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THE ENCYCLOPÆDIA BRITANNICA

A DICTIONARY OF ARTS, SCIENCES, LITERATURE AND GENERAL INFORMATION

ELEVENTH EDITION

VOLUME XVII SLICE II

Luray Cavern to Mackinac Island

Articles in This Slice

LURAY CAVERN, a large cave in Page county, Virginia, U.S.A., 39° 35′ N. and 78° 17′ W., near the village of Luray, on the Norfork & Western railway. The valley, here 10 m. wide, extends from the Blue Ridge to the Massanutton Mountain. The ridges lie in vast folds and wrinkles; and elevations in the valley are often found to be pierced by erosion. Cave Hill, 300 ft. above the water-level, had long been an object of local interest on account of its pits and oval hollows or sink-holes, through one of which, on the 13th of August 1878, Andrew J. Campbell and others entered, thus discovering the cavern now described.

The Luray cavern does not date beyond the Tertiary period, though carved from the Silurian limestone. At some period, long subsequent to its original excavation, and after many large stalactites had grown, it was completely filled with glacial mud charged with acid, whereby the dripstone was eroded into singularly grotesque shapes. After the mud had been mostly removed by flowing water, these eroded forms remained amid the new growths. To this contrast may be ascribed some of the most striking scenes in the cave. The many and extraordinary monuments of aqueous energy include massive columns wrenched from their place in the ceiling and prostrate on the floor; the Hollow Column, 40 ft. high and 30 ft. in diameter, standing erect, but pierced by a tubular passage from top to bottom; the Leaning Column nearly as large, undermined and tilting like the campanile of Pisa; the Organ, a cluster of stalactites in the chamber known as the Cathedral; besides a vast bed of disintegrated carbonates left by the whirling flood in its retreat through the great space called the Elfin Ramble.

The stalactitic display exceeds that of any other cavern known. The old material is yellow, brown or red; and its wavy surface often shows layers like the gnarled grain of costly woods. The new stalactites growing from the old, and made of hard carbonates that had already once been used, are usually white as snow, though often pink, blue or amber-coloured. The Empress Column is a stalagmite 35 ft. high, rose-coloured, and elaborately draped. The double column, named from Professors Henry and Baird, is made of two fluted pillars side by side, the one 25 and the other 60 ft. high, a mass of snowy alabaster. Several stalactites in the Giant Hall exceed 50 ft. in length. The smaller pendants are innumerable; in the canopy above the Imperial Spring it is estimated that 40,000 are visible at once.

The "cascades" are wonderful formations like foaming cataracts caught in mid-air and transformed into milk-white or amber alabaster. The Chalcedony Cascade displays a variety of colours. Brand's Cascade, the finest of all, is 40 ft. high and 30 ft. wide, and is unsullied and wax-like white, each ripple and braided rill seeming to have been polished.

The Swords of the Titans are monstrous blades, eight in number, 50 ft. long, 3 to 8 ft. wide, hollow, 1 to 2 ft. thick, but drawn down to an extremely thin edge, and filling the cavern with tones like tolling bells when struck heavily by the hand. Their origin and also that of certain so-called scarfs and blankets is from carbonates deposited by water trickling down a sloping and corrugated surface. Sixteen of these alabaster scarfs hang side by side in Hovey's Balcony, three white and fine as crape shawls, thirteen striated like agate with every shade of brown, and all perfectly translucent. Down the edge of each a tiny rill glistens like silver, and this is the ever-plying shuttle that weaves the fairy fabric.
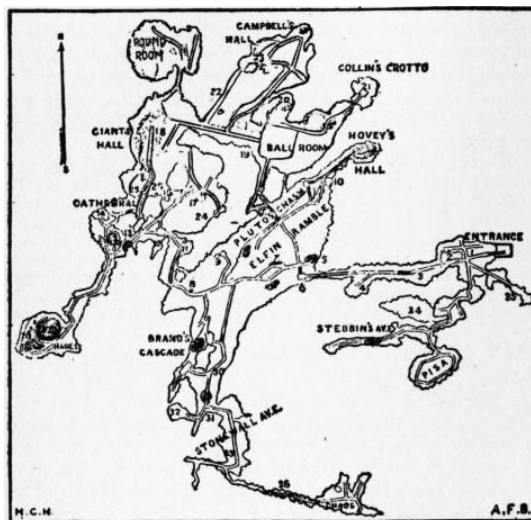
Luray Cavern. Scale 500 ft. to the inch.

1. The Vestibule.	19. Chalcedony Cascade.
2. Washington's Pillar.	20. Coral Spring.
3. Flower Garden.	21. The Dragon.
4. Amphitheatre.	22. Bootjack Alley.
5. Natural Bridge.	23. Scaly Column.
6. Fish Market.	24. Lost Blanket.
7. Crystal Spring.	25. Helen's Scarf.
8. Proserpine's Pillar.	26. Chapman's Lake.
9. The Spectral Column.	27. Broaddus Lake.
10. Hovey's Balcony.	28. Castles on the Rhine.
11. Oberon's Grot.	29. Imperial Spring.
12. Titania's Veil.	30. The Skeleton.
13. Saracen's Tent.	31. The Twin Lakes.

Streams and true springs are absent, but there are hundreds of basins, varying from 1 to 50 ft. in diameter, and from 6 in. to 15 ft. in depth. The water in them is exquisitely pure, except as it is impregnated by the carbonate of lime, which often forms concretions, called according to their size, pearls, eggs and snowballs. A large one is known as the cannon ball. On fracture these spherical growths are found to be radiated in structure.

Calcite crystals, drusy, feathery or fern-like, line the sides and bottom of every water-filled cavity, and indeed constitute the substance of which they are made. Variations of level at different periods are marked by rings, ridges and ruffled margins. These are strongly marked about Broaddus Lake and the curved ramparts of the Castles on the Rhine. Here also are polished stalagmites, a rich buff slashed with white, and others, like huge mushrooms, with a velvety coat of red, purple or olive-tinted crystals. In some of the smaller basins it sometimes happens that, when the excess of carbonate acid escapes rapidly, there is formed, besides the crystal bed below, a film above, shot like a sheet of ice across the surface. One pool 12 ft. wide is thus covered so as to show but a third of its surface. The quantity of water in the cavern varies greatly at different seasons. Hence some stalactites have their tips under water long enough to allow tassels of crystals to grow on them, which, in a drier season, are again coated over with stalactitic matter; and thus singular distortions are occasioned. Contiguous stalactites are often inwrapped thus till they assume an almost globular form, through which by making a section the primary tubes appear. Twig-like projections, to which the term *helictite* has been applied by the present writer, are met with in certain portions of the cave, and are interesting by their strange and uncouth contortions. Their presence is due to lateral outgrowths of crystals shooting from the side of a growing stalactite, or to deflections caused by currents of air, or to the existence of a diminutive fungus peculiar to the locality and designated from its habitat *Mucor stalactitis*. The Toy-Shop is an amusing collection of these freaks of nature.

The dimensions of the various chambers included in Luray Cavern cannot easily be stated, on account of the great irregularity of their outlines. Their size may be seen from the diagram. But it should be understood that there are several tiers of galleries, and the vertical depth from the highest to the lowest is 260 ft. The large tract of land owned by the Luray Caverns Corporations covers all possible modes of entrance.

The waters of this cavern appear to be entirely destitute of life; and the existing fauna comprises only a few bats, rats, mice, spiders, flies and small centipedes. When the cave was first entered, the floor was covered with thousands of tracks of raccoons, wolves and bears—most of them probably made long ago, as impressions made in the tenacious clay that composes most of the cavern floor would remain unchanged for centuries. Layers of excrementitious matter appear, and also many small bones, along with a few large ones, all of existing species. The traces of human occupation are pieces of charcoal, flints, moccasin tracks and a single skeleton embedded in stalagmite in one of the chasms, estimated, from the present rate of stalagmitic growth, to have lain where found for not more than five hundred years.

The temperature is uniformly 54° Fahr., coinciding with that of Mammoth Cave, Kentucky. The air is very pure, and the avenues are not uncomfortably damp. The portions open to the public are now lighted by electric lamps. The registered number of visitors in 1906 was 18,000. A unique and highly successful experiment merits mention, by which the cool pure air of Luray Cavern is forced through all the rooms of the Limair sanatorium erected in 1901, by Mr T. C. Northcott, president of the Luray Caverns Corporation, on the summit of Cave Hill. Tests made for several successive years by means of culture media and sterile plates, demonstrated the perfect bacteriologic purity of the air, first drawn into the caverns through myriads of rocky crevices that served as natural filters, then further cleansed by floating over the transparent springs and pools, and finally supplied to the inmates of the sanatorium.

For a full description see an article by Dr G. L. Hunner, of Johns Hopkins University, in the *Popular Science Monthly* for April 1904.

(H. C. H.)

LURCH, a word with several meanings, the etymological relationships of which are obscure. The chief uses which survive are—(1) in the phrase "to leave in the lurch," to abandon some one, to leave him in a position of great difficulty; (2) a stagger, sudden leaning over, originally a nautical expression of a sudden "list" made by a ship; (3) the name of a dog, the "lurcher" used by poachers, properly a cross between a sheepdog or collie and a greyhound. In (1) "lurch" is the name of a game, of which nothing is known (it is supposed to have resembled backgammon), and also of a state of the score in various games, in which the loser either scores nothing or is beaten by very heavy points. In this sense the term is practically obsolete. It was taken from Fr. *lourche*, connected with many German forms, now only dialectical such as *Lortsch, Lurtsch, Lorz, Lurz*, all for some kind of game, but also meaning left-hand, wrong, which the *New English Dictionary* thinks is the origin of the word, it being first used as a term in gambling. In (2) "lurch" occurs first in the form "lee-lurches," sudden rolls a ship takes to leeward in a heavy sea, which may be a corruption of "lee-latch," defined in Smyth's *Sailor's Word Book* as dropping to leeward of the course. In (3) "lurch" is probably another form of "lurk," to lie in wait for, watch stealthily, hence to pilfer, steal.

LURGAN, a market-town of Co. Armagh, Ireland, well situated on high ground overlooking Lough Neagh a few miles to the north; 20 m. S.W. of Belfast by the Great Northern railway. Pop. (1901) 11,782. The parish church of Shankill (this parish including Lurgan) has a finely proportioned tower. Contiguous to the town is Lurgan Castle, a fine modern Elizabethan structure, the seat of Lord Lurgan. Lurgan is famed for its diapers, and the linen trade is of the first importance, but there are also tobacco factories and coach factories. It is governed by an urban district council. Lurgan was founded by William Brownlow, to whom a grant of the town was made by James I. In 1619 it consisted of forty-two houses, all inhabited by English settlers. It was burned by the insurgents in 1641, and again by the troops of James II. After its restoration in 1690 a patent for a market and fair was obtained.

LURIA, ISAAC BEN SOLOMON (1534-1572), Jewish mystic, was born in Jerusalem. From his German descent he was surnamed *Ashkenazi* (the German), and we find that epithet applied to him in a recently discovered document of date 1559. In that year Isaac Luria was living in Cairo and trading as a spice merchant with his headquarters in Alexandria. He had come to Egypt as a boy after his father's death, and was brought up by his wealthy maternal uncle Mordecai Francis. The boy, according to the legends which soon grew round his life, was a "wonder-child," and early displayed marvellous capacity. He married as a lad of fifteen, his bride being his cousin. For some time he continued his studies; later on when engaged in business there was no break in this respect. Two years after his marriage he became possessed of a copy of the Kabbalistic "Bible"—the *Zohar* of Moses de Leon (*q.v.*). In order to meditate on the mystic lore he withdrew to a hut by the Nile, returning home for the Sabbath. Luria afterwards gave to the Sabbath a mystic beauty such as it had never before possessed. Thus passed several years; he was still young, but his new mode of life produced its effects on a man of his imagination and saintly piety. He became a visionary. Elijah, who had been his godfather in his babyhood, now paid him frequent visits, initiating him into sublime truths. By night Luria's soul ascended to heaven and conversed with celestial teachers who had once been men of renown on earth.

In 1566 at earliest Luria removed to Safed. This Palestinian town was in the 16th century the headquarters of the Kabbala. A large circle of Talmudists lived there; at their head Joseph Qaro, then over eighty years of age. Qaro's son married Luria's daughter, and Qaro rejoiced at the connexion, for he had a high opinion of Luria's learning. Mysticism is often the expression of a revolt against authority, but in Luria's case mysticism was not divorced from respect for tradition. After his arrival at Safed Luria lived at most six years, and died in 1572. But these years were momentous for Judaism. He established an extraordinary reputation; his personality had a winning attractiveness; and he founded a school of mystics who powerfully affected Judaism after the master's death. The Holy Spirit, we are told, rested on him, drawn to him by the usual means of the mystics—self-flogging, ablutions and penance. He had wonderful gifts of insight, and spoke to the birds. Miracles abounded. More soberly true is the statement that he went on long walks with enthusiastic disciples, whom he taught without books. Luria himself wrote no mystical works; what we know of his doctrines and habits comes chiefly from his Boswell, Hayim Vital.

There was little of originality in Luria's doctrines; the theory of emanations, the double belief in the process of the Divine Essence as it were self-concentrating (*Zimzum*) and on the other hand as expanding throughout creation; the philosophical "sceptism" which regards God as unknowable but capable of direct intuition by feeling—these were all common elements of mystical thought. Luria was an inspirer of saintly conduct rather than an innovator in theories. Not beliefs, he said, but believers need rebirth. As he rose in the morning he prayed: "O God, grant that throughout this coming day I may be able to love my neighbour as myself." Never would he retire to rest until he had fulfilled his definite engagements to those who had served him. Luria and his school altered the very look of the Jewish Prayer Book. Prayer was his main prop. By it men became controllers of the earthly world and reached God. He or his school introduced innumerable ritual customs, some of them beautiful enough. On Sabbath he dressed in white, wearing a four-fold garment to typify the four letters of the Divine Name. The Sabbath was to him an actual cult. It was a day of the most holy joy. Resuming the Talmudic idea of an Over-soul present in every Israelite on the Sabbath, Luria and his school made play with this Over-soul, fed it with spiritual and material dainties and evolved an intricate maze of mystic ceremonial, still observed by countless masses. Another strong point with Luria was penance. The confessions of sin which he introduced descend to minute ritual details and rise to the most exalted aspects of social and spiritual life. He deprecated general confessions and demanded that the individual must lay bare the recesses of his heart. Hayim Vital reports that on his death-bed Luria said to his disciples: "Be at peace with one another: bear with one another: and so be worthy of my coming again to reveal to you what no mortal ear has heard before." His mystic ceremonial became a guide to religious practice, and though with this there came in much meaningless and even bewildering formalism, yet the example of his life and character was a lasting inspiration to saintliness.

See S. Schecher, *Studies in Judaism*, second series, pp. 251 seq.; *Jewish Encyclopedia*, viii. 210; E. Worman in *Revue des Études Juives*, lvii. 281.

(I. A.)

LURISTAN, in the wider sense (as its name implies) the "Land of the Lurs," namely that part of western Persia which is bounded by Turkish territory on the west and extends for about 400 m. N.W.-S.E. from Kermanshah to Fars with a breadth of 100 to 140 m. It is chiefly mountainous, being intersected by numerous ranges running N.W.-S.E. The central range has many summits which are almost within the line of perpetual snow, rising to 13,000 ft. and more, and in it are the sources of Persia's most important rivers, as the Zayendeh-rud, Jarahi, Karun, Diz, Abi, Kerkheh. Between the higher ranges are many fertile plains and low hilly districts, well watered but comparatively little cultivated in consequence of intertribal feuds. The Lurs are thought to be aboriginal Persians with a mixture of Semitic blood. Their language is a dialect of Persian and does not differ materially from Kurdish. Outwardly they are Mussulmans of the Shiah branch, but most of them show little veneration for either Prophet or Koran, and the religion of some of them seems to be a mixture of Ali-Illahism involving a belief in successive incarnations combined with mysterious, ancient, heathen rites. The northern part of Luristan, which was formerly known as Lurikuchik (little Luristan), is inhabited by the Feili Lurs and these are divided into the Pishkuh (cis-montane) Lurs in the east and Pushtkuh (ultra-montane) Lurs in the west adjoining Turkish territory. They number about 350,000. Little Luristan was governed by a race of independent princes of the Khurshidi dynasty, and called atabegs, from 1155 to the beginning of the 17th century when the last atabeg, Shah Verdi Khan, was removed by Shah Abbas I. and the government of the province given to Husain Khan, the chief of a rival tribe, with the title of vali in exchange for that of atabeg. The descendants of Husain Khan have retained the title but now govern only the Pushtkuh Lurs, to whom only the denomination of Feili is at present applied. The southern part of Luristan was formerly known as Lur i Buzurg (great Luristan) and is composed of the Bakhtiari division of the Arabistan province and the districts of the Mamasennis and Kuhgilus which belong to Fars. The Bakhtiaris number about 200,000, the others 40,000. Great Luristan was an independent state under the Fazlevieh atabegs from 1160 until 1424, and its capital was Idaj, now represented by mounds and ruins at Malamir 60 m. S.E. of Shushter.

