in ii. 10 sqq. allow an interval of no less than five and a half years, and nowhere do the events of these years appear to be recorded. But David's position in the south of Judah is clear. He is related by marriage with south Judaean clans of Caleb, Jezreel, and probably Geshur. (See Absalom.) He was at the head of a small colony (1 Sam. xxvii. 3), and on friendly terms with the sheikhs south of Hebron (xxx. 26-31).[14] His step forward to Hebron is in every way intelligible and is the natural outcome of his policy. It is less easy to trace his previous moves. There are gaps in the narratives, and the further back we proceed the more serious do their difficulties become. These chapters bring him farther north, and they commence by depicting David as a man of Bethlehem, high in the court of Saul, the king's son-in-law, and a popular favourite with the people. But notwithstanding this, the relation is broken off, and years elapse before David gains hold upon the Hebrews of north Israel, the weakness of the union being proved by the ease with which it was subsequently broken after Solomon's death. Much of the life of Saul is obscure, and this too, it would seem, because tradition loved rather to speak of the founder of the ideal monarchy than of his less successful rival. (See Saul.) It is not impossible that some traditions did not bring them together. If Jerusalem and its immediate neighbourhood were first conquered by David (2 Sam. v.), it is probable that Beeroth and Gibeon (2 Sam. iv. 2, xxi. 2), Shaalbim, Har-heres and Aijalon (Judg. i. 35), Gezer (*ib.* i. 29), Chephirah and Kirjath-jearim (Josh. ix. 17) had remained Canaanite. The evidence has obviously some bearing upon the history of Saul, as also upon the intercourse between Judah and Benjamin which David's early history implies. It has been conjectured, therefore, that David's original home lay in the south. Since the early historical narrative (1 Sam. xxv. 2) finds him in Maon, Winckler has suggested that he was a Calebite chief, while a criticism of the details relating to David's family has induced Marquart[15] to conjecture that he was born at Arad (Tell 'Arād) about 17 m. S.E. of Hebron. Once indeed we find him in the wilderness of Paran 1 (Sam. xxv. 1, LXX reads Maon), and a more southerly origin has been thought of (Winckler). This is involved with other views of the early history of the Israelites; see further below.

Capture of Jerusalem.

David owed his success to his troop of freebooters (1 Sam. xxii. 2), now an organized force, and absolutely attached to his person. The valour of these "mighty men" (*gibbōrīm*) was topical. The names of the most honoured are preserved, and we have some interesting accounts of their exploits in the days of the giants (2 Sam. xxi., xxiii.). We hear of two great battles with the "Philistines" in the valley of Rephaim, near Jerusalem, at a time when David's base was Adullam (v. 17-25). In one conflict a giant thought to slay him, but he was saved by Abishai, the brother of Joab, and the men took an oath that David should no more go to battle lest he "quench the light of Israel." On another occasion, Elhanan of Bethlehem slew the giant Goliath of Gath, and David's own brother Shimei

(or Shammah) overthrew a monster who could boast of twenty-four fingers and toes. In yet another incident the Philistines maintained a garrison in Bethlehem, and David expressed a wish for a drink from its well. The wish was gratified at the risk of the lives of three brave men, and he recognized the solemnity of the occasion by pouring out the water as an offering unto Yahweh.