LUSATIA (Ger. *Lausitz*), a name applied to two neighbouring districts in Germany, Upper and Lower Lusatia, belonging now mainly to Prussia, but partly to Saxony. The name is taken from the Lusitzi, a Slav tribe, who inhabited Lower Lusatia in the 9th and 10th centuries.

In the earliest times Lower Lusatia reached from the Black Elster to the Spree; its inhabitants, the Lusitzi, were conquered by the German king, Henry the Fowler, and by the margrave Gero in the 10th century. Their land was formed into a separate

march, which for about three centuries was sometimes attached to, and sometimes independent of, the margraviate of Meissen, its rulers being occasionally called margraves of Lusatia. In 1303 it was purchased by the margrave of Brandenburg, and after other changes it fell in 1368 into the hands of the king of Bohemia, the emperor Charles IV., who already possessed Upper Lusatia. During the Hussite wars its people remained loyal to the Roman Catholic Church. In 1469 they recognized Matthias Corvinus, king of Hungary, as their sovereign, but in 1490 they came again under the rule of the Bohemian king.

The district now known as Upper Lusatia was occupied by a Slav tribe, the Milzeni, who like the Lusitzi, were subdued by Henry the Fowler early in the 10th century. For about three centuries it was called Baudissin (Bautzen), from the name of its principal fortress. In the 11th and 12th centuries it was connected at different periods with Meissen, Poland and Bohemia. Towards 1160 the emperor Frederick I. granted it to Ladislas, king of Bohemia, and under this ruler and his immediate successors it was largely colonized by German immigrants. In 1253 it passed to the margrave of Brandenburg, and about the same time it was divided into an eastern and a western part, Baudissin proper and Görlitz. In 1319 the former was restored to Bohemia, which also recovered Görlitz in 1329. During the 14th century the nobles and the townsmen began to take part in the government, and about this time Upper Lusatia was known as the district of the six towns (*Sechsstädtelandes*), these being Bautzen, Görlitz, Zittau, Löbau, Lauban and Kamenz. From 1377 to 1396 Görlitz was a separate duchy ruled by John, a son of the emperor Charles IV., and, like Lower Lusatia, Upper Lusatia owned the authority of Matthias Corvinus from 1469 to 1490, both districts passing a little later with the kingdoms of Hungary and Bohemia to the German king, Ferdinand I. The "six towns" were severely punished for their share in the war of the league of Schmalkalden, and about this time the reformed teaching made very rapid progress in Lusatia, the majority of the inhabitants becoming Protestants. The name of Lusatia hitherto confined to Lower Lusatia, was soon applied to both districts, the adjectives Upper and Lower being used to distinguish them. In 1620, early in the Thirty Years' War, the two Lusatias were conquered by the elector of Saxony, John George I., who was allowed to keep them as the price of his assistance to the emperor Ferdinand I. In 1635 by the treaty of Prague they were definitely transferred from Bohemia to Saxony, although the emperor as king of Bohemia retained a certain supremacy for the purpose of guarding the rights and privileges of the Roman Catholics. They suffered much during the wars of the 18th century. By the peace of Vienna (1815) the whole of Lower Lusatia and part of Upper Lusatia were transferred from Saxony to Prussia.

The area of the part of Upper Lusatia retained by Saxony was slightly increased in 1845; it is now about 960 sq. m. In 1900 Lower Lusatia contained 461,973 inhabitants, of whom 34,837 were Wends; the portion of Upper Lusatia belonging to Prussia had 305,080 inhabitants, of whom 24,361 were Wends. There were 405,173 inhabitants, including 28,234 Wends, in Saxon Upper Lusatia. Laws relating to this district, after passing through the Saxon parliament must be submitted to the Lusatian diet at Bautzen. The chief towns of Upper Lusatia are Bautzen, Zittau, Löbau, Kamenz, Görlitz, Rothenburg, Hoyerswerda and Lauban; in Lower Lusatia they are Guben, Kottbus, Forst, Lubben and Spremberg. The principal rivers are the Spree with its tributaries, the Black Elster and the Neisse. Upper Lusatia is generally mountainous and picturesque, Lower Lusatia is flat and sandy. The chief industries are linen weaving, cloth making and coal mining.

For the history of Lusatia see the collections, *Scriptores rerum Lusaticarum antiqui et recentiores*, edited by C. G. Hoffmann (4 vols., Leipzig and Bautzen, 1719); and *Scriptores rerum Lusaticarum* (4 vols., Görlitz, 1839-1870). See also W. Lippert, *Wettiner und Wittelsbacher sowie die Niederlausitz im 14 Jahrhundert* (Dresden, 1894); T. Scheltz, *Gesamtgeschichte der Ober- und Niederlausitz*, Band i. (Halle, 1847), Band ii. (Görlitz, 1882); J. G. Worbs, *Urkundenbuch zur Geschichte des Markgraftums Niederlausitz* (Lübben 1897); and J. A. E. Kohler, *Die Geschichte der Oberlausitz* (Görlitz, 1867).

LUSHAI HILLS, a mountainous district of Eastern Bengal and Assam, south of Cachar, on the border between Assam and Burma. Area, 7227 sq. m.; pop. (1901) 82,434. The hills are for the most part covered with dense bamboo jungle and rank undergrowth; but in the eastern portion, owing probably to a smaller rainfall, open grass-covered slopes are found, with groves of oak and pine interspersed with rhododendrons. These hills are inhabited by the Lushais and cognate tribes, but the population is extremely scanty. From the earliest known times the original inhabitants were Kukis, and the Lushais were not heard of until 1840, when they invaded the district from the north. Their first attack upon British territory took place in November 1849, and after that date they proved one of the most troublesome tribes on the north-east frontier of India; but operations in 1890 resulted in the complete pacification of the northern Lushai villages, and in 1892 the eastern Lushais were reduced to order. The management of the South Lushai hill country was transferred from Bengal to Assam in 1898. To obtain more efficient control over the country the district has been divided into eighteen circles, each in charge of an interpreter, through whom all orders are transmitted to the chiefs. The Welsh Presbyterian Mission began work at Aijal in 1897, and the people have shown unexpected readiness to accept education. According to the census of 1901 the total number of Lushais in Assam was 63,452.

See Colonel T. H. Lewin, *Wild Races of N.E. India* (1870); *Lushai Hills Gazetteer* (Calcutta, 1906).

LUSIGNAN, the name of a family which sprang from Poitou[1] and distinguished itself by its connexion with the kingdom of Jerusalem, and still more by its long tenure of the kingdom of Cyprus (1192-1475). A Hugh de Lusignan appears in the ill-fated crusade of 1100-1101; another Hugh, the Brown, came as a pilgrim to the Holy Land in 1164, and was taken prisoner by Nureddin. In the last quarter of the 12th century the two brothers Amalric and Guy, sons of Hugh the Brown, played a considerable part in the history of the Latin East. About 1180 Amalric was constable of the kingdom of Jerusalem; and he is said to have brought his handsome brother Guy to the notice of Sibylla, the widowed heiress of the kingdom. Guy and Sibylla were married in 1180; and Guy thus became heir presumptive of the kingdom, if the young Baldwin V., Sibylla's son by her first marriage to William of Montferrat, should die without issue. He acted as regent in 1183, but he showed some incapacity in the struggle with Saladin, and was deprived of all right of succession. In 1186, however, on the death of Baldwin V., he succeeded in obtaining the crown, in spite of the opposition of Raymund of Tripoli. Next year he suffered a crushing defeat at the battle of Hittin, and was taken prisoner by Saladin. Released on parole in 1188, he at once broke his parole, and began the siege of Acre. Difficulties, however, had arisen with Conrad of Montferrat; and when Guy lost his wife Sibylla in 1190, and Conrad married Isabella, her sister, now heiress of the kingdom, these difficulties culminated in Conrad's laying claim to the crown. Guy found his cause espoused in 1191 by the overlord of his house, Richard I. of England; but Conrad's superior ability, and the support of the French crusaders, ultimately carried the day, and in 1192 Richard himself abandoned the pretensions of Guy, and recognized Conrad as king. Though Conrad was almost immediately assassinated, the crown did not return to Guy, but went to Henry of Champagne, who married the widowed Isabella. Guy found some satisfaction for his loss in buying from the Templars the island of Cyprus, and there he reigned for the last two years of his life (1192-1194). He is judged harshly by contemporary writers, as *simplex* and *insufficiens*; but Dodu (in his *Histoire des institutions du royaume de Jérusalem*)

suggests that Guy was depreciated because the kingdom had been lost in his reign, in much the same way as Godfrey of Bouillon was exalted because Jerusalem had just been won at his accession. Guy was a brave if not a particularly able knight; and his instant attack on Acre after his release by Saladin shows that he had the *sentiment de ses devoirs*.

He was succeeded in Cyprus by his brother Amalric, who acquired the title of king of Cyprus from the emperor Henry VI., and became king of Jerusalem in 1197 by his marriage to Isabella, after the death of Henry of Champagne (see AMALRIC II.). Amalric was the founder of a dynasty of kings of Cyprus, which lasted till 1475, while after 1269 his descendants regularly enjoyed the title of kings of Jerusalem. The scions of the house of Lusignan proved themselves the most sincere of crusaders. They possessed in Cyprus a kingdom, in which they had vindicated for themselves a stronger hold over their feudatories than the kings of Jerusalem had ever enjoyed, and in which trading centres like Famagusta flourished vigorously; and they used the resources of their kingdom, in conjunction with the Hospitallers of Rhodes, to check the progress of the Mahommedans.

Among the most famous members of the house who ruled in Cyprus three may be mentioned. The first is Hugh III. (the Great), who was king from 1267 to 1285: to him, apparently, St Thomas dedicated his *De Regimine Principum*; and it is in his reign that the kingdom of Jerusalem becomes permanently connected with that of Cyprus. The second is Hugh IV. (1324-1359), to whom Boccaccio dedicated one of his works, and who set on foot an alliance with the pope, Venice and the Hospitallers, which resulted in the capture of Smyrna (1344). The last is Peter I., Hugh's second son and successor, who reigned from 1359 to 1369, when he was assassinated as the result of a conspiracy of the barons. Peter and his chancellor de Mezières represent the last flicker of the crusading spirit (see CRUSADES).

Before the extinction of the line in 1475, it had succeeded in putting a branch on the throne of Armenia. Five short-lived kings of the house ruled in Armenia after 1342, "Latin exiles," as Stubbs says, "in the midst of several strange populations all alike hostile." The kingdom of Armenia fell before the sultan of Egypt, who took prisoner its last king Leo V. in 1375, though the kings of Cyprus afterwards continued to bear the title; the kingdom of Cyprus itself continued to exist under the house of Lusignan for 100 years longer. The mother of the last king, James III. (who died when he was two years old), was a Venetian lady, Catarina Cornaro. She had been made a daughter of the republic at the time of her marriage to the king of Cyprus; and on the death of her child the republic first acted as guardian for its daughter, and then, in 1489, obtained from her the cession of the island.

See J. M. J. L. de Mas-Latrie, *Histoire de l'île de Chypre sous les princes de la maison de Lusignan* (Paris, 1852-1853); W. Stubbs, *Lectures on Medieval and Modern History* (3rd ed., Oxford, 1900).

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1   A branch of the line continued in Poitou during the 13th century, and ruled in LaMarche till 1303. Hugh de la Marche, whose betrothed wife, Isabella of Angoulême, King John of England seized (thus bringing upon himself the loss of the greater part of his French possessions), was a nephew of Guy of Lusignan. He ultimately married Isabella, after the death of John, and had by her a number of sons, half-brothers of Henry III. of England, who came over to England, amongst other foreign favourites, during his reign.

LUSSIN, a small island in the Adriatic Sea, in the Gulf of Quarnero, forming together with the adjacent islands of Veglia and Cherso an administrative district in the Austrian crownland of Istria. Pop. (1900) 11,615. The island is 24 m. in length, is of an average breadth of 1.64 m., being little more than 300 yds. wide at its narrowest point, and has an area of 29 sq. m. The chief town and principal harbour is Lussinpiccolo (pop. 7207), which is the most important trading centre in the Quarnero group. The town has become a favourite winter resort, its climate resembling that of Nice. To the south-east of it is Lussingrande (pop. 2349), with an old Venetian palace and a shipbuilding wharf. The island was first peopled at the end of the 14th century. Its inhabitants are renowned seamen.

LUSTRATION, a term that includes all the methods of purification and expiation among the Greeks and Romans. Among the Greeks there are two ideas clearly distinguishable—that human nature must purify itself (κάθαρσις) from guilt before it is fit to enter into communion with God or even to associate with men, and that guilt must be expiated voluntarily (ἰλασμός) by certain processes which God has revealed, in order to avoid the punishment that must otherwise overtake it. It is not possible to make such a distinction among the Latin terms *lustratio*, *piacula*, *piamenta*, *caerimoniae*, and even among the Greeks it is not consistently observed. Guilt and impurity arose in various ways; among the Greeks, besides the general idea that man is always in need of purification, the species of guilt most insisted on by religion are incurred by murder, by touching a dead body, by sexual intercourse, and by seeing a prodigy or sign of the divine will. The last three spring from the idea that man had been without preparation and improperly brought into communication with God, and was therefore guilty. The first, which involves a really moral idea of guilt, is far more important than the others in Hellenic religion. Among the Romans we hear more of the last species of impurity; in general the idea takes the form that after some great disaster the people become convinced that guilt has been incurred and must be expiated. The methods of purification consist in ceremonies performed with water, fire, air or earth, or with a branch of a sacred tree, especially of the laurel, and also in sacrifice and other ceremonial. Before entering a temple the worshipper dipped his hand in the vase of holy water (περιρρανήριον, *aqua lustralis*) which stood at the door; before a sacrifice bathing was common; salt-water was more efficacious than fresh, and the celebrants of the Eleusinian mysteries bathed in the sea (ἅλαδε, μύσται); the water was more efficacious if a firebrand from the altar were plunged in it. The torch, fire and sulphur (τὸ θεῖον) were also powerful purifying agents. Purification by air was most frequent in the Dionysiac mysteries; puppets suspended and swinging in the air (*oscilla*) formed one way of using the lustrative power of the air. Rubbing with sand and salt was another method. The sacrifice chiefly used for purification by the Greeks was a pig; among the Romans it was always, except in the Lupercalia, a pig, a sheep and a bull (*suovetaurilia*). In Athens a purificatory sacrifice and prayer was held before every meeting of the ecclesia; the Maimacteria,[1] in honour of Zeus Maimactes (the god of wrath), was an annual festival of purification, and at the Thargelia two men (or a woman and a man) were sacrificed on the seashore, their bodies burned and the ashes thrown into the sea, to avert the wrath of Apollo. On extraordinary occasions lustrations were performed for a whole city. So Athens was purified by Epimenides after the Cylonian massacre, and Delos in the Peloponnesian War (426 B.C.) to stop the plague and appease the wrath of Apollo. In Rome, besides such annual ceremonies as the *Ambarvalia*, *Lupercalia*, *Cerialia*, *Paganalia*, &c., there was a lustration of the fleet before it sailed, and of the army before it marched. Part of the ceremonial always consisted in leading or carrying the victims round the impure persons or things. After any disaster the *lustratio classium* or *exercitus* was often again performed, so as to make certain that the gods got all their due. The *Amburbium*, a solemn procession of the people round the boundaries of Rome, was a similar ceremonial performed for the whole city on occasions of great danger or calamity; the *Ambilustrium* (so called from the sacrificial victims being carried round the people assembled on the Campus Martius) was the purificatory ceremony which

took place after the regular quinquennial census (*lustrum*) of the Roman people.

See C. F. Hermann, *Griechische Altertümer*, ii.; G. F. Schömann, *ib.* ii.; P. Stengel, *Die griechischen Kultusaltertümer* (1898); Marquardt, *Römische Staatsverwaltung*, iii. p. 200 (1885); P. E. von Lasaulx, *Die Sühnopfer der Griechen und Römer* (1841); J. Donaldson, "On the Expiatory and Substitutionary Sacrifices of the Greeks," in *Transactions of the Royal Society of Edinburgh*, xxvii., 1876; and the articles by A. Bouché-Leclercq in Daremberg and Saglio, *Dictionnaire des antiquités*, and by W. Warde Fowler in Smith's *Dictionary of Greek and Roman Antiquities* (3rd ed., 1891).

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[1] Maimacteria does not actually occur in ancient authorities as the name of a festival.
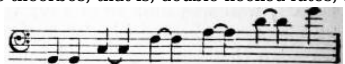
LUTE (Arabic *al'ūd*, "the wood"; Fr. *luth*; Ital. *liuto*; Span. *laud*; Ger. *Laute*; Dut. *luit*), an ancient stringed musical instrument, derived in form as well as name from the Arabs. The complete family consisted of the pandura, tanbur or mandoline as treble, the lute as alto or tenor, the barbiton or theorbo as bass, and the chitarrone as double bass. The Arab instrument, with convex sound-body, pointing to the resonance board or membrane having been originally placed upon a gourd, was strung with silk and played with a plectrum of shell or quill. It was adopted by the Arabs from Persia. Instruments with vaulted backs are all undoubtedly of Eastern origin; the distinct type, resembling the longitudinal section of a pear, is more specially traced in ancient India, Persia and the countries influenced by their civilization. This type of instrument includes many families which became known during the middle ages of western Europe, being introduced into southern Europe and Spain by the Moors, into southern Russia by the Persians of the Sassanian period, into Greece from the confines of the Byzantine Empire. As long as the strings were plucked by fingers or plectrum the large pear-shaped instrument may be identified as the archetype of the lute. When the bow, obtained from Persia, was applied to the instrument by the Arabs, a fresh family was formed, which was afterwards known in Europe as rebab and later rebec. The largest member of the ancient lute family—the bass lute or theorbo—has been identified with the barbiton.

Until recently the existence of these ancient stringed instruments was presumed on the evidence of the early medieval European instruments and of the meagre writings extant, such as those of Fārābī.[1] But a chain of plastic evidence can now be offered, beginning with the Greek post-Mycenaean age (*c.* 1000 B.C.). A statuette of a female musician playing upon a large lute with only an embryonic neck, on which nevertheless the left hand is stopping strings, was unearthed in Egypt in a tomb of the XXth Dynasty in the cemetery of Goshen by the members of the British School of Archaeology in Egypt,[2] under the direction of Professor Flinders Petrie, to whose courtesy we owe the photograph (fig. 1) here reproduced. It is difficult to form a conclusive opinion as to the number of strings the artist intended to represent, owing to the decorative figures following the direction of the strings, but, judging from the position of the right hand plucking a string, there may have been seven. Among a number of terra-cotta figures of musicians, brought to light during the excavations in a Tell at Suza and dating from the 8th century B.C.,[3] although there is no instrument that might be identified with the alto lute, the treble lute or tanbur is represented with a long, curved neck and a head bent back to increase the tension, and there is also an instrument having a smaller and more elongated body than the lute. On one of the friezes from Afghanistan presented to the British Museum by Major-General Cunningham, which formed the risers of steps leading to the tope at Jumal Garhi, dating from the 1st century A.D. are represented scenes of music and dancing. Here the archetype of the lute appears several times; it had four strings, and the head was bent back at right angles to the neck. In the 6th century A.D. illustrations of this early lute are no longer rare, more especially on Persian silver-work of the Sassanian period[4] and in the paintings of the Buddhist cave-temples of Ajanta.[5] Several representations of the barbiton are extant from the classical Roman period.

The modern Egyptian 'ūd is the direct descendant of the Arabic lute, and, according to Lane, is strung with seven pairs of catgut strings played by a plectrum. A specimen in the Victoria and Albert Museum, given by the khedive, has four pairs only, which appears to have been the old stringing of the instrument. When frets (cross-lines dividing the neck or finger-board to show the fingering) are employed they are of catgut disposed according to the Arabic scale of seventeen intervals in the octave, consisting of twelve limmas, an interval rather less than our equal semitone, and five commas, which are very small but quite recognizable differences of pitch.

Fig. 1.—Post-Mycenaean terra-cotta figure, with ancient lute (1000 B.C.) from the cemetery at Goshen.

The lute family is separated from the guitars, also of Eastern origin, by the formation of the sound body, which is in all lutes pear-shaped, without the sides or ribs necessary to the structure of the flat-backed guitar and cither. Observing this distinction, we include with the lute the little Neapolitan mandoline of 2 ft. long and the large double-necked Roman chitarrone, not infrequently 6 ft. long. Mandolines are partly strung with wire, and are played with a plectrum, indispensable for metal or short strings. Perhaps the earliest lutes were so played, but the large lutes and theorbos strung with catgut have been invariably touched by the fingers only, the length permitting this more sympathetic means of producing the tone.

Praetorius,[6] writing when the lute was in universal favour, mentions seven varieties distinguished by size and tuning. The smallest would be larger than a mandoline, and the melody string, the "chanterelle," often a single string, lower in pitch. Praetorius calls this an octave lute, with the chanterelle C or D. The two discant lutes have respectively B and A, the alto G, the tenor E, the bass D, and the great octave bass G, an octave below the alto lute which may be taken as the model lute cultivated by the amateurs of the time. The bass lutes were theorbos, that is, double-necked lutes, as described below. The accordance of an alto lute was [musical notation] founded upon that of the original eight-stringed European lute, to which the highest and lowest notes had, in course of time, been added. A later addition was the [musical notation] also on the finger-board, and bass strings, double or single, known as diapasons, which, descending to the deep C of the violoncello, were not stopped with the fingers. The diapasons were tuned as the key of the piece of music required. Fig. 2 represents an Italian instrument made by one of the most celebrated lute makers, Venere of Padua, in 1600; it is 3 ft. 6 in. high, and has six pairs of unisons and eight single diapasons. The finger-board, divided into approximately equal half tones by the frets, as a rule eight in number, was often further divided on the higher notes, for ten, eleven, or, as in the woodcut, even twelve, semitones. The head, bearing the tuning pegs, was placed at an obtuse or a right angle to the neck, to increase the bearing of the strings upon the nut, and be convenient for sudden requirements of tuning during performance, the trouble of keeping a lute in tune being proverbial.

The lute was in general use during the 16th and 17th centuries. In the 18th it declined; still J. S. Bach wrote a "partita" for it. The latest date we have met with of an engraved publication for the lute is 1760.
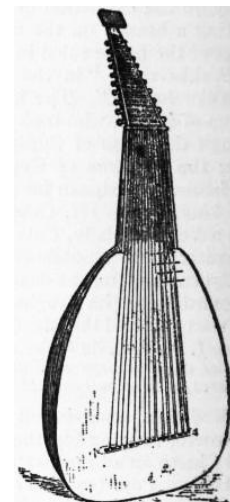

Fig. 2.—Lute, by Venere of Padua.

The large double-necked lute, with two sets of tuning pegs, the lower for the finger-board, the higher for the diapason strings, was known as the theorbo; also, and especially in England, as the arch-lute; and, in a special form, the neck being then very long, as the chitarrone. Theorbo and chitarrone appear together at the close of the 16th century, and their introduction was synchronous with the rise of accompanied monody in music, that is, of the oratorio and the opera. Peri, Caccini and Monteverde used theorbos to accompany their newly-devised recitative, the invention of which in Florence, from the impulse of the Renaissance, is well known. The height of a theorbo varied from 3 ft. 6 in. to 5 ft., the Paduan being always the largest, excepting the Roman 6-ft. long chitarrone. These large lutes had very deep notes, and doubtless great liberties were allowed in tuning, but the strings on the finger-board followed the lute accordance already given, or another quoted by Baron (*Untersuchung des Instruments der Lauten*, Nuremberg, 1727) as the old theorbo or "violway" (see Mace, *Musick's Monument*, London, 1676):—

We find again both these accordances varied and transposed a tone higher, perhaps with thinner strings, or to accommodate local differences of pitch. Praetorius recommends the chanterelles of theorbos being tuned an octave lower on account of the great strain. By such a change, another authority, the Englishman Thomas Mace, says, the life and spruceness of airy lessons were quite lost. The theorbo or arch-lute had at last to give way to the violoncello and double bass, which are still used to accompany the "recitativo secco" in oratorios and operas. Handel wrote a part for a theorbo in *Esther* (1720); after that date it appears no more in orchestral scores, but remained in private use until nearly the end of the century.

The lute and the organ share the distinction of being the first instruments for which the oldest instrumental compositions we possess were written. For the lute, however, they were not written in our present notation, but in tablature, "lyrawise," a system by which as many lines were drawn horizontally as there were pairs of strings on the finger-board, the frets, distributed at intervals of a semitone, being distinguished by the letters of the alphabet, repeated from A, representing the open string, for each line. This was the English and French manner; the Italian was by numbers instead of letters. The signs of time were placed over the stave, and were not repeated unless the mensural values changed.

(A. J. H.; K. S.)

1   See Latin translation by J. G. L. Kosegarten, *Alii Ispahenensis Liber ... Arabice editur adjectaque translatione adnotationibusque illustratus* (Greifswald, 1840).

2   See *Hyksos and Israelite Cities*, by W. M. Flinders Petrie and J. Garrow Duncan, 1906 (double volume), Brit. Sch. of Arch.

3   J. de Morgan, *Délégation en Perse* (Paris, 1900), vol. i. pl. viii. Nos. 8, 7 and 9.

4   See "The Treasures of the Oxus," catalogue of the Franks Bequest to the British Museum by Ormonde M. Dalton (London, 1905), pl; xxvi. No. 190; see also J. R. Aspelin, "Les antiquités du nord," No. 608; also for further references, Kathleen Schlesinger, "Precursors of the Violin Family," pt. ii. of *The Instruments of the Orchestra*, pp. 407-408, and appendix B, pp. 492-493; and *Gazette archéologique* (Paris, 1886), vol. xi. pl. x. and p. 70.

5   By John Griffiths (London, 1896), vol. ii. pl. 105, cave I. 10, e.

6   *Syntagm. Music.* pt. ii., "Organographie" (Wolfenbüttel, 1618), pp. 30 and 58-61.

LUTHARDT, CHRISTOPH ERNST (1823-1902), German Lutheran theologian, was born at Maroldsweisach, Bavaria, on the 22nd of March 1823. He studied theology at Erlangen and Berlin, and in 1856 became professor ordinarius of systematic theology and New Testament exegesis at Leipzig. In 1865 he was made a counsellor to the consistory, in 1871 canon of Meissen cathedral, and in 1887 a privy councillor to the church. He died at Leipzig on the 21st of September 1902. A strictly orthodox theologian, and a clear writer, though not a very profound scholar, Luthardt became widely appreciated as the author of apologetic lectures. These were collected under the title *Apologie des Christentums* (vol. i., 1864, 14th ed. 1896; vol. ii. 7th ed., 1901; vol. iii. 7th ed., 1898; vol. iv. 2nd ed., 1880), a work of which the first three volumes have been translated into English. In 1868 he founded and edited the *Allgemeine evang.-lutherische Kirchenzeitung*, with its supplement the *Theologisches Litteraturblatt*, and in 1880 became editor of the *Zeitschrift für kirchl. Wissenschaft und kirchl. Leben*.

His other works include *Das Johanneische Evangelium ... erklärt* (1852-1853; 2nd ed. in 2 vols., 1875-1876), *Offenbarung Johannis erklärt* (1861), *Lehre von den letzten Dingen* (1861; 3rd ed. 1885); *Kompendium der Dogmatik* (1865; 9th ed., 1893), *Geschichte der christlichen Ethik* (2 vols., 1888-1893), *Gnade und Wahrheit* (1874), *Das Wort des Lebens* (1877) and *Gnade und Frieden* (1880). His autobiography was published with the title *Erinnerungen aus vergangenen Tagen* (1889; 2nd ed., 1891).

LUTHER, MARTIN (1483-1546), the great German religious reformer, was born at Eisleben on the 10th of November 1483. His father, Hans Luther (Lyder, Luder, Ludher), a peasant from the township of Möhra in Thuringia, after his marriage with Margarethe Ziegler, had settled in Mansfeld, attracted by the prospects of work in the mines there. The counts of Mansfeld, who, many years before, had started the mining industry, made a practice of building and letting out for hire small furnaces for smelting the ore. Hans Luther soon leased one, then three. In 1491 he became one of the four elected members of the village council (*vier Herren von der Gemeinde*); and we are told that the counts of Mansfeld held him in esteem. The boy grew up amid the poor, coarse surroundings of the German peasant life, imbibing its simple beliefs. He was taught that the Emperor protected the poor people against the Turk, that the Church was the "Pope's House," wherein the Bishop of Rome had all the rights of the house-father. He shared the common superstitions of the time and some of them never left him.

Young Martin went to the village school at Mansfeld; to a school at Magdeburg kept by the Brethren of the Common Lot; then to the well-known St George's school at Eisenach. At Magdeburg and Eisenach Luther was "a poor student," *i.e.* a boy who was received into a hospice where he lived rent-free, attended school without paying fees, and had the privilege of begging for his bread at the house-doors of the town; in return for which he sang as a chorister in the church to which the school was attached. Luther was never a "wandering student"; his parents were too careful of their child to permit him to lead the life of wandering licence which marked these pests of medieval German scholastic life. At Eisenach he attracted the notice of the wife of a wealthy merchant of Eisenach, whom his biographers usually identify as Frau Cotta.

After three happy years at Eisenach, Luther entered the university of Erfurt (1501), then the most famous in Germany. Hans Luther had been prospering, and was more than ever resolved to make his son a lawyer. Young Luther entered his name on the matriculation book in letters which can still be read "Martinus Ludher ex Mansfelt," a free student, no longer embarrassed by great poverty. In Luther's time Erfurt was the intellectual centre of Germany and its students were exposed to a variety of influences which could not fail to stimulate young men of mental ability.

Its theology was, of course, scholastic, but of what was then called the modern type, the Scotist; its philosophy was the nominalist system of William of Occam, whose great disciple, Gabriel Biel (d. 1495), had been one of its most famous professors; Nicholas de Lyra's (d. 1340) system of biblical interpretation had been long taught there by a succession of able teachers; Humanism had won an early entrance to the university; the anti-clerical teaching of John of Wessel, who had himself taught at Erfurt for fifteen years (1445-1460), had left its mark on the place and was not forgotten. Hussite propagandists, even in Luther's time, secretly visited the town and whispered among the students their anti-clerical Christian socialism. Papal legates to Germany seldom failed to visit the university and by their magnificence bore witness to the majesty of the Roman church.

A study of the scholastic philosophy was then the preliminary training for a course of law, and Luther worked so hard at the prescribed studies that he had little leisure, he said, for classical learning. He attended none of the Humanist lectures, but he read a good many of the Latin authors and also learned a little Greek. He never was a member of the Humanist circle; he was too much in earnest about religious questions and of too practical a turn of mind. The young Humanists would have gladly welcomed him into their select band. They dubbed him the "philosopher," the "musician," recalled in after days his fine social disposition, his skill in playing the lute, and his ready power in debate. He took the various degrees in an unusually brief time. He was bachelor in 1502 and master in 1505. His father, proud of his son's steady application and success, sent him the costly present of a *Corpus Juris*. He may have begun to study law. Suddenly he plunged into the Erfurt Convent of the Augustinian Eremites and after due noviciate became a monk.

The action was so unexpected that his contemporaries felt bound to give all manner of explanations which have been woven into accounts which are legendary. Nothing is known about the cause of the sudden plunge but what Luther has himself revealed. He has told us that he entered the monastery because he doubted of himself, and that his action was sudden because he knew that his father would have disapproved of his intention.