From a later summary (viii. 1) it seems that the Philistines were at length vanquished, and the unknown Metheg-Ammah taken out of their hands.[16] Not until the district was cleared could Jerusalem be taken, and the capture of the almost impregnable Jebusite fortress furnished a centre for future action. Here, in the midst of a region which had been held by aliens, he fortified the "city of David" and garrisoned it with his men. Meanwhile the ark of Yahweh, the only sanctuary of national significance, had remained in obscurity since its return from the Philistines in the early youth of Samuel. (See Ark.) David brought it up from Baalah of Judah with great pomp, and pitched a tent for it in Zion, amidst national rejoicings. The narrative (2 Sam. vi.) represents the act as that of a loyal and God-fearing heart which knew that the true principle of Israel's unity and strength lay in national adherence to Yahweh; but the event was far from having the significance which later times ascribed to it (1 Chron. xiii., xv. sqq.); even Solomon visited the sanctuary at Gibeon, and Absalom vowed his vow unto Yahweh at Hebron. It was not unnatural that the king who had his palace built by Tyrian artists should have proposed to erect a permanent temple to Yahweh. Such, at least, was the thought of later writers, who have given effect to the belief in chap. viii. It was said that the prophet Nathan commanded the execution of this plan to be delayed for a generation; but David received at the same time a prophetic assurance that his house and kingdom should be established for ever before Yahweh.

What remains to be said of his internal policy may be briefly detailed. In civil matters the king looked heedfully to the execution of justice (viii. 15), and was always accessible to the people (xiv. 4). But he does not appear to have made any change in the old local administration of justice, or to have appointed a central tribunal (xv. 2, where, however, Absalom's complaint that the king was inaccessible is merely factious). A few great officers of state were appointed at the court of Jerusalem (viii. 16-18, xx. 23-26), which was not without a splendour hitherto unknown in Israel. Royal pensioners, of whom Jonathan's son Mephibosheth was one, were gathered round a princely table. The art of music was not neglected (xix. 35). A more dangerous piece of magnificence was the harem. Another innovation was the census; it was undertaken despite the protests of Joab, and was checked by the rebukes of the prophet Gad and the visitation of a pestilence (xxiv.). Striking, too, is the conception of the national God who incites the king to do an act for which he was to be punished.[17] To us, the proposal to number the people seems innocent and laudable, and the latest sources of the Pentateuch contain several such lists. This new procedure, we may imagine, was resented by the northern Hebrews as an encroachment upon their liberties. We learn that the destroying angel was stayed at the threshing-floor of Araunah the Jebusite,[18] and the spot thus sanctified was made a sanctuary, and commemorated by an altar. It was the very place upon which Solomon's temple was supposed to be founded. The census-taking may have been a preliminary to the great wars, but the latter, on the other hand, are obviously presupposed by the extent of his kingdom. For his wars a larger force than his early bodyguard was required, and the Chronicler gives an account of the way in which an army of nearly 300,000 was raised and held by David's thirty heroes (1 Chron. xxvii.). It is certain at all events that no small body of soldiers would be needed, and this alone would imply that all Israel was by this time under his entire control.

Internal policy.

Apart from the Ammonite war, our sources are confined to a mere summary (viii.), which includes even the Amalekites (viii. 12, cf. i Sam. xxx.). After the defeat of the Philistines came the turn of Moab. It was under the care of the king of Moab that David placed his parents when he fled from Saul (1 Sam. xxii. 3 sqq.), and what led to the war is unknown. The severity with which the land was treated may pass for a gentle reprisal if the Moabites of that day were not more humane than their descendants in the days of King Mesha.[19] A deadly conflict with the Ammonites was provoked by a gross insult to friendly ambassadors of Israel;[20] and this war, of which we have pretty full details in 2 Sam. x. i-xi. 1, xii. 26-31, assumed unexpected dimensions when the Ammonites procured the aid of their Aramean neighbours. The defeat of Hadadezer brought about the submission of other lesser kings. The glory of this victory was increased by the complete subjugation of Edom in a war conducted by Joab with characteristic severity (2 Sam. viii. 13; 1 Kings xi. 15-17; Ps. lx., title). The fall of Rabbah concludes David's war-like exploits; he carried off the jewelled crown of their god (Milcom), and subjected the people, not to torture (1 Chron. xx. 3), but to severe menial labour (xii. 26-31).

Wars and conquests.