The word "doubt" has made historians think of intellectual difficulties—of the "theological scepticism" taught by Occam and Biel, of the disintegrating criticism of Humanism. But there is no trace of any theological difficulties in Luther's mind in the struggles which sent him into the convent and distracted him there. He was driven to do what he did by the pressure of a practical religious need, the desire to save his soul. The fires of hell and the shades of purgatory, which are the constant background of Dante's "Paradiso," were present to Luther from childhood.

Luther was the greatest religious genius which the 16th century produced, and the roots of the movement in which he was the central figure must be sought for in the popular religious life of the last decades of the 15th and opening decades of the 16th centuries—a field which has been neglected by almost all his biographers. When it is explored traces of at least five different types of religious sentiment can be discovered. Pious parents, whether among the burghers or peasants, seem to have taught their children a simple evangelical faith. Martin Luther and thousands of children like him were trained at home to know the creed, the ten commandments, the Lord's prayer, and such simple hymns as *Ein Kindelein so lobelich*, *Nun bitten wir den Heiligen Geist* and *Crist ist erstanden*; and they were taught to believe that God for Christ's sake freely pardons sin. They learned that simple faith which Luther afterwards expounded in his *Small Catechism* and called the *Kinderlehre*. When lads trained like himself entered school and college they came in contact with that religious revival which characterized the last half of the 15th century. Fear seemed to brood over the peoples of Western Europe. The plague devastated the badly drained towns, new diseases spread death, the fear of the Turks was permanent. All this went to feed revival, which, founded on fear, refused to see in Jesus Christ anything but a stern judge, and made the Virgin Mother and Anna the "grandmother" the intercessors; which found consolation in pilgrimages from shrine to shrine; which believed in crude miracles, and in the thought that God could be best served within convent walls. Luther's mind was caught in this current of feeling. He records how it was burnt into him by pictures which filled his boyish imagination. Jesus in the painted window of Mansfeld church, stern of face, sword in hand, sitting on a rainbow, coming to judge; an altar-piece at Magdeburg, in which a ship with its crew was sailing on to heaven, carrying no layman on board; the deeds of St Elizabeth emblazoned on the window of St George's parish church at Eisenach; the living pictures of a young nobleman who had turned monk to save his soul, of a monk, the holiest man Luther had ever known, who was aged far beyond his years by his maceration; and many others of the same kind.

Alongside this we can trace the growth of another religious movement of a different kind. We can see a sturdy common-sense religion taking possession of multitudes in Germany, which insisted that laymen might rule in many departments supposed to belong exclusively to the clergy. The *jus episcopale* which Luther afterwards claimed for the secular authorities had been practically exercised in Saxony and Brandenburg; cities and districts had framed police regulations which set aside ecclesiastical decrees about holidays and begging; the supervision of charity was passing from the hands of the church into those of laymen; and religious confraternities which did not take their guidance from the clergy were increasing. Lastly, the medieval Brethren were engaged in printing and distributing tracts, mystical, anti-clerical, sometimes socialist. All these influences abounded as Luther was growing to manhood and laid their marks upon him. It was the momentary power of the second which drove him into the convent, and he selected the monastic order which represented all that was best in the revival of the latter half of the 15th century—the Augustinian Eremites.

In the convent Luther set himself to find salvation. The last word of that Scotist theology which ruled at the close of the middle ages was that man must work out his own salvation, and Luther tried to do so in the most approved later medieval fashion by the strictest asceticism. He fasted and scourged himself; he practised all the ordinary forms of maceration and invented new ones, all to no purpose. His theological studies, part of the convent education, told him that pardon could be had through the Sacrament of Penance, and that the first part of the sacrament was sorrow for sin. The older theology declared that such sorrow must be based on love to God. Had he this love? God always appeared to him as an implacable judge, threatening punishment for breaking a law which it was impossible to keep. He confessed to himself that he often hated this arbitrary Will which Scotist theology called God. The later theology, taught in the convent by John of Palz and John Nathin, said that sorrow might be based on a meaner motive provided the Sacrament of Penance was continually resorted to. Luther wearied his superiors with his attendance at the confessional. He was looked upon as a young saint, and his reputation extended throughout the convents of his order. The young saint felt himself to be no nearer the pardon of God; he thought that he was "gallows-ripe." At last his superiors seemed to discover his real difficulties. Partly by their help, partly by study of the scriptures, he came to understand that God's pardon was to be won by trusting to His promises. Thus after two years of indescribable mental conflicts Luther found peace. The struggle marked him for life. His victory gave him a sense of freedom, and the feeling that life was given by God to be enjoyed. In all external things he remained unchanged. He was a faithful son of the medieval church, with its doctrines, ceremonies and usages.

Soon after he had attained inward peace, Luther was ordained. He continued his studies in theology, devoting himself to the more "experimental" portions of Augustine, Bernard and Gerson. He showed himself a good man of business and was advanced in his order. In 1508 he was sent with some other monks to Wittenberg to assist the small university which had been opened there in 1502 by Frederick the Wise, elector of Saxony. It was there that Luther began to preach, first in a small chapel to the monks of his order; later taking the place of one of the town's clergy who was in ill-health. From Wittenberg he was sent by the chiefs of the German Augustinian Eremites to Rome on a mission concerning the organization of the order. He went up with the feelings of the medieval pilgrim rather than with the intoxication of the ardent Humanist. On his return (1512) he was sent by Staupitz, his vicar-general, to Erfurt to take the necessary steps for higher graduation in theology, in order to succeed

Staupitz himself as professor of theology in Wittenberg. He graduated as Doctor of the Holy Scripture, took the Wittenberg doctor's oath to defend the evangelical truth vigorously (*viriliter*), became a member of the Wittenberg Senate, and three weeks later succeeded Staupitz as professor of theology.

From the first Luther's lectures in theology differed from those ordinarily given at the time. He had no opinions on theological subjects at variance with the theology taught at Erfurt and elsewhere. No one attributed any heretical views to the young Wittenberg professor. He differed from others because he looked at theology in a more practical way. He thought it ought to be made useful to guide men to the grace of God and to tell them how to persevere in a life of joyous obedience to God and His commandments. His teaching was "experimental" from the beginning. Besides he believed that he had been specially set apart to lecture on the Holy Scriptures, and he began by commenting on the Psalms and on the Epistles of St Paul. He never knew much Hebrew and was not specially strong in Greek; so he used the Vulgate in his prelections. He had a huge widely printed volume on his desk, and wrote the notes for his lectures on the margins and between the lines. Some of the pages survive. They contain in the germ the leading thoughts of what became Lutheran theology. At first he expressed himself in the phrases common to scholastic theology, when these were found to be inadequate in words borrowed from the mystical writers of the 14th and 15th centuries, and then in new phrases more appropriate to the circle of fresh thoughts. Those new thoughts at first simply pushed aside the ordinary theology taught in the schools without staying to criticize it. Gradually, however, Luther began to find that there was some real opposition between what he was teaching and the theology he had been taught in the Erfurt convent. It appeared characteristically enough on the practical and not on the speculative side of theology in a sermon on *Indulgences* preached in July 1516. Once begun the breach widened, until Luther could contrast "our theology" with what was taught at Erfurt, and by September he began to write against the scholastic theology, to declare that it was Pelagian at heart, that it repudiated the Augustinian doctrines of grace, and neglected to teach the supreme value of that faith "which throws itself upon God."

These lectures and the teaching they contained soon made a great impression. Students began to flock to the small obscure university of Wittenberg, and the elector grew proud of the teacher who was making his university famous. It was at this interesting stage of his own religious career that he felt himself compelled to stand forth in opposition to what he believed to be a great religious scandal, and almost unconsciously to become a Reformer.

Luther began his work as a Reformer by proposing to discuss the true meaning of Indulgences. The occasion was an Indulgence proclaimed by Pope Leo X., farmed by the archbishop of Mainz, and preached by John Tetzel, a Dominican monk and a famed seller of Indulgences. Many of the German princes had no great love for Indulgence sellers, and Frederick of Saxony had prohibited Tetzel from entering his territories. But it was easy to reach most parts of Electoral Saxony without actually crossing the frontiers. The Red Cross of the Indulgence seller had been set up at Zerbst and at Jüterbogk, and people had gone from Wittenberg to buy the *Papal Tickets*. Luther believed that the sales were injurious to the morals of the townsmen; he had heard reports of Tetzel's sermons; he had become wrathful on reading the letter of recommendation of the archbishop; and friends had urged him to interfere. He protested with a characteristic combination of caution and courage. The church of All Saints (the castle church) was closely connected with the university of Wittenberg. Its doors were commonly used for university proclamations. The Elector Frederick was a great collector of relics and had stored them in his church. He had procured an Indulgence for all who attended its services on All Saints' Day, and crowds commonly gathered. Luther nailed ninety-five *theses* on the church door on that day, the 1st of November 1517, when the crowd could see and read them.

The proceeding was strictly academic. The matter discussed, to judge by the writings of theologians, was somewhat obscure; and Luther offered his *theses* as an attempt to make it clearer. No one was supposed to be committed to every opinion he advanced in such a way. But the *theses* posted somehow touched heart and conscience in a way unusual in the common subjects of academic disputation. Every one wanted to read them. The University Press could not supply copies fast enough. They were translated into German, and were known throughout Germany in less than a fortnight. Within a month they had been heard of all over western and southern Europe. Luther himself was staggered at the way they were received. He said he had never meant to determine, but to debate.

The *theses* were singularly unlike what might have been expected from a professor of theology. They made no attempt at theological definition, no pretence at logical arrangement; they were anything but a brief programme of reformation. They were simply ninety-five sledge-hammer blows directed against the most flagrant ecclesiastical abuse of the age. They were addressed to the "common" man and appealed to his common sense of spiritual things.

The practice of offering, selling and buying Indulgences (see INDULGENCE) was everywhere common in the beginning of the 16th century. The beginnings go back more than a thousand years before the time of Luther. In the earliest church life, when Christians fell into sin, they were required to make public confession before the congregation, to declare their sorrow, and to vow to perform certain acts which were regarded as evidence of the sincerity of their repentance. When the custom of public confession before the congregation had changed to private confession to the clergy, it became the confessor's duty to impose these satisfactions. It was thought only right that there should be some uniformity in dealing with repentant sinners, and books appeared giving lists of sins and what were supposed to be suitable satisfactions. When the sins confessed were very heinous the satisfactions were correspondingly severe and sometimes lasted over many years. About the 7th century arose a custom of commuting or relaxing these imposed satisfactions. A penance of several years fasting might be commuted into saying so many prayers, or giving an arranged amount in alms, or even into a money-fine. In the last case the analogy of the Wergeld of the German tribal codes was commonly followed. The usage generally took the form that any one who visited a church, to which the Indulgence had been attached, on a day named, and gave a contribution to its funds, had his penance shortened by one-seventh, one-third or one-half, as might be arranged. This was the origin of Indulgences properly so-called. They were always mitigations of satisfactions or penances which had been imposed by the church as outward signs of inward sorrow, tests of fitness for pardon, and the needful precedents of absolution. Luther uttered no protest against Indulgences of this kind. He held that what the church had imposed the church could remit.

This old and simple conception of Indulgences had been greatly altered since the beginning of the 13th century. The institution of penance had been raised to the dignity of a sacrament, and this had changed both the place and the character of satisfactions. Under the older conception the order had been Sorrow (*Contritio*), Confession, Satisfaction (or due manifestation of sorrow in ways prescribed) and Absolution. Under the newer theory the order was Sorrow, Confession, Absolution, Satisfaction, and both satisfaction and sorrow took new meanings. It was held that Absolution removed guilt and freed from eternal punishment, but that something had to be done to free the penitent from temporal punishment whether in this life or in purgatory. Satisfactions took the new meaning of the temporal punishments due in this life and the substitute for the pains of purgatory. The new thought of a treasury of merits (*thesaurus meritorum*) introduced further changes. It was held that the good deeds over and above what were needed for their own salvation by the living or by the saints in heaven, together with the inexhaustible merits of Christ, were all deposited in a treasury out of which they could be taken by the pope and given by him to the faithful. They could be added to the satisfactions actually done by penitents. Thus Satisfactions became not merely signs of sorrow but actual merits, which freed men from the need to undergo the temporal pains here and in purgatory which their sins had rendered them liable to. By an Indulgence merits could be transferred from the storehouse to those who required them. The change made in the character of Sorrow made Indulgences all the more necessary for the indifferent penitent. On the older theory Sorrow (*Contritio*) had for its one basis love to God; but on the newer theory the starting-point might be a less worthy king of sorrow (*Attritio*) which it was held would be changed into the more worthy kind in the Sacrament of Penance. The conclusion was naturally drawn that a process of penitence which began with sorrow of the more unworthy kind needed a larger amount of Satisfactions or penance than what began with Contrition. Hence for the indifferent Christian, *Attrition*, *Confession* and *Indulgence* became the three heads in the scheme of the church of the later middle ages for his salvation. The one thing which satisfied his conscience was the burdensome thing he had to do, and that was to procure an Indulgence—a

matter made increasingly easy for him as time went on.

This doctrine of *Attrition* had not the undivided support of the theologians of the later medieval church; but it was taught by the Scotists and was naturally a favourite theme with the sellers of Indulgences. Nor were all theologians at one upon the whole theory of Indulgences. The majority of the best theologians held that Indulgences had nothing to do with the pardoning of guilt, but only with freeing from temporal penalties in this life or in purgatory. But the common people did not discriminate, and believed that when they bought an Indulgence they were purchasing pardon from sin; and Luther placed himself in the position of the ordinary Christian uninstructed in the niceties of theological distinctions.

His *Ninety-five Theses* made six different assertions about Indulgences and their efficacy:—

i. An Indulgence is and can only be the remission of a merely ecclesiastical penalty; the church can remit what the church has imposed; it cannot remit what God has imposed.

ii. An Indulgence can never remit guilt; the pope himself cannot do such a thing; God has kept that in His own hand.

iii. It cannot remit the divine punishment for sin; that also is in the hands of God alone.

iv. It can have no efficacy for souls in Purgatory; penalties imposed by the church can only refer to the living; death dissolves them; what the pope can do for souls in Purgatory is by prayer, not by jurisdiction or the power of the keys.

v. The Christian who has true repentance has already received pardon from God altogether apart from an Indulgence, and does not need one; Christ demands this true repentance from every one.

vi. The Treasury of Merits has never been properly defined; it is hard to say what it is, and it is not properly understood by the people; it cannot be the merits of Christ and of His saints, because these act of themselves and quite apart from the intervention of the pope; it can mean nothing more that the pope, having the power of the keys, can remit ecclesiastical penalties imposed by the church; the true Treasure-house of merits is the Holy Ghost of the grace and glory of God.

The unexpected effect of the *Theses* was that the sale of Indulgences began to decline rapidly, and the archbishop of Mainz, disappointed in his hopes of revenue, sent a copy to Rome. The pope thinking that the whole dispute was a monkish quarrel, contented himself with asking the general of the Augustinian Eremites to keep his monks quiet. This was not easy. Tetzel, in conjunction with a friend, Conrad Wimpina, had published a set of counter-theses. John Mayr of Eck, a noted controversialist and professor of theology in the university of Ingolstadt, scented the Hussite heresy in the *Theses*, and denounced them in a tract entitled *Obelisks*. Luther at once answered in his *Asterisks*. A controversy raged in Germany. Meanwhile, at Rome, Silvester Mazzolini of Prierio, a Dominican monk and Inquisitor, had been studying the *Theses*, was profoundly dissatisfied with them, and wrote a *Dialogue about the Power of the Pope, against the presumptuous conclusions of Martin Luther*. This book reached Germany about the middle of January 1518, and increased the tumult.