The Aramean states, Beth-rehob, Maacah, Tob, &c., lay partly to the north of Gilead and partly in the region which was the scene of the fight with Jabin (Josh. xi. 1-9, Judg. iv.; see Deborah). Apparently it was here, too, that the Danites found a settlement (Judg. xviii. 28); the migration has perhaps been ante-dated. (See Dan, tribe.) The account of David's wars is remarkable for the inclusion of the Syrians of Damascus and beyond the Euphrates; some exaggeration has been suspected (cf. 2 Sam. viii. 5 with x. 16). Some misunderstanding has been caused by the confusion of Edom (אדם) and Aram (ארם) in viii. 13. A more moderate idea of David's power has been found in Ps. lx. 6-12, or, preferably, in the description of the boundaries (2 Sam. xxiv. 5 sqq.). To the east of the Jordan he held rule from Aroer to Gad and Gilead; on its west his power extended from Beersheba in the south to Dan and Ijon at the foot of Hermon. Moab, Ammon and Edom would appear to have been merely tributary, whilst in the north among his allies David could number the king of Hamath. To the north-west Israel bordered upon Tyre, with whom its relations were friendly. The king of Tyre, who recognized David's newly won position (v. 11 seq.), is called Hiram; possibly—unless the notice is an anticipation of 1 Kings v.—his father Abibaal is meant.[21]

As the birth of Solomon is placed before the capture of Rabbah of Ammon (xii.), it would appear that David's wars were ended within the first half of his reign at Jerusalem, and the tributary nations thus do not seem to have attempted any revolt during his lifetime (see 1 Kings xi. 14 sqq. and 25). It was only when the nation was no longer knit together by the fear of danger from without that the internal difficulties of the new kingdom became more manifest. Such at least is the impression which the narratives convey.[22] So, after David had completed a series of conquests which made Palestine the greatest of the petty states of the age, troubles arose with the Israelites, who in times past had sought for him to be king (iii. 17, v. 1-3), with his old subjects the men of Judah, and with the members of his own household. The northern tribes, who appear to have submitted willingly to his rule, were not all of one mind. There were men of stronger build than the weak Ishbaal and the crippled son of Jonathan, the survivors of Saul's house, and it is only to be expected that David's first care must have been to cement the union of the north and south. The choice of Jerusalem, standing on neutral ground, may be regarded as a stroke of genius, and there is nothing to show that the king exercised that rigour which was to be the cause of his grandson's undoing. (See Rehoboam.) On the other hand, when Sheba, probably one of Saul's clan, headed a rising and was promptly pursued by Joab to Abel-beth-maacah on the west of Dan, honour was satisfied by the death of the rebel, and no further steps were taken (xx.).[23] This policy of leniency towards Israel is characteristic of David, and may well have become a popular theme in the tales of succeeding generations. This same magnanimity towards the survivors of Saul's house has left its mark upon many of the narratives, and helps to a truer understanding of the stories of his early life. Thus it was quite in keeping with the romantic attachment between David and Saul's son Jonathan that when he became king of Israel he took Jonathan's son Meribbaal under his care (ix.).[24] The deed was not merely generous, it was politic to have Saul's grandson under his eyes. The hope of restoring the lost kingdom had not died out (cf. xvi. 3). But from another source we gain quite a different idea of the relations. A disastrous famine ravaged the land for three long years, and when Yahweh was consulted the reply came that there was "blood upon Saul and upon his house because he put the Gibeonites to death." The unavenged blood was the

Internal troubles.

cause of divine anger, and retribution must be made. This David recognized, and, summoning the injured clan, inquired what expiation could be made. Bloodshed could only be atoned by blood-money or by shedding the blood of the offender or of his family. The Gibeonites demanded the latter, and five sons of Merab (the text by a mistake reads Michal) and two sons of Saul's concubine were sacrificed. The awful deed took place at the beginning of harvest (April-May), and the bodies remained suspended until, with the advent of the autumn rains, Yahweh was once more reconciled to his land (xxi. 1-14). The incident is a valuable picture of crude ideas of Yahweh, and, if nothing else were needed, it was sufficient to involve David in a feud with the Benjamites.[25] Here, too, we learn of the tardy burial of the bones of Saul and Jonathan which had remained in Jabesh-Gilead since the battle of Gilboa;—the history of David's dealings with the family of Saul has been obscured. That he took over his harem is only in accordance with the Eastern policy (cf. xii. 8).

The harem, an indispensable part of Eastern state, was responsible for many fatal disorders, although it is clear from 2 Sam. xvi. 21 that the nation at large was not very sensitive to the enormities which flow from this system. David's deep fall in the matter of Bathsheba (xi.) was too great an iniquity to be passed over lightly, and the base murder of her husband Uriah the Hittite could not go unavenged. Bathsheba's influence added a new element of danger to the usual jealousies of the harem, and two of David's sons perished in vain attempts to claim the throne, which she appears to have viewed as the rightful inheritance of her own child. This, at least, is certain in the revolt of Adonijah (see Solomon), and it was probably believed that the action of the impulsive Absalom arose from the suspicion that the birth of Solomon was the death-blow to his succession.

Absalom's revolt.

As a piece of writing the vivid narratives are without an equal. David's sons were estranged from one another, and acquired all the vices of Oriental princes. The severe impartiality of the sacred historian has concealed no feature in this dark picture,—the brutal passion of Amnon, the shameless counsel of the wily Jonadab, the "black scowl"[26] that rested on the face of Absalom through two long years of meditated revenge, the panic of the court when the blow was struck and Amnon was assassinated in the midst of his brethren. Not until five years had elapsed was Absalom fully reconciled with his father. Then he meditated revolt. As heir-apparent he collected a bodyguard, and studiously courting personal popularity by a pretended interest in the administration of kingly justice, ingratiated himself with the mass. Four years later (so read in xv. 7) he ventured to raise the standard of revolt in Hebron, with the malcontent Judaeans as his first supporters, and the crafty Ahithophel as his chief adviser. Arrangements had been made for the simultaneous proclamation of Absalom in all parts of the land. The surprise was complete, and David was compelled to evacuate Jerusalem, where he might have been crushed before he had time to rally his faithful subjects. He was warmly received by the Gileadites, and the first battle destroyed the party of Absalom, who was himself captured and slain by Joab. Then all the people repented except the men of Judah, who were not to be conciliated without a virtual admission of prerogative of kinship to the king. This concession involved important consequences. The precedence claimed by Judah was challenged by the northern tribes even on the day of David's victorious return to his capital, and a rupture ensued, headed by Sheba, which but for the energy of Joab might have led to a second and more dangerous rebellion.

Several indications suggest that the revolt was one in which the men of Judah originally took the leading if not the only part. The unruly clans which David knew how to control when he was at Ziklag or Hebron were doubtless ready to support the rebellious son. The removal of the court to Jerusalem provided a suitable opportunity, and an element of jealousy even may not have been wanting. If Geshur be the district in Josh. xiii. 2, 1 Sam. xxvii. 8, it is significant that the scene of Absalom's exile lay to the south, that Ahithophel was a south Judaean, and that Amasa probably belonged to the Jezreel[27] with which David was connected through his wife Ahinoam. The eleven years which elapsed between the murder of Amnon and the revolt would seem to disprove any connexion between the two; the chronology may rest upon the tradition that Solomon was twelve years old when he came to the throne. David's hurried flight, attended only by his bodyguard, indicates that his position was not a very strong one, and it is difficult to connect this with the fact that he had already waged the wars mentioned in 2 Sam. viii. and x. If his reason for taking refuge in Ishbaal's capital Mahanaim is not obvious, it is even more remarkable that he should have been received kindly by the Ammonites whom he had previously decimated. On the theory that the revolt of Absalom chronologically should precede the great wars, a slight correction of the already corrupt text in xvii. 27 makes Nahash himself David's ally, and accounts for David's eagerness to repay to Hanun, the son of Nahash, the kindness which he had received from the father (x. 2). That the revolt of Sheba is in an impossible position is obvious. Tradition has probably confused Benjamite risings with Absalom's misguided enterprise; the parts played by Shimei and Meribbaal, at all events, are extremely suggestive. See Absalom, Ahithophel.