Luther's friends had been provokingly silent about the *Theses*; but in April 1518, at the annual chapter of the Augustinian Eremites held at Heidelberg, Luther heard his positions temperately discussed, and found somewhat to his astonishment that his views were not acceptable to all his fellow monks. On his return to Wittenberg he began an answer to his opponents. He carefully considered his positions, found them unassailable, and published his *Resolutions*, the most carefully written of all his works. The book practically discarded all the ideas and practices concerning Indulgences which had come into the medieval church since the beginning of the 13th century, and all the numerous explanations of the scholastic theologians from Bonaventura and Thomas Aquinas downwards. The effect of the controversy was a great decrease in the sale of Indulgences in Germany, and the Papal Curia saw with alarm a prolific source of revenue decaying. It was felt that Luther must be silenced. He was accordingly summoned to Rome. To obey would have meant death; to refuse in his own name would have been contumacy. But the peremptory summons could be construed as an attack on the university of Wittenberg, and both the elector of Saxony and the emperor Maximilian so regarded it. The result was that Pope Leo cancelled the summons, and it was arranged that Luther should appear before the papal Legate to the German Diet, Thomas de Vio, Cardinal Cajedtan, at Augsburg. The interview was not very successful. At its conclusion Luther wrote two appeals—one from the pope ill-informed to the pope well-informed, and the other to a General Council. True to his habit of taking the German people into his confidence, he wrote an account of his interview with the Legate, and published it under the title of the *Acta Augustana*.

The publication greatly increased the sympathy of almost all classes in Germany for Luther. They saw in him a pious man, an esteemed professor, who had done nothing but propose a discussion on the notoriously intricate subject of Indulgences, peremptorily ordered to recant and to remain silent. The elector Frederick shared the common feelings and resolved to defend the man who had made his university so famous. His action compelled the Roman Curia to pause. Germany was on the eve, it was believed, of an election of a king of the Romans; it was possible that an imperial election was not far distant; Frederick was too important a personage to offend. So the condemnation by the Cardinal-Legate was withdrawn for the time, and the pope resolved to deal with the matter otherwise. He selected one of his chamberlains, Charles von Miltitz, the elector's private agent at Rome, and commissioned him to deal with the matter as he best could. Miltitz received the "golden rose" to give to Frederick, and was furnished with several letters in all of which the pope spoke of Luther as a "child of the devil." His holiness had probably forgotten the fact when he addressed Luther some months later as "his dear son."

When Miltitz arrived in Germany he discovered that the movement was much more important than the Roman Curia had imagined. He had not to deal with the opposition of a recalcitrant monk, but with the awakening of a nation. He resolved to meet with Tetzel and with Luther privately before he produced his credentials. Tetzel he could not see; the man was afraid to leave his convent; but he had lengthy interviews with Luther in the house of Spalatin the chaplain and private secretary of the elector Frederick. There he disowned the sermons of the pardon-sellers, let it be seen that he did not approve of the action of the Legate, and so prevailed with Luther that the latter promised to write a submissive letter to the pope, to exhort people to reverence the Roman See, to say that Indulgences were useful to remit canonical penances, and to promise to write no more on the matter unless he happened to be attacked. Luther did all this. A reconciliation might have taken place had the Roman Curia supported Miltitz. But the Curia did not support Miltitz, and placed more faith in Eck, who was eager to extinguish Luther in a public discussion.

Luther had been spending the time between his interview with the Legate at Augsburg (Oct. 1518) and the Leipzig Disputation (June 1519) in severe and disquieting studies. He had found that all his opponents had pursued one line of argument: the power to issue an Indulgence is simply one case of the universal papal jurisdiction; Indulgences are what the pope proclaims them to be, and to attack them is to attack the power of the pope; the pope represents the Roman church, which is actually the universal church, and to oppose the pope is to defy the whole church of Christ; whoever attacks such a long-established system as that of Indulgences is a heretic. Such was the argument. Luther felt himself confronted with the pope's absolute supremacy in all ecclesiastical matters. It was a plea whose full force he felt. The papal supremacy was one of his oldest inherited beliefs. He re-examined his convictions about justifying faith and whether they did lead to his declarations about Indulgences. He could come to no other conclusion. It then became necessary to examine the papal claims. He set himself to study the Decretals, and to his amazement and indignation he found that they were full of frauds. It is hard to say whether the discovery brought him more joy or more grief. His letters show him half-exultant and half-terrified. While he was in this state of mind he received Eck's challenge to dispute with him at Leipzig on the papal supremacy.

This Leipzig Disputation was perhaps the most important point in Luther's career. He met Eck in June 1519. It soon appeared that the intention of that practised debater was to force Luther into some admission which would justify opponents in accusing him of holding the opinions of Huss, who had been condemned by the great German Council of Constance. In this he was eminently successful. Eck left Leipzig triumphant, and Luther returned to Wittenberg much depressed. As usual he wrote out and published an account of the Disputation, which was an appeal to his fellow Germans. The result surpassed his expectations. The Disputation made him see that his protest against the abuses of Indulgences was no criticism of an

excrescence on the medieval ecclesiastical system, but an attack on its centre of existence. He saw that he stood for the spiritual priesthood of all believers and that medievalism in religion meant that man cannot approach God without a priestly mediator. The people also saw his position and rallied round him; and the Humanists discerned in him a champion against the old intolerance against which they had been revolting in vain. Luther's depression fled. Sermons, pamphlets, letters from his tireless pen flooded the land, and Luther began to be the leader of a German revolt against Rome.

The year 1520 saw the publication of his three most important works, all written at a time when he was fully convinced that he had broken for ever with Rome. They were, *On the Liberty of a Christian Man*, *An Address to the Nobility of the German Nation*, and *On the Babylonian Captivity of the Church of God*—the three primary treatises, as they have been called.

Meanwhile at Rome the pope had entrusted Eck and Prierias with the preparation of a bull (*Exurge Domine*) against Luther —a bull which followed the line of Eck's charges at Leipzig. The reformer had been expecting it ever since the Disputation at Leipzig, and had resolved to answer it by one striking act which would impress the imagination of every man. He posted up a notice inviting the Wittenberg students to witness the burning of the bull (10th of December 1520). Rome had shot its last ecclesiastical bolt. Nothing remained but an appeal to the secular power, and this was at once prepared.

The emperor Maximilian had died suddenly (12th January 1519), and for long Germany was disturbed with intrigues about the succession—the papal policy being specially tortuous. The widely expressed desire for a German emperor secured the unanimous election of Charles, the grandson of Maximilian and the king of Spain. Never were a people more mistaken and disappointed. The veins of Charles were full of German blood, but he was his mother's son. It was the Spaniard, not the German, who faced Luther at Worms.

Charles was crowned at Aachen, 23rd of October 1520, and opened his first German diet at Worms, 22nd of January 1521. The pope had selected two envoys to wait on the young emperor, one of them, Jerome Aleander, being specially appointed to secure the outlawry of Luther. The agenda of the diet contained many things seriously affecting all Germany, but the one problem which every one was thinking about was how Luther would be dealt with. The Electoral College was divided. The archbishop of Cologne, the elector of Brandenburg and his brother the archbishop of Mainz were for instant outlawry, while the elector of Saxony, who was resolved to protect Luther, had great influence with the archbishop of Trier and the Count Palatine of the Rhine.

Aleander had no difficulty in persuading Charles, while both were still in the Netherlands, to put Luther under the ban within his hereditary dominions, and the papal nuncio expected that the decree would be extended to the whole German empire. But Charles at first refused to deal summarily with Luther so far as Germany was concerned. The emperor even wrote to the elector of Saxony, asking him to bring Luther with him to the diet for examination. Gradually he came to think that Luther might be condemned without appearing. The members of the diet were slow to come to any conclusion. At last they made up their minds, and presented a memorial to the emperor (19th of February 1521) in which they reminded him that no imperial edict could be published against Luther without their sanction, and proposed that he should be invited to Worms under a safe-conduct and be there examined. They also suggested that Luther should be heard upon the papal claims, and ended by asking the emperor to deliver Germany from the papal tyranny. The emperor agreed to summon Luther under a safe-conduct, and that he should be heard; but he refused to mix his case with that of grievances against Rome. He had no sooner made the promise than he seems to have repented it. He saw no need for Luther's appearance. He tried to get him condemned unheard. An edict against Luther had been drafted (15th of February) which the diet refused to sanction. A few days later a second edict was drafted which ordered the burning of Luther's books. The diet again objected. Finally four days after the safe-conduct had been despatched the emperor revised this second edict, limited it to the seizure of Luther's books, and published it on his own authority without consulting the diet (10th March). After Luther had begun his journey, this edict was posted up along his route in order to intimidate him; other means were taken to make him turn aside from Worms; but he was resolved to go there and nothing daunted him. He reached the town (16th April) and was met by encouraging crowds. He was summoned to appear before the diet on the 17th and measures were taken to prevent him doing more than answering definite questions put to him. He was asked whether certain books had been written by him and whether he was prepared to maintain or to abjure what he had written. He asked time to prepare an answer to the second question. The diet was anxious to hear Luther, if the emperor was not, and his request was granted. He thus defeated the plot to keep him silent. On the 18th he made his second appearance and delivered the speech, which electrified his audience. At the close he was threatened by Spaniards in the diet. The Germans ringed him round, and, with their hands raised high in the fashion of a landsknecht who had struck a successful blow, passed out into the street and escorted him to his lodgings. Next day (April 19th) the emperor proposed to place Luther under the ban of the empire and read to the assembly a brief statement of his own views. The diet objected, and asked for a conference between Luther and some selected members. Conferences were held, but came to nothing. No compromise was possible between the declaration that man's conscience could only be bound by the Word of God and the emperor's belief in the infallibility of a general council. The commission had to report that its efforts had failed. Luther was ordered to leave Worms and to return to Wittenberg. His safe-conduct was to expire twenty-one days after the 16th of April. Then he was liable to be seized and put to death as a pestilent heretic. There only remained to draft and publish the edict containing the ban. Days passed and it did not appear. Suddenly the startling news reached Worms that Luther had disappeared, no one knew where. It was reported that his body had been found in a silver-mine pierced with a dagger. The news flew over Germany and beyond it that he had been slain by papal emissaries. At Worms the indignation of the populace was intense. The public buildings were placarded during the night with an intimation that four hundred knights had sworn not to leave Luther unavenged, and the ominous words *Bundschuh, Bundschuh, Bundschuh* (the watchword of peasant revolts) were written at the foot. The combination suggested an alliance between the lesser knights and the peasants, dreaded by all the ruling classes. The true story of Luther's disappearance was not known until long afterwards. After the failure of the conference the elector of Saxony had commissioned two of the councillors to convey Luther to a place of safety without telling him where it was. Many weeks elapsed before Frederick himself learned that Luther was safe in his own castle of the Wartburg. The disappearance did not mean that Luther had ceased to be a leader of men; but it marked the beginning of an organized national opposition to Rome.

It was not till the 25th of May that the edict against Luther was presented to a small number of members of the diet, after the elector of Saxony and many important members had left Worms. It threatened all Luther's sympathisers with extermination, and practically proclaimed an Albigensian war in Germany. But few public documents prepared with so much care have proved so futile. The latter half of 1521 saw the silent spread of Lutheran opinions all over Germany. This was not unaccompanied with dangers. Every movement for reform carries within it the seeds of revolution, and Luther's was no exception to the rule.

The revolution began in Wittenberg during Luther's seclusion in the Wartburg. Andrew Boden of Carlstadt, a colleague of Luther's in the university of Wittenberg, was strongly impressed with the contradiction which he believed to exist between evangelical teaching and the usages of medieval ecclesiastical life. He denounced monastic vows, a distinctive dress for the clergy, the thought of a propitiatory mass, and the presence of images and pictures in the churches. Zwilling, a young Augustinian Eremite, added his fiery denunciations. His preaching stirred the commonalty. Turbulent crowds invaded two of the churches and rioted inside. The excitement of the people was increased by the arrival of three men known in history as the *Zwickau prophets*. Melanchthon felt himself powerless to restrain the tumult. The magistrates of the town were won over and issued an ordinance which attempted to express in legislation the new evangelical ideas. Duke George of Saxony, a resolute opponent of the Reformation, threatened to make the diet interfere. Luther became alarmed, and, not without a private hint from the elector of Saxony,[1] left his retreat and appeared among his townsmen. His presence and exertions restored order, and the conservative reformation resumed its quiet course. From this time onwards to the outbreak of the Peasants' War (1525) Luther was the real leader of the German nation, and everything seemed to promise a gradual reformation without

tumult.

The Peasants' War ended this anticipation. From one point of view this insurrection was simply the last, the most wide-spreading and the most disastrous of these revolts, which had been almost chronic in Germany during the later decades of the 15th and earlier years of the 16th century and which had been almost continuous between 1503 and 1517. All the social and economic causes which produced them were increasingly active in 1524 and 1525. But it is undoubted that the religious revolt intensified the rebellion of the lower classes. Luther's voice awoke echoes he never dreamt of. The times were ripe for revolution, and the message which spoke of a religious democracy could not fail to suggest the social democracy also. In his appeal to the *Nobility of the German Nation* he had stated with severe precision the causes of social discontent. Himself a peasant's son and acquainted with the grievances under which the peasant lived, he had at various times formulated most of the demands which afterwards figured conspicuously in the Twelve Articles. The insurgents had good cause to regard him as a sympathiser. But Luther, rightly or wrongly, believed that of the two ways in which wrongs can be set right—the way of war and the path of peace—the latter is the only sure road in the long run. He did his best therefore to prevent the rising and risked his life among the infuriated peasants as readily as when he stood before the emperor and the diet. When the rebellion was at its height and Thomas Münzer had sent forth fiery proclamations urging the peasantry "not to let the blood cool on their swords," Luther issued the pamphlet, which casts a stain on his whole life, in which he hounds on the ruling classes to suppress the insurgents with all violence. In the end the rebellion, formidable as it seemed for a few months, was crushed, and a heavier yoke was laid on the shoulders of the unfortunate peasants.

This year, 1525, saw the parting of the ways in the movement for reform. It ceased to be national and became ecclesiastical. It divided into three separate parts. One, guided by Luther himself, ended, after a long struggle with pope and emperor, in the establishment of evangelical churches under the rule of the secular authorities of the territories which adopted the Lutheran Reformation. Another, remaining true to the principles, doctrines, usages and hierarchy of the medieval church, dreamt only of a purification of moral life, and saw its end realised in the reforms of the council of Trent. The third, gathering together the more revolutionary impulses, expanded into that complex movement called Anabaptism—which spread over western Europe from England to Poland and from Scandinavia to northern Italy, and endured a long and sanguinary persecution at the hands of the civil authorities in most European countries. Its strength and popularity, especially among the artizan classes, have been very much underrated by most historians.

During the storm of the Peasants' War (13th of June 1525) Luther married Catherine von Bora, the daughter of a noble but impoverished family belonging to Meissen. She had been a Cistercian nun in the convent of Nimtzch near Grimma—a convent reserved for ladies of noble birth. Luther's writings, circulating through Saxony, had penetrated the convent walls and had convinced most of the inmates of the unlawfulness of monastic vows. Catherine and eight companions resolved to escape. Their relatives refused to aid them, and they applied to Luther. He entrusted the business to Leonhard Koppe of Torgau, and the rescue was safely carried out (4th of April 1523). The rescued nuns found places of refuge in the families of Wittenberg burghers. The elector John of Saxony (who had succeeded his brother Frederick) gave Luther the house which had served as the Augustinian Convent. The family gathered in this three-storeyed building, with its back windows looking over the Elbe and its front door opening on a great garden, was latterly Luther and his wife, their three sons and two daughters, Magdelena von Bora, Catherine's aunt, two orphan nieces and a grandniece. At the beginning of his married life Luther must have been in straitened circumstances. He married a portionless nun. On to 1532 his salary was two hundred gulden annually (about £160 in present money); after 1532 the stipend was increased to £240 with various payments in kind—corn, wood, malt, wine, &c.— which meant a great deal more. The town added occasional gifts to enable Luther to entertain the great personages who came to consult him frequently. Princes made him presents in money. This enabled Luther to purchase from his wife's brother the small estate of Zulsdorf. Catherine, too, was an excellent house-wife. She made the long-neglected garden profitable; kept pigs and poultry; rented other gardens; stocked a fishpond; farmed in a small way; and had her house full of boarders. Luther had a high opinion of her intelligence; she took rank among those consulted on all important occasions; in one letter to her, seldom quoted, he gives the fairest statement he ever made about the views of Zwingli on the Sacrament of the Supper.