The Appendix ascribes to David a song of triumph and some exceedingly obscure "last words" (xxii.-xxiii. 7) which cannot be used as historical material. The history of his life is immediately continued in 1 Kings i., where his old age and weakness are for the first time vividly emphasized. The events of the remaining years after 2 Sam. xx. are left untold, but the Chronicler omits the revolt of Absalom and represents the king as busily occupied with schemes concerning the future temple. The last spark of his old energy was called forth to secure the succession of Solomon against the ambition of Adonijah. It is noteworthy that, as in the case of Absalom, the pretender, though supported by Joab and Abiathar, found his chief stay among the men of Judah (1 Kings i. 9). (See Solomon.)

David's life-work.

To estimate the work of David it is necessary to take into account the situation before and after his period. According to the prevailing traditions, Saul at his death had left North Israel disunited and humiliated. From this condition David raised the land to the highest state of prosperity and glory, and by his conquests made the united kingdom the most powerful state of the age. To do this other qualities than mere military capacity were required. David was not only a great captain, he was a national hero in whom all the noblest elements of the Hebrew genius were combined. His talent enabled him to weld together the mixed southern clans which became incorporated under Judah, and to build up a monarchy which represented the highest conception of national life possible under the circumstances. The structure, it is true, was not permanent. Under his successor it began to decay, and in the next generation it fell asunder and lived only in the hearts of the people as the proudest memory of past history and the prophetic ideal of future glory.[28] Opinion will differ, however, as to the extent to which later ideals have influenced the narratives upon which the student of Hebrew history and religion is dependent, and how far the reigns of David and Solomon altered the face of Hebrew history. The foundation of the united monarchy was the greatest advance in the whole course of the history of the Israelites, and around it have been collected the hopes and fears which a varied experience of monarchical government aroused. Many of the narratives furnish a vivid picture of the life of David with a minuteness of personal detail which has suggested to some that their author was intimately acquainted with the events, and, if not a contemporary, belonged to the succeeding generation, while to others it has seemed more probable that these reflect rather "the plastic mould of popular tradition." It cannot be doubted that the three types of David, represented by the books of Samuel, of Chronicles, and the superscriptions of the Psalms, are irreconcilable, and that they represent successive developments of the original traditions. That the oldest of these three does not contain earlier attempts to idealize him is unlikely. "Political circumstances naturally led to an ever-increasing appreciation of his person and his work as the unifier of Israel. In the eyes of posterity he became more and more completely the model of an Israelitish king and the natural consequence was that he was idealized. The hope of the regeneration of his dynasty, and, at a later period, of its restoration to the throne—the Messianic expectation—must have worked powerfully in the same direction. And meanwhile the religious convictions of the highest minds in Israel were undergoing a marked change. The conceptions of Yahweh and of the religion which was acceptable to him were constantly being elevated and purified. This could not but have an influence on the current ideas concerning David. He, too, must be remodelled as the conceptions of God were changed."[29] But what is lost as regards historical material is a distinct gain to

the study of the development of Hebrew thought and philosophy of history.

David's character must be judged partly in the light of the times in which he lived and partly in connexion with the great truths which he represents, truths whose value is not impaired should they prove to be the convictions of later ages. Accordingly, David is not to be condemned for failing to subdue the sensuality which is the chief stain on his character, but should rather be judged by his habitual recognition of a generous standard of conduct, by the undoubted purity and lofty justice of an administration which was never stained by selfish considerations or motives of personal rancour,[30] and finally by the calm courage which enabled him to hold an even and noble course in the face of dangers and treachery. His great sin in the matter of Uriah would have been forgotten but for his repentance: the things at which modern ideas are most offended are not always those that would have given umbrage to early writers. That he did not reform at a stroke all ancient abuses appears particularly in relation to the practice of blood revenge; to put an end to this deep-rooted custom would have been an impossibility. But it is clear from 2 Sam. iii. 28 sqq., xiv. 1-10, that his sympathies were against the barbarous usage. Nor is it just to accuse him of cruelty in his treatment of enemies. As it was impossible to establish a military cordon along the borders of Canaan, it was necessary absolutely to cripple the adjoining tribes. From the lust of conquest for its own sake David appears to have been wholly free.

The generous elevation of David's character is seen most clearly in those parts of his life where an inferior nature would have been most at fault,—in his conduct towards Saul, in the blameless reputation of himself and his band of outlaws in the wilderness of Judah, in his repentance under the rebuke of Nathan and in his noble bearing on the revolt of Absalom. His touching love for his worthless son is one of the most beautiful descriptions of paternal affection. His unfailing insight into character, and his power of winning men's hearts and touching their better impulses, appear in innumerable traits (e.g. 2 Sam. xiv. 18-20, iii. 31-37, xxiii. 15-17), and here, as elsewhere, the charm which the life of David has upon its readers is entirely unaffected by technical questions of literary and historical criticism.

To the later generations David was pre-eminently the Psalmist and the founder of the Temple service. The Hebrew titles ascribe to him seventy-three psalms; the Septuagint adds some fifteen more; and later opinion, both Jewish and Christian, claimed for him the authorship of the whole Psalter (so the Talmud, Augustine and others). That the tradition of the titles requires careful sifting is no longer doubted, and the results of recent criticism have been to confirm the view that "it is no longer possible to treat the psalms as a record of David's spiritual life through all the steps of his chequered career" (W. R. Smith, *Old Test. in Jew. Church*[2], p. 224). Nor can it be maintained that the elaborate ritual ascribed to David by the chronicler has any historical value. See further Chronicles, Psalms.

Growth of tradition.

On the other hand, these traditions, however unhistorical in their present form, cannot be pure imagination. The male and female singers (if the reading be correct) whom Sennacherib carried off from Jerusalem in Hezekiah's time, may well have belonged to an old foundation (A. Jeremias, *Alte Test. im Lichte d. Alten Orients*[2], p. 527), and though David's skill referred to in Amos vi. 5 may be due to a gloss, it is a Judaean narrative which tells of the invention of music, ascribing it possibly to a Judaean legendary hero (Gen. iv. 21). And although the Levitical organization, as ascribed to David, is manifestly post-exilic, it is at least certain that many of the Levitical families were of southern origin. It is in David's history that the clans of the south first attained prominence, and some of them are known to have been staunch upholders of a purer worship of Yahweh, or to have been associated with the introduction of religious institutions among the Israelites. (See Levites.)

The difficulty of the historical problems increases when the narratives of David are more closely studied: (*a*) 2 Sam. iii. 18, xix. 9 show that according to one view David delivered *Israel* (not Judah) from the Philistines. This is in contradiction to ii. 8 sqq. (from another source), where Saul's son recovers Israelite territory, but is supported by ix., where Mephibosheth is found at Lo-debar. This historical view has probably left its trace upon the present traditions of Saul, whose defeat by the "Philistines" (here found in the north and not as usual in the south) left Israel in much the same position as when he was anointed king (cf. 1 Sam. xxxi. 7 with xiii. 7). Again (*b*) the primitive stories of conflicts with "Philistine" giants between Hebron and Jerusalem (2 Sam. v. 17 sqq., xxi. 15 sqq. and xxiii.) find their analogy in Caleb's overthrow of the sons of Anak (Judg. i. 10; Josh. xv. 14), and in the allusion to the same prehistoric folk in the account of the spies (Num. xiii. 28). From a number of points of evidence there appears to have been a group of traditions of a movement from the south (probably Kadesh, Num. xiii. 26) associated with Caleb, David and the Levites. If the clans of Moses' kin which moved into Judah bore the ark (Num. x. 29 sqq.; see Kenites), and if Abiathar carried it before David (1 Kings ii. 26), there were traditions of the ark distinct from those which associate it with Joshua and Shiloh (cf. 2 Sam. vii. 6). But the stories of conflicts in a much larger area than the few cities in the immediate neighbourhood of Jerusalem (see above) can scarcely be read with the numerous narratives which recount or imply relations between the young David of Bethlehem and Saul or the Israelites. It is possible, therefore, that one early account of David was that of an entrance into the land of Judah, and that round him have gathered traditions partly individual and partly tribal or national. See further S. A. Cook, *Critical Notes on O.T. History*, pp. 122 sqq., and art. Jews (*History*), §§ 6-8.