The diet of Speyer (1526) saw Germany divided into a Protestant and a Romanist party. After much debate a compromise was arrived at, which foreshadowed the religious peace of Augsburg of 1555. It was resolved that the Word of God should be preached without disturbance, that indemnity should be given for past offences against the edict of Worms, and that meanwhile each state should live religiously as it hoped to answer for its conduct to God and the emperor. The Lutherans interpreted this to mean the right to frame ecclesiastical regulations for various principalities and to make changes in public worship. Luther busied himself in simplifying the service, in giving advice, anxiously sought for, about the best modes of organising ecclesiastical affairs. In the diet held at Speyer in 1529 a compact Roman Catholic majority faced a weak Lutheran minority. The emperor declared through his commissioners that he abolished "by his imperial and absolute authority" the clause in the ordinance of 1526 on which the Lutherans had relied when they began to organize their territorial churches. The majority of the diet supported the emperor in this, and further proceeded to decree that no ecclesiastical body was to be deprived of its revenues or authority. This meant that throughout all Germany medieval ecclesiastical rule was to be upheld, and that none of the revenues of the medieval church could be appropriated for Protestant uses. On this a portion of the Protestant minority drafted a legal protest, in which the signers declared that they meant to abide by the decision of the diet of 1526 and refused to be bound by that of 1529. From this protest came the name *Protestant*.

A minority in such a case could only maintain their protest if they were prepared to defend each other by force in case of an attack. Three days after the protest had been read, many of the protesting cities and states concluded "a secret and particular treaty," and Philip of Hesse, the ablest statesman among the Protesters, saw the need for a general union of all evangelical Christians in the empire. The difficulties in the way were great. The Saxons and the Swiss, Luther and Zwingli, were in fierce controversy about the true doctrine of the sacrament of the Supper. Luther was a patriotic German who was for ever bewailing the disintegration of the Fatherland; Zwingli was full of plans for confederations of Swiss cantons with South German cities, which could not fail to weaken the empire. Luther had but little trust in the "common man"; Zwingli was a thorough democrat. When Luther thought of the Swiss reformer he muttered as Archbishop Parker did of John Knox—"God keep us from such visitations as Knox hath attempted in Scotland; the people to be orderers of things." Above all Luther had good grounds for believing that at the conference at Memmingen friends of Zwingli had helped to organize a Peasants' War and to link the social revolution to the religious awakening. All these suspicions were in Luther's mind when he consented very half-heartedly to meet Zwingli at a conference to be held in Philip of Hesse's castle at Marburg. The debate proceeded as such debates usually do. Zwingli attacked the weakest part of Luther's theory—the *ubiquity* of the body of Christ; and Luther attacked Zwingli's exegesis of the words of the institution. Neither sought to bring out their points of agreement. Yet the conference did good; it showed that the Protestants were agreed on all doctrinal points but one. If union was for the present impossible, there were hopes for it in the future.

In 1530 the emperor Charles, resolved to crush the Reformation, himself presided at the diet. The Protestant divisions were manifest. Three separate confessions were presented to the emperor—one from Zwingli, one by the theologians of the four cities of Strassbourg, Constance, Lindau and Memmingen (*Confessio Tetrapolitana*), and the *Augsburg Confession*, the future symbol of the Lutheran church. The third was the most important, and the emperor seriously set himself to see whether it might not be made the basis of a compromise. He found that reconciliation was hopeless. Thereupon the diet resolved that the edict of Worms was to be enforced against Luther and his partizans; that the ecclesiastical jurisdictions were to be preserved; and that all the church property taken possession of by the Lutheran princes was to be restored; and that in all cases of dispute the last court of appeal was to be the Imperial Court of Appeals. The last provision meant that the growing Protestantism was to be fought by harrassing litigation—*nicht fechten sondern rechten* was the phrase.

Luther was not present at the diet nor at the negotiations. He was still an outlaw according to imperial ideas. Melanchthon

took his place as leader.

The decision of the diet compelled the Protestant princes to face the new and alarming situation. They met in conference in mid-winter at the little town of Schmalkald, and laid the foundations of what became the powerful Schmalkald League, which effectually protected the Protestants of Germany until it was broken up by the intrigues of the imperial party. From the time of the formation of this league, Luther retired gradually from the forefront of a reformation movement which had become largely political, and busied himself with reforms in public worship and suggestions for an organization of the polity of the Evangelical church. In this work his natural conservatism is apparent, and he contented himself with such changes as would make room for the action of evangelical principles. He disclaimed the right of suggesting a common order of worship or a uniform ecclesiastical polity; and Lutheran ritual and polity, while presenting common features, did not follow one common use. It may be said generally that while Luther insisted on a service in the vernacular, including the singing of German hymns, he considered it best to retain most of the ceremonies, the vestments and the uses of lights on the altar, which had existed in the unreformed church, while he was careful to explain that their retention might be dispensed with if thought necessary. To the popular mind the great distinction between the Lutheran and the medieval church service, besides the use of the vernacular and the supreme place assigned to preaching, was that the people partook of the cup in the sacrament of the Lord's Supper; and the Lutheran service became popularly distinguished from the Reformed because it retained, while the Reformed did away with, most of the medieval ceremonies and vestments (see Lutherans). The variations in the details of the polity of the Lutheran churches were very numerous, but they all preserved the same distinctive principles. Two conceptions lay at the basis—the thought of the spiritual priesthood of all believers and the belief that the state was a divine ordinance, that the magistracy might represent the whole body of believers and that discipline and administration might be exercised through courts constituted somewhat like the consistorial courts of the medieval bishops, their members being appointed by the magistracy.

The last years of Luther's life were spent in incessant labour disturbed by almost continuous ill-health. He was occupied in trying to unite firmly together the whole evangelical movement; he laboured to give his countrymen a good system of schools; he was on the watch to defeat any attempt of the Roman Curia to regain its hold over Germany; and he was the confidential adviser of a large number of the evangelical princes. Luther's intimacy with his own elector, first John, then John Frederick, helped to give him the place accorded to him by the princes. The chiefs of the Houses of Anhalt and Lüneburg, Duke Henry of Saxony, Joachim II. of Brandenburg, Albert of Brandenburg and the counts of Mansfeld, were among Luther's most devoted supporters and most frequently sought his advice. Princely correspondence was not always pleasant. It took its most disagreeable form when Philip of Hesse besieged Luther with requests to give his sanction to taking a second wife while his first was still alive. Luther's weakness brought the second great blot on his career. The document sanctioning the bigamy of the landgrave was signed by Martin Bucer, Luther and Melanchthon, and is a humiliating paper. It may be thus summarized. According to the original commandment of God, marriage is between one man and one woman, and this original precept has been confirmed by our Lord; but sin brought it about that first Lamech, then the heathen, and then Abraham, took more than one wife, and this was permitted under the law. We are now living under the Gospel, which does not give prescribed rules for the external life and has not expressly prohibited bigamy. The law of the land expresses the original commandment of God, and the plain duty of the pastorate is to denounce bigamy. Nevertheless, the pastorate, in single cases of the direst need and to prevent worse, may sanction bigamy in a purely exceptional way. Such a bigamous marriage is a true marriage in the sight of God (the necessity being proved), but it is not a true marriage in the eye of public law and custom. Such a marriage and the dispensation for it ought to be kept secret; if it is made known, the dispensation becomes *eo ipso* invalid and the marriage is mere concubinage. The principle which underlies this extraordinary paper is probably the conception that the Protestant church has the same dispensing power which the medieval church claimed, but that it was to be exercised altogether apart from fees of any kind.

In his later years Luther became more tolerant on the sacramental question which divided him from the South German cities, although he never departed from his strong opposition to the supposed views of Zwingli himself. He consented to a conference, which, as he was too ill to leave home, met at Wittenberg (May-June 1536). After prolonged discussion the differences were narrowed to one point—the presence of the body of Christ *extended in space* in the sacrament of the Supper. It was agreed in the *Wittenberg Concord* to leave this an open question. Thus North and South Germany were united. It is possible that had Luther lived longer his followers might have been united with the Swiss. He repeatedly expressed an admiration for Calvin's writings on the subject of the sacrament; and Melanchthon believed that if the Swiss accepted Calvin's theory of the Supper, the Wittenberg Concord could be extended to include them. But the *Consensus Tigurinus*, which dates the adhesion of the Swiss to the views of Calvin, was not signed until 1549, when Luther was already dead.

Year by year Luther had been growing weaker, his attacks of illness more frequent and his bodily pains more continuous. Despite the entreaties of wife and elector he resolved to do what he could to end some trifling dispute about inheritance which threatened the peace of the House of Mansfeld. He left Wittenberg in bitterly cold weather on the 23rd of January 1546, and the journey was tedious and hazardous. He was accepted as arbiter and his decision brought an end to the strife. He preached in Eisleben (February 14) with all his old fervour; but suddenly said quietly: "This and much more is to be said about the Gospel; but I am too weak and we will close here." These were his last words in the pulpit. On the 16th and 17th the deeds of reconciliation were signed and Luther's work was done. The end came swiftly. He was very ill on the evening of the 17th; he died on the early morning of the 18th of February 1546 in his sixty-third year.

The elector of Saxony and Luther's family resolved that he must be buried at Wittenberg, and on the 20th the funeral procession began its long march. The counts of Mansfeld, the magistrates of the city and all the burghers of Eisleben accompanied the coffin to the gates of their town. A company of fifty light-armed troops commanded by the young counts of Mansfeld headed the procession and went with it all the way to Wittenberg. The following was temporarily swelled as it passed through villages and towns. Delegates from the elector of Saxony met it as it crossed the boundaries of the principality. Luther was laid to rest in the Castle church on whose door he had nailed the *theses* which had kindled the great conflagration.

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(T. M. L.)

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LUTHERANS, the general title given to those Christians who have adopted the principles of Martin Luther in his opposition to the Roman Church, to the followers of Calvin, and to the sectaries of the times of the Reformation. Their distinctive name is the *Evangelical*, as opposed to the *Reformed* church. Their dogmatic symbols are usually said to include nine separate creeds which together form the *Book of Concord* (*Liber Concordiae*). Three belong to the Early Christian church —the *Apostles' Creed*, the *Nicene Creed* (in its Western form, *i.e.* with the *filioque*), and the so-called *Athanasian Creed*; six come from the 16th century—the *Augsburg Confession*, the *Apology for the Augsburg Confession*, the *Schmalkald Articles*, Luther's two *Catechisms*, and the *Form of Concord*. But only the three early creeds and the Augsburg Confession are recognized by all Lutherans. Luther's Catechisms, especially the shorter of the two, have been almost universally accepted, but the Form of Concord was and is expressly rejected by many Lutheran churches. The Augsburg Confession and Luther's Short Catechism may therefore be said to contain the distinctive principles which all Lutherans are bound to maintain, but, as the principal controversies of the Lutheran church all arose after the publication of the Augsburg Confession and among those who had accepted it, it does not contain all that is distinctively Lutheran. Its universal acceptance is perhaps due to the fact that it exists in two forms (the *variata* and the *invariata*) which vary slightly in the way in which they state the doctrine of the sacrament of the Supper. The *variata* edition was signed by Calvin, in the meaning, he said, of its author Melanchthon.

After Luther's death the more rigid Lutherans declared it to be their duty to preserve the *status religionis in Germania per Lutherum instauratus*, and to watch over the *depositum Jesu Christi* which he had committed to their charge. As Luther was a much greater preacher than a systematic thinker, it was not easy to say exactly what this deposit was, and controversies resulted among the Lutheran theologians of the 16th century. The Antinomian controversy was the earliest (1537-1560). It arose from differences about the precise meaning of the word "law" in Luther's distinction between law and gospel. Luther limited the meaning of the word to mean a definite command accompanied by threats, which counts on terror to produce obedience. He declared that Christ was not under the dominion of the law in this sense of the word, and that believers enter the Christian life only when they transcend a rule of life which counts on selfish motives for obedience. But law may mean ethical rule, and the Antinomians so understood it, and interpreted Luther's declaration to mean that believers are not under the dominion of the moral law. The controversy disturbed the Lutheran church for more than twenty years.

The Arminian controversy in the Reformed church, the Jansenist controversy in the Roman Catholic church, had their parallel in three separate disputes among the Lutherans lasting from 1550 to 1580. (1) George Major, discussing the relation of good works to conversion, declared that such works were both useful and necessary to holiness. He was attacked by Flacius and Amsdorf, and after a long controversy, full of ambiguities and lacking in the exhibition of guiding principles, he was condemned because his statement savoured of Pelagianism. (2) The same problem took a new form in the Synergist controversy, which discussed the first impulse in conversion. One party taught that while the first impulse must come from the Holy Spirit the work might be compared to reviving a man *apparently* dead. It was answered that the sinner was *really* dead, and that the work of the Spirit was to give an actually new life. The latter assertion was generally approved of. (3) Then a fresh controversy was started by the assertion that sin was part of the substance of man in his fallen condition. It was answered that sin had not totally destroyed man's ethical nature, and that grace changed what was morally insensitive into what was morally sensitive, so that there could be a co-operation between God's grace and man's will.

The controversy raised by Andrew Osiander was more important. He felt that Luther had omitted to make adequate answer to an important practical question, how Christ's death on the cross could be brought into such actual connexion with every individual believer as to be the ground of his actual justification. The medieval church had spanned the centuries by supposing that Christ's death was continuous down through the age in the sacrifice of the Mass; Protestant theology had nothing equivalent. He proposed to supply the lack by the theory that justification is a real work done in the individual by the same Christ who died so many centuries ago. Redemption, he said, was the result of the historical work of Christ; but justification was the work of the living risen Christ, dwelling within the believer and daily influencing him. Osiander's theory did not win much support, but it was the starting-point of two separate doctrines. In the Lutheran church, Striegel taught that the principal effect of Christ's work on the cross was to change the attitude of God towards the whole human race, and that, in consequence, when men come into being and have faith, they can take advantage of the change of attitude effected by the past historical work of Christ. The Reformed church, on the other hand, constructed their special doctrine of the limited reference in the atonement.

The other controversies concerned mainly the doctrine of the sacrament of the Supper, and Luther's theory of Consubstantiation. This required a doctrine of *Ubiquity*, or the omnipresence of the body of Christ extended in space, and therefore of its presence in the communion elements. Calvin had taught that the true way to regard substance was to think of its power (*vis*), and that the presence of a substance was the immediate application of its power. The presence of the body of Christ in the sacramental elements did not need a presence extended in space. Melanchthon and many Lutherans accepted the theory of Calvin, and alleged that Luther before his death had approved of it. Whereupon the more rigid Lutherans accused their brethren of Crypto-Calvinism, and began controversies which dealt with that charge and with a defence of the idea of ubiquity.

The university of Jena, led by Matthias Flacius, was the headquarters of the stricter Lutherans, while Wittenberg and Leipzig were the centres of the Philippists or followers of Melanchthon. Conferences only increased the differences. The Lutheran church seemed in danger of falling to pieces. This alarmed both parties. New conferences were held and various articles of agreement were proposed, the most notable being the *Torgau Book* (1576). In the end, the greater proportion adopted the *Book of Concord* (1577), drafted chiefly by Jacob Andreae of Tübingen, Martin Chemnitz of Brunswick and Nicolas Selnecker of Leipzig. Its recognition was mainly due to the efforts of Augustus, elector of Saxony. This *Book of Concord* was accepted by the Lutheran churches of Sweden and of Hungary in 1593 and 1597; but it was rejected by the Lutheran churches of Denmark, of Hesse, of Anhalt, of Pomerania and of several of the imperial cities. It was at first adopted and then rejected by Brunswick, the Palatinate and Brandenburg. The churches within Germany which refused the *Book of Concord* became for the most part Calvinistic or Reformed. They published, as was the fashion among the Reformed churches, separate creeds for themselves, but almost all accepted the *Heidelberg Catechism*. These differences in the German Protestant churches of the second half of the 16th century are reflected in the great American Lutheran church. The church exists in three separate organizations. The General Synod of the Evangelical Church of the United States, organized in 1820, has no other creed than the *Augsburg Confession*, so liberally interpreted as not to exclude Calvinists. The Synodical Conference of North America, organized in 1872, compels its pastors to subscribe to the whole of the nine creeds contained in the Book of Concord. The General Council, a secession from the General Synod, was organized in 1867, and accepts the "unaltered" (*invariata*) *Augsburg Confession* in its original sense, and the other Lutheran symbols as explanatory of the Augsburg Confession.

The divided state of German Protestantism, resulting from these theological differences, contributed in no small degree to the disasters of the Thirty Years' War, and various attempts were made to unite the two confessions. Conferences were held at Leipzig (1631), Thorn (1645), Cassel (1661); but without success. At length the union of the two churches was effected by the

force of the civil authorities in Prussia (1817), in Nassau (1817), in Hesse (1823), in Anhalt-Dessau (1827) and elsewhere. These unions for the most part aimed, not at incorporating the two churches in doctrine and in worship, but at bringing churches or congregations professing different confessions under one government and discipline. They permitted each congregation to use at pleasure the *Augsburg Confession* or the *Heidelberg Catechism*. The enforced union in Prussia was combined with the publication of a new liturgy intended for common use. This led to secessions from the state church. These seceders were at first treated with great harshness, but have won their way to toleration, and form the Lutheran Free churches of Germany.

The most important of these latter is the Evangelical Lutheran church of Prussia, sometimes called the Old Lutherans. It came into being in 1817 and gradually gained the position of a tolerated nonconformist church (1845 being the date of its complete recognition by the state). At the 1905 census it numbered 51,600 members under 75 pastors. Its affairs are managed by an *Oberkirchencollegium*, with four ordained and two lay members. The Evangelical Lutheran Immanuel Synod came into being in 1864, and has a membership of 5300 with 13 ordained pastors. Its headquarters is Liegnitz. The Independent Evangelical Lutheran church in the lands of Hesse arose partly on account of the slumbering opposition to the union of 1823 and more particularly in consequence of an attempt made at a stricter union in 1874. It has a membership of about 1800. The *renitente* church of Lower Hesse has a membership of 2400. The Evangelical Lutheran Free Church of Hanover has a membership of 3050 under 10 ordained pastors. The Hermannsburg Free Church has a membership of about 2000 under 2 pastors. The Evangelical Lutheran Community in Baden has a membership of about 1100 with 2 ordained pastors. The Evangelical Lutheran Free Church of Saxony has a membership of about 3780 with 15 ordained pastors. These free churches exist separate from the State Evangelical United Church (*Evangelische unirte Landskirche*).

The general system of ecclesiastical government which prevails among all Lutheran churches is called the *consistorial*. It admits of great variety of detail under certain common features of organization. It arose partly from the makeshift policy of the times of the Reformation, and partly from Luther's strong belief that the *jus episcopale* belonged in the last resort to the civil authorities. It may be most generally described by saying that the idea was taken from the consistorial courts through which the medieval bishops managed the affairs of their dioceses. Instead of the appointments to the membership of the consistories being made by the bishops, they were made by the supreme civil authority, whatever that might be. Richter, in his *Evangelische Kirchenordnungen des 16ten Jahrhunderts* (2 vols., 1846), has collected more than one hundred and eight separate ecclesiastical constitutions, and his collection is confessedly imperfect. The publication of a complete collection by Emil Sehling was begun in 1902.

The liturgies of the Lutheran churches exhibit the same diversities in details as appear in their constitutions. It may be said in general that while Luther insisted that public worship ought to be conducted in a language understood by the people, and that all ideas and actions which were superstitious and obscured the primary truth of the priesthood of all believers should be expurged, he wished to retain as much as possible of the public service of the medieval church. The external features of the medieval churches were retained; but the minor altars, the *tabernacula* to contain the Host, and the light permanently burning before the altar, were done away with. The ecclesiastical year with its fasts and festivals was retained in large measure. In 1526 Luther published the *German Mass and order of Divine Service*, which, without being slavishly copied, served as a model for Lutheran communities. It retained the altar, vestments and lights, but explained that they were not essential and might be dispensed with. The peril attending the misuse of pictures in churches was recognized, but it was believed to be more than counterbalanced by the instruction given through them when their presence was not abused. In short Luther contented himself with setting forth general principles of divine service, leaving them to be applied as his followers thought best. The consequence was that there is no uniform Lutheran liturgy. In his celebrated *Codex Liturgicus Ecclesiae Lutheranae in epitomen redactus* (Leipzig, 1848), Daniel has used 98 different liturgies and given specimens to show the differences which they exhibit.

The divergences in ritual and organization, the principle underlying all the various ecclesiastical unions, viz. to combine two different confessions under one common government, and, resulting from it, the possibility of changing from one confession to another, have all combined to free the state churches from any rigid interpretation of their theological formulas. A liberal and a conservative theology (rationalist and orthodox) exist side by side within the churches, and while the latter clings to the theology of the 16th century, the former ventures to raise doubts about the truth of such a common and simple standard as the Apostles' Creed. The extreme divergence in doctrinal position is fostered by the fact that the theology taught in the universities is in a great measure divorced from the practical religious life of the people, and the theological opinions uttered in the theological literature of the country cannot be held to express the thoughts of the members of the churches. In each state the sovereign is still held to be the *summus episcopus*. He appoints a minister of public worship, and through him nominates the members of the governing body, the *Oberkirchenrath* or *Consistorium* or *Directorium*. This council deals with the property, patronage and all other ecclesiastical matters. But each parish elects its own council for parochial affairs, which has a legal status and deals with such matters as the ecclesiastical assessments. Delegates from these parish councils form the *Landessynode*. In cases that call for consultation together, the *Consistorium* and the Synod appoint committees to confer. In Alsace-Lorraine about half of those entitled to vote appear at the polls; but in other districts of Germany very little interest is shown in the elections to the parish councils.

The income of the state churches is derived from four sources. The state makes an annual provision for the stipends of the clergy, for the maintenance of fabrics and for other ecclesiastical needs. The endowments for church purposes, of which there are many, and which are destined to the support of foreign missions, clerical pensions, supply of books to the clergy, &c. are administered by the supreme council. The voluntary contributions of the people are all absorbed in the common income of the national churches and are administered by the supreme council. Each parish is legally entitled to levy ecclesiastical assessments for defined purposes.

Appointments to benefices are in the hands of the state (sometimes with consent of parishes), of private patrons and of local parish councils. The number of these benefices is always increasing; and in 1897 they amounted to 16,400, or 300 more than in 1890. The state appoints to 56%, private and municipal patrons to 34%, and congregations to 10% of the whole. Customs vary in different states; thus in Schleswig-Holstein the state nominates but the parish elects; in Alsace-Lorraine the directorium or supreme consistory appoints, but the appointment must be confirmed by the viceroy; in Baden the state offers the parish a selection from six names and then appoints the one chosen.

The Lutheran state churches of Denmark, Sweden and Norway have retained the episcopate. In all of them the king is recognized to be the *summus episcopus* or supreme authority in all ecclesiastical matters, but in Norway and Sweden his power is somewhat limited by that of parliament. The king exercises his ecclesiastical authority through a minister who superintends religion and education. The position and functions of the bishops vary in the different countries. In all the rite of ordination is in their hands. In Denmark they are the inspectors of the clergy and of the schools. In Sweden they preside over local consistories composed of clerical and lay members. The episcopate in all three countries accommodates itself to something like the Lutheran consistorial system of ecclesiastical government.

The two leading religions within Germany are the Evangelical (Lutheran) and the Roman Catholic, including respectively 58 and 39% of the population. The proportions are continually varying, owing to the new migratory habits of almost every class of the population. Generally speaking, the Roman Catholics are on the increase in Prussia, Bavaria, Saxony and Württemburg; and the Evangelicals in the other districts of Germany, especially in the large cities. There is a growing tendency to mixed marriages, which are an important factor in religious changes.

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<div align="right">(T. M. L.)</div>

LUTHER LEAGUE, a religious association for young people in the United States of America. It began with a local society founded by delegates of six Lutheran church societies in New York City in 1888. The first national convention was held at Pittsburg, Pennsylvania, on the 30th and 31st of October 1895. The basis of the league is the Augsburg Confession. Its membership is open to "any society of whatever name connected with a Lutheran congregation or a Lutheran institution of learning." According to the constitution its objects are "to encourage the formation of the young people's societies in all Lutheran congregations in America, to urge their affiliation with their respective state or territorial leagues, and with this league to stimulate the various young people's societies to greater Christian activity and to foster the spirit of loyalty to the church." The league publishes a monthly paper, *The Luther League Review*, in Washington. According to its official report it had 70,000 members in 1906, which had increased to more than 100,000 in 1910.

LUTON, a market town and municipal borough in the southern or Luton parliamentary division of Bedfordshire, England, 30 m. N.W. by N. of London by the Midland railway, served also by a branch of the Great Northern. Pop. (1901) 36,404. It lies in a narrow valley on the south flank of the Chiltern Hills, on the upper part of the river Lea. The church of St Mary is mainly Decorated, but has portions of Early English and Perpendicular work. It has brasses and monuments of interest and a late Decorated baptistery of stone, an ornate roofed structure, octagonal in form. The font within it is Early English. Luton is the principal seat in England of the straw-plait manufacture, and large quantities of hats and other straw goods have been exported, though in recent years the industry has suffered from increased foreign competition. The industry originated with the colony of straw-plaiters transplanted by James I. from Scotland, whither they had been brought from Lorraine by Queen Mary. The town has also foundries, motor car works and other manufactures. The borough is under a mayor, 6 aldermen and 18 councillors. Area, 3133 acres.

LUTSK (Polish, *Luck*), a town of southern Russia, in the government of Volhynia, on the Styr, 51 m. by rail N.W. of Kovel. Pop. (1900) 17,701. It is supposed to have been founded in the 7th century; in the 11th century it was known as Luchesk, and was the chief town of an independent principality. In the 15th century it was the seat of a bishop and became wealthy, but during the wars between Russia and Poland in the second half of the 16th century, and especially after the extermination of its 40,000 inhabitants, it lost its importance. In 1791 it was taken by Russia. Its inhabitants, many of them Jews, live mainly by shipping goods on the Styr. Among its buildings is a 16th-century castle. Lutsk is the seat of a Roman Catholic bishop.

LUTTERWORTH, a market town in the Harborough parliamentary division of Leicestershire, England; 90 m. N.N.W. from London by the Great Central railway. Pop. (1901) 1734. It lies in a pleasant undulating country on the small river Swift, an affluent of the Avon. The church of St Mary is a fine building, mainly Decorated and Perpendicular, wherein are preserved relics of John Wycliffe, who was rector here from 1374 until his death in 1384. The exhumation and burning of his body in 1428, when the ashes were cast into the Swift, gave rise to the saying that their distribution by the river to the ocean resembled that of Wycliffe's doctrines over the world. Wycliffe is further commemorated by a modern obelisk in the town. Trade is principally agricultural.

LUTTRELL, HENRY (*c.* 1765-1851), English wit and writer of society verse, was the illegitimate son of Henry Lawes Luttrell, 2nd earl of Carhampton (1743-1821), a grandson of Colonel Henry Luttrell (*c.* 1655-1717), who served James II. in Ireland in 1689 and 1690, and afterwards deserted him, being murdered in Dublin in November 1717. Colonel Luttrell's son Simon (1713-1787) was created earl of Carhampton in 1785, and the latter's son was Henry Lawes Luttrell. Before succeeding to the peerage, the 2nd earl, then Colonel Luttrell, had won notoriety by opposing John Wilkes at the Middlesex election of 1769. He was beaten at the poll, but the House of Commons declared that he and not Wilkes had been elected. In 1796 he was made commander of the forces in Ireland and in 1798 he became a general. Being an Irish peer, Carhampton was able to sit in the English parliament until his death in April 1821. The earldom became extinct on the death of his brother John, the 3rd earl, in 1829.

Henry Luttrell secured a seat in the Irish parliament in 1798 and a post in the Irish government, which he commuted for a pension. Introduced into London society by the duchess of Devonshire, his wit made him popular. Soon he began to write verse, in which the foibles of fashionable people were outlined. In 1820 he published his *Advice to Julia*, of which a second edition, altered and amplified, appeared in 1823 as *Letters to Julia in Rhyme*. This poem, suggested by the ode to Lydia in the first book of Horace's Odes, was his most important work. His more serious literary contemporaries nicknamed it "Letters of a Dandy to a Dolly." In 1827 in *Crockford House* he wrote a satire on the high play then in vogue. Byron characterized him as "the best sayer of good things, and the most epigrammatic conversationist I ever met"; Sir Walter Scott wrote of him as "the great London wit," and Lady Blessington described him as the one talker "who always makes me think." Luttrell died in London on the 19th of December 1851.

LÜTTRINGHAUSEN, a town of Germany, in the Prussian Rhine province, 6 m. S.E. of Elberfeld by rail. Pop. (1905) 11,829. It is the seat of various iron and other metal industries, and has cloth and calico mills.

LÜTZEN, a town in Prussian Saxony, in the circle of Merseburg (pop. in 1905, 3981), chiefly famous as the scene of a great battle fought on the 6/16th of November 1632 between the Swedes, under King Gustavus Adolphus, and the Imperialists, under Wallenstein. On the 5/15th November, Gustavus, with some 20,000 men, advanced from Naumburg on the Saale to meet a contingent of his German allies at Grimma, S.E. of Leipzig, but becoming aware of the presence of Wallenstein's army near Lützen, and that it had been weakened by a large detachment sent away under Pappenheim towards Halle, he turned towards Lützen. Wallenstein's posts at Weissenfels and Rippach prevented him from fighting his main battle the same evening, and the Swedes went into camp near Rippach, a little more than an hour's march from Lützen.

Wallenstein made ready to give battle on the following day and recalled Pappenheim. The latter had taken a small castle, the reduction of which was one of the objects of his expedition, but his men had dispersed to plunder and could not be rallied before the following morning. Gustavus had now to choose between proceeding to Grimma and fighting Wallenstein on the chance that Pappenheim had not rejoined. He chose the latter. In the mist of the early morning Wallenstein's army was formed in line of battle along the Leipzig road with its right on Lützen. Its left was not carried out as far as the Flossgraben in order to leave room on that flank for Pappenheim. His infantry was arranged in five huge oblongs, four of which (in lozenge formation) formed the centre and one the right wing at Lützen. These "battalias" had their angles strengthened in the old-fashioned way that had prevailed since Marignan, with small outstanding bodies of musketeers, so that they resembled rectangular forts with bastions. On either side of this centre was the cavalry in two long lines, while in front of the centre and close to the right at Lützen were the two batteries of heavy artillery. Lützen was set on fire as a precaution. Skirmishers lined the bank and the ditch of the Leipzig road. The total strength of the Imperial army was about 12,000 foot and 8000 horse.
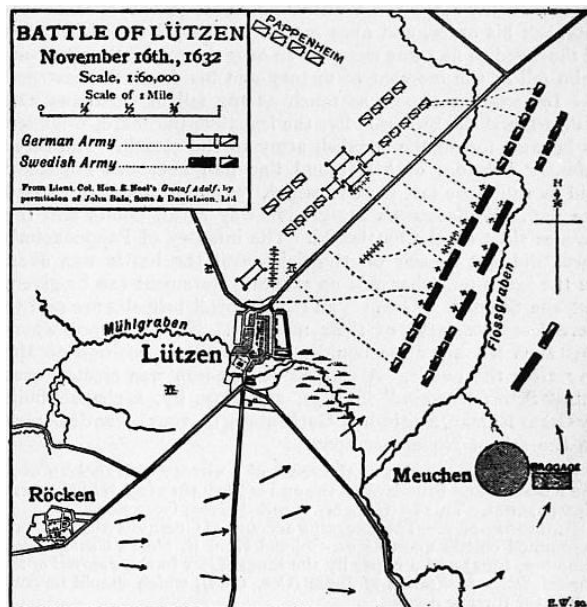
Gustavus's hopes of an early decision were frustrated by the fog, which delayed the approach and deployment of the Swedes. It was 8 A.M. before all was ready. The royal army was in two lines. The infantry in the centre was arrayed in the small and handy battalions then peculiar to Gustavus's army, the horse on either wing extended from opposite Lützen to some distance beyond Wallenstein's left, which Pappenheim was to extend on his arrival. By the accident of the terrain, or perhaps, following the experience of Breitenfeld (*q.v.*), by design, the right of the Swedes was somewhat nearer to the enemy than the left. In front, near the centre, were the heavy guns and each infantry battalion had its own light artillery. The force of infantry and cavalry on either side was about equal, the Swedes had perhaps rather less cavalry and rather more infantry, but their artillery was superior to Wallenstein's. Not until 11 was it possible to open fire, for want of a visible target, but about noon, after a preliminary cannonade, Gustavus gave the word to advance.