Literature.—Robertson Smith's later views subsequent to 1877 (when he wrote the article on David for this *Encyclopaedia*) were expressed partly in the *Old Test. in Jewish Church* (1881 and 1892), *passim*, and partly in the article on the Books of Samuel in the *Ency. Brit.* (9th ed.); on David's character see especially his criticism of Renan, *Eng. Hist. Rev.*, 1888, pp. 134 sqq. Mention may be made of Stähelin's *Leben Davids* (Basel, 1866), still valuable for the numerous parallels adduced from oriental history; Cheyne's *Aids to Devout Study of Criticism* (1892), a criticism of David's history in its bearing upon religion; Marcel Dieulafoy, *David the King* (1902), full, but not critical; H. A. White, Hastings' *Dict.* art. "David"; Cheyne, *Ency. Bib.* art. "David"; and (on the romantic element in the narratives) Luther in Ed. Meyer, *Israeliten und ihre Nachbarstämme* (1906), pp. 181 sqq.

(W. R. S.; S. A. C.)

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1 See further the third edition of Schrader's *Keilinschr. u. das Alte Test.* pp. 225, 483.

2 But four in xvii. 13 sqq., and seven in 1 Chron. ii. 13-15.

3 An armour-bearer was not a full warrior but a sort of page or apprentice-in-arms, whose most warlike function is to kill outright those whom his master has struck down—an office which among the Arabs was often performed by women.

4 See Samuel. The older history repeatedly indicates that David's kingship was predicted by a divine oracle, but would hardly lead us to place the prediction so early (1 Sam. xxv. 30; 2 Sam. iii. 9, v. 2).

5 The LXX omits xviii. 1-6 (to "Philistine"), the first and last clauses of 8, 10-11, the reason given for Saul's fear in 12, 17-19, the second half of 21. It also modifies 28, and omits the second half of 29 and the whole of 30.

6 1 Sam. xix. 9. The parallel narrative, xviii. 10 sqq., is wanting in the Greek, and in the light of subsequent events is improbable. Its aim is to paint Saul's character as black as possible.

7 The close of ver. 10 in the Hebrew is corrupt, and the words "(and it came to pass) that night" seem to belong to the next verse (so the Greek). H. P. Smith suggests that the passage originally followed upon xviii. 27.

8 Wellhausen cites a closely parallel case from Sprenger's *Leben Muhammad*, vol. ii. p. 543.

9 On the meaning of this difficult passage, see the discussions by W. R. Smith, *Religion of the Semites*(2), p. 455 sqq., and Schwally *Semit. Kriegsalterthümer*, p. 60 sqq.

10 Interesting parallels in Barhebraeus *Chron.*, ed. Brun and Kirsch, p. 222, and Ewald, *Hist. Israel*, iii. p. 84.

11 The cave of Adullam has been traditionally placed (since the 12th century) at Khareitūn, two hours' journey south of Bethlehem. But the town of Adullam, which has not been identified with any certainty, lay in the low country of Judah (Josh. xv. 35). The "cave" is also spoken of as a "hold" or fortress, and this is everywhere the true reading. The name has been identified with '*Īd-el-mā* (or -*miyē*) about 12 m. S.W. of Bethlehem.

12 According to a late Rabbinical story, David, like Bruce of Scotland, was once saved by a spider which spun its web over the cave wherein he was concealed.

13 The law of the distribution of booty after war enacted by David (xxx. 24 sqq.) is given as a Mosaic precedent in the post-exilic priestly legislation (Num. xxxi. 27). On the importance of this explicit statement, see W. R. Smith, *Old Test. in Jewish Church*(²), 386 sq.

14 Bethel (ver. 27) is probably the Bethuel near Ziklag (1 Chron. iv. 30). David's friendly relations with the Philistines find a parallel in Isaac's covenant with Abimelech (q.v.). In Ps. xxxiv. the latter name actually appears in place of Achish.

15 *Fundamente Israel. u. jüd. Gesch.* (1896), pp. 23 sqq.; see also Winckler, *Gesch. Isr.* i. 24; *Keilinschr. u. d. Alte Test.*(³), p. 228 sqq.

16 1 Chron. xviii. 1 reads "Gath and her dependent villages"; the original reading is a matter for conjecture.

17 Cf. the idea in 1 Kings xxii. 19-23; Ezek. xiv. 9; contrast 1 Chron. xxi. 1.

18 This un-Hebraic name, which is not unlike *arōn*, "ark," should possibly be corrected to Adonijah (Cheyne, *Ency. Bib. s.v.*).

19 David destroyed two-thirds of the Moabites—presumably of their fighting men (2 Sam. viii. 2); Mesha destroys the inhabitants of the captured cities in honour of his god Chemosh.

20 It finds a parallel in the fate of the heralds of Orchomenus (Frazer, *Pausan.* v. 135) and in an Arabian story (Ibn Athīr, viii. 360; Nöldeke in Budde, *Hand-Commentar, ad loc.*); cf. also Ewald, iii. 152.

21 On the questions raised see the commentaries upon 2 Sam. viii. and x. and the *Ency. Biblica, s.vv.* "David," "Merom," "Zobah." The main problem is whether the account of David's rule has been exaggerated, or whether the attempt has been made to throw back to the time of the first king of all Israel later political conditions.

22 Viz. the present position of 2 Sam. ix.-xx. after the miscellaneous collection of details in v.-viii. See, on the other hand, the view of 1 Kings v. 3, 4.

23 The present position of this incident, immediately after Absalom's rebellion was quelled, is almost inconceivable (Winckler, H. P. Smith, B. Luther, Ed. Meyer). See next page.

24 He was five years of age at the battle of Gilboa (iv. 4), and is now grown up and with a young child (ix. 12). But the narrative loses its point unless David's kindness "for Jonathan's sake" comes at an early date soon after he became king, and although the youth is found at Lo-debar (east of the Jordan) under the protection of Machir, the independent fragment in ii. 8 sqq. implies that the Israelites had recovered the position they had lost at the battle of Gilboa.

25 There is an unmistakable reference to the occurrence in the episode of Shimei, who hovers in the background of Absalom's revolt with a large body of men at his command (xvi. 7 sqq.).

26 If Ewald's brilliant interpretation of an obscure word in 2 Sam. xiii. 32 be correct.

27 "Israelite" (2 Sam. xvii. 25) is a very unnecessary designation; 1 Chron. ii. 17 would make him an Ishmaelite.

28 See Hebrew Religion, Messiah, Prophet.

29 Kuenen, "The Critical Method," *Modern Review*, 1880, p. 701 (*Gesammelte Abhandlungen*, Germ. ed. by Budde, p. 33).

30 His charges to Solomon in 1 Kings ii. 5-9 do not arise necessarily from motives of revenge; a young and untried sovereign could not afford to continue the clemency which his father was strong enough to extend to dangerous enemies. Apart from this, it is possible that the words have been written to shift from Solomon's shoulders the bloodshed incurred in establishing his throne.

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