The king himself commanded the right wing, which had to wait until small bodies of infantry detached for the purpose had driven in the Imperialist skirmish line, and had then to cross a ditch leading the horses. They were not charged by the Imperialists at this moment, for Pappenheim had not yet arrived, and the usual cavalry tactics of the day were founded on the pistol and not on the sword and the charging horse. Gaining at last room to form, the Swedes charged and routed the first line of the Imperial cavalry but were stopped by the heavy squadrons of cuirassiers in second line, and at that moment Gustavus

galloped away to the centre where events had taken a serious turn. The Swedish centre (infantry) had forced their way across the Leipzig road and engaged Wallenstein's living forts at close quarters. The "Blue" brigade—Gustavus's infantry wore distinctive colours—overran the battery of heavy guns, and the "Swedish"[1] and "Yellow" brigades engaged the left face of the Imperialist lozenge with success. But a gap opened between the right of the infantry and the left of the cavalry and Wallenstein's second line squadrons pressed into it. It was this which brought Gustavus from the extreme right, and he was killed here in leading a counter charge.

On the extreme left, meanwhile, the "Green" brigade had come to close quarters with Wallenstein's infantry and guns about Lützen, and the heavy artillery had gone forward to close range between the "Green" and the "Yellow" infantry. But the news of Gustavus's death spread and the fire of the assault died out. Wallenstein advanced in his turn, recaptured his guns and drove the Swedes over the road.

But the fiery Duke Bernhard of Saxe-Weimar took up the command and ordered a fresh advance. He was too good a soldier to waste his reserves and only brought up a few units of the second line to help the disordered brigades of the first. Again the Imperialists were driven in and their guns recaptured, this time all along the line. About three in the afternoon the Swedes were slowly bearing back Wallenstein's stubborn infantry when Pappenheim appeared. The famous cavalry leader had brought on his mounted men ahead of the infantry and asking, "Where is the king of Sweden?" charged at once in the direction of the enemy's right. Wallenstein thus gained time to reestablish his order, and once more the now exhausted brigades of the Swedish first line were driven over the road. But Pappenheim fell in the moment of victory and his death disheartened the Imperialists almost as much as the fall of Gustavus had disheartened the Swedes. For the last time Bernhard, wounded as he was, forced the Swedish army to the attack. The three infantry brigades of his second line had not been engaged,[2] and as usual the last closed reserve, resolutely handled, carried the day. Wallenstein's army gave way at all points and the Swedes slept on the battlefield. The infantry of Pappenheim's corps did not appear on the field until the battle was over. Of the losses on either side no accurate statement can be given, but the Swedish "Green" and "Yellow" brigades are said to have lost five-sixths of their numbers. Near the spot where Gustavus fell a granite boulder was placed in position on the day after the battle. A canopy of cast-iron was erected over this "Schwedenstein" in 1832, and close by, a chapel, built by Oskar Ekman. a citizen of Gothenburg (d. 1907), was dedicated on the 6th of November 1907.

Lützen is famous also as the scene of a victory of Napoleon over the Russians and Prussians on the 2nd of May 1813 (see Napoleonic Campaigns). This battle is often called Gross Görschen.

Bibliography.—The foregoing account of Gustavus's last victory is founded chiefly upon Lieut.-Colonel Hon. E. Noel's *Gustaf Adolf* (London, 1904) and a paper by the same officer in the *Journal of the United States Institution of India* (Oct. 1908), which should be consulted for further details.

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1   So called as being the only brigade containing no foreign elements in the army.

2   They had, however, found detachments to reinforce the first line.

LÜTZOW, ADOLF, Freiherr von (1782-1834)

LÜTZOW, ADOLF, Freiherr von (1782-1834), Prussian lieutenant-general, entered the army in 1795, and eleven years later as a lieutenant took part in the disastrous battle of Auerstädt. He achieved distinction in the siege of Colberg, as the leader of a squadron of Schill's volunteers. In 1808, as a major, he retired from the Prussian army, indignant at the humiliating treaty of Tilsit. He took part in the heroic venture of his old chief Schill in 1809; wounded at Dodendorf and left behind, he thereby escaped the fate of his comrades. In 1811 he was restored to the Prussian army as major, and at the outbreak of the "war of liberation" received permission from Scharnhorst to organize a "free corps" consisting of infantry, cavalry and Tirolese marksmen, for operating in the French rear and rallying the smaller governments into the ranks of the allies. This corps played a marked part in the campaign of 1813. But Lützow was unable to coerce the minor states, and the wanderings of the corps had little military influence. At Kitzen (near Leipzig) the whole corps, warned too late of the armistice of Poischwitz, was caught on the French side of the line of demarcation and, as a fighting force, annihilated. Lützow himself, wounded, cut his way out with the survivors, and immediately began reorganizing and recruiting. In the second part of the campaign the corps served in more regular warfare under Wallmoden. Lützow and his men distinguished themselves at Gadebusch (where Körner fell) and Göhrde (where Lützow himself, for the second time, received a severe wound at the head of the cavalry). Sent next against Denmark, and later employed at the siege of Jülich, Lützow in 1814 fell into the hands of the French. After the peace of 1814 the corps was dissolved, the infantry becoming the 25th Regiment, the cavalry the 6th Ulans. At Ligny he led the 6th Ulans to the charge, but they were broken by the French cavalry, and he finally remained in the hands of the enemy, escaping, however, on the day of Waterloo. Made colonel in this year, his subsequent promotions were: major-general 1822, and lieutenant-general (on retirement) 1830. He died in 1834. One of the last acts of his life for which Lützow is remembered is his challenge (which was ignored) to Blücher, who had been ridden down in the rout of the 6th Ulans at Ligny, and had made, in his official report, comments thereon, which their colonel considered disparaging.

See Koberstein in *Preussisches Jahrbuch*, vol. xxiii (Berlin, 1868), and *Preussisches Bilderbuch* (Leipzig, 1889); K. von Lützow, *Adolf Lützows Freikorps* (Berlin, 1884); Fr. von Jagwitz, *Geschichte des Lützowschen Freikorps* (Berlin, 1892); and the histories of the campaigns of 1813 and 1815.

LUXEMBURG, FRANÇOIS HENRI DE MONTMORENCY-BOUTEVILLE, Duke of (1628-1695)

LUXEMBURG, FRANÇOIS HENRI DE MONTMORENCY-BOUTEVILLE, Duke of (1628-1695), marshal of France, the comrade and successor of the great Condé, was born at Paris on the 8th of January 1628. His father, the comte de Montmorency-Bouteville, had been executed six months before his birth for killing the marquis de Beuvron in a duel, but his aunt, Charlotte de Montmorency, princess of Condé, took charge of him and educated him with her son, the duc d'Enghien. The young Montmorency (or Bouteville as he was then called) attached himself to his cousin, and shared his successes and reverses throughout the troubles of the Fronde. He returned to France in 1659 and was pardoned, and Condé, then much attached to the duchesse de Châtillon, Montmorency's sister, contrived the marriage of his adherent and cousin to the greatest heiress in France, Madeleine de Luxemburg-Piney, princesse de Tingry and heiress of the Luxemburg dukedom (1661), after which he was created duc de Luxembourg and peer of France. At the opening of the War of Devolution (1667-68), Condé, and consequently Luxemburg, had no command, but during the second campaign he served as Condé's lieutenant-general in the conquest of Franche Comté. During the four years of peace which followed Luxemburg cultivated the favour of Louvois, and in 1672 held a high command against the Dutch. He defeated the prince of Orange at Woerden and ravaged Holland, and in 1673 made his famous retreat from Utrecht to Maestricht with only 20,000 men in face of 70,000, an exploit which placed him in the first rank of generals. In 1674 he was made captain of the gardes du corps, and in 1675 marshal of

France. In 1676 he was placed at the head of the army of the Rhine, but failed to keep the duke of Lorraine out of Philipsburg; in 1677 he stormed Valenciennes; and in 1678 he defeated the prince of Orange, who attacked him at St Denis after the signature of the peace of Nijmwegen. His reputation was now high, and it is reputed that he quarrelled with Louvois, who managed to involve him in the "affair of the poisons" (see La Voisin, Catherine) and get him sent to the Bastille. Rousset in his *Histoire de Louvois* has shown that this quarrel is probably apocryphal. There is no doubt that Luxemburg spent some months of 1680 in the Bastille, but on his release took up his post at court as *capitaine des gardes*. When the war of 1690 broke out, the king and Louvois recognized that Luxemburg was the only general fit to cope with the prince of Orange, and he was put in command of the army of Flanders. On the 1st of July 1690 he won a great victory over the prince of Waldeck at Fleurus. In the following year he commanded the army which covered the king's siege of Mons and defeated William III. of England at Leuze on September 18, 1691. Again in the next campaign he covered the king's siege of Namur, and defeated William at Steenkirk (*q.v.*) on June 5, 1692; and on July 29, 1693, he won his greatest victory over his old adversary at Neerwinden, after which he was called *le tapissier de Nôtre Dame* from the number of captured colours that he sent to the cathedral. He was received with enthusiasm at Paris by all but the king, who looked coldly on a relative and adherent of the Condés. St Simon describes in the first volume of his *Memoirs* how, instead of ranking as eighteenth peer of France according to his patent of 1661, he claimed through his wife to be duc de Piney of an old creation of 1571, which would place him second on the roll. The affair is described with St Simon's usual interest in the peerage, and was chiefly checked through his assiduity. In the campaign of 1694, Luxemburg did little in Flanders, except that he conducted a famous march from Vignamont to Tournay in face of the enemy. On his return to Versailles for the winter he fell ill, and died on January 4, 1695. In his last moments he was attended by the famous Jesuit priest Bourdaloue, who said on his death, "I have not lived his life, but I would wish to die his death." Luxemburg's morals were bad even in those times, and he had shown little sign of religious conviction. But as a general he was Condé's grandest pupil. Though slothful like Condé in the management of a campaign, at the moment of battle he seemed seized with happy inspirations, against which no ardour of William's and no steadiness of Dutch or English soldiers could stand. His death and Catinat's disgrace close the second period of the military history of the reign of Louis XIV., and Catinat and Luxemburg, though inferior to Condé and Turenne, were far superior to Tallard and Villeroi. He was distinguished for a pungent wit. One of his retorts referred to his deformity. "I never can beat that cursed humpback," William was reputed to have said of him. "How does he know I have a hump?" retorted Luxemburg, "he has never seen my back." He left four sons, the youngest of whom was a marshal of France as Maréchal de Montmorency.

See, besides the various memoirs and histories of the time, Beaurain's *Histoire militaire du duc de Luxembourg* (Hague and Paris, 1756); *Mémoires pour servir a l'histoire du maréchal duc de Luxembourg* (Hague and Paris, 1758); Courcelles, *Dictionnaire des généraux français* (Paris, 1823), vol. viii. There are some interesting facts in Desormeaux's *Histoire de la maison de Montmorency* (1764), vols. iv. and v. Camille Rousset's *Louvois* and the recent biography of Luxemburg by Count de Ségur (1907) should also be studied.

LUXEMBURG, a district in the European low countries, of which the eastern part forms the grand-duchy of Luxemburg, and the western is the Belgian province of that name (for map, see Belgium). The name is derived from the chief town.

Under the Romans the district was included in the province of *Belgica prima*, afterwards forming part of the Frankish kingdom of Austrasia and of the empire of Charlemagne. About 1060 it came under the rule of Conrad (d. 1086), who took the title of count of Luxemburg. His descendants ruled the county, first in the male and then in the female line, until the death of the emperor Sigismund in 1437. Through the marriage of Sigismund's daughter, Elizabeth, with the German king, Albert II., Luxemburg, which had been made a duchy in 1354, passed to the house of Habsburg, but was seized in 1443 by Philip III. the Good, duke of Burgundy, who based his claim upon a bargain concluded with Sigismund's niece Elizabeth (d. 1451). Regained by the Habsburgs in 1477 when Mary, daughter and heiress of duke Charles the Bold, married the German king Maximilian I., the duchy passed to Philip II. of Spain in 1555, though subject to the laws of the empire, of which it still formed part. After a section had been ceded to France in 1659, the remainder was given to the emperor Charles VI. by the treaty of Utrecht in 1713. It was conquered by France in 1795, and retained by that power until the end of the Napoleonic wars. The congress of Vienna (1814-1815) erected Luxemburg into a grand-duchy, added part of the duchy of Bouillon to it, and assigned it to William I., king of the Netherlands, in return for the German territories of the house of Orange-Nassau, which Napoleon had confiscated in 1806, and which were given by the congress to the king of Prussia. In 1830 when the Belgian provinces separated from Holland, an effort was made to include Luxemburg in the new kingdom of the Belgians; but in November 1831 the powers decided that part of the grand-duchy should be retained by the king of Holland, who refused to accept this arrangement. Consequently the whole of Luxemburg remained in the possession of the Belgians until 1838, when the treaty of the 19th of April, concluded at the conference of London, enforced the partition of 1831.

The grand-duchy of Luxemburg, the portion under the rule of William I. retaining the name, was ruled by the kings of Holland until the death of William III. in 1890. William's daughter, Wilhelmina, succeeded to the throne of Holland, but under the Salic law[1] the grand-duchy passed to his kinsman, Adolphus, duke of Nassau, who died in 1905, and was succeeded by his son William (b. 1852).

By modifications of the treaty of Vienna the garrisoning of the fortress of Luxemburg had passed into Prussian hands, an arrangement which lasted until 1867. In the previous year the German Confederation, to which the grand-duchy of Luxemburg had belonged since 1815, had been dissolved; but the Prussians maintained their garrison in Luxemburg, which was not included in the new North German Confederation, while King William III. proposed to sell his rights over the grand-duchy to France. The Prussians were irritated by this proposal, but war was averted, and the question was referred to a conference of the powers in London. The treaty of London, signed on the 11th of May 1867, decided that the Prussian garrison must be withdrawn and the fortress dismantled, which was done in 1872. At the same time the great powers guaranteed the neutrality of the grand-duchy, and although a member of the German *Zollverein*, Luxemburg now forms a sovereign and independent state.

The Grand-Duchy lies S.E. of Belgium. Its area is 999 sq. m., with a population (1905) of 246,455. The people are nearly all Catholics. The country is rich in iron ore. The hills in the south of the duchy are a continuation of the Lorraine plateau, and the northern districts are crossed in all directions by outrunners from the Ardennes. The streams mostly join the Moselle, which forms the boundary between Luxemburg and the Rhine province for about 20 m. The Sure or Sauer, the most important stream in the duchy, rises at Vaux-les-Rosières in Belgian Luxemburg, crosses the duchy, and forms the eastern boundary from the confluence of the Our till it joins the Moselle after a course of 50 m., during which it receives the Wiltz, Attert, Alzette, White and Black Ernz, &c. The soil of Luxemburg is generally good; the southern districts are on the whole the most fertile as well as the most populous. Building materials of all sorts are obtained throughout the duchy. Besides the iron furnaces, situated in the south near the Lorraine plateau, there are tanneries, weaving and glove-making factories, paper-mills for all sorts of paper, breweries and distilleries, and sugar refineries. A German patois mixed with French words is spoken throughout the country; but French, which is employed by the commercial community, is also the common speech on the French and Belgian frontiers. Though liberty of worship prevails, Roman Catholicism is almost the sole form. The government is in the hands of the grand-duke, who sanctions and promulgates the laws. There is a council (*staatsrat*) of 15 members. There is a chamber of deputies with 48 members elected by the cantons (12 in number) for six years, half the body being elected

every three years. No law can be passed without the consent of the chamber. Bills are introduced by the grand-duke, but the house has also the right of initiative. A single battalion (150) of volunteers composes the grand-ducal army. The gendarmerie consists of about 150 men. There are cantonal courts and two district courts, one at Luxemburg, the other at Diekirch, and a high court at Luxemburg. The bishopric of Luxemburg holds its authority directly from the Holy See. From 13,000,000 to 17,000,000 francs is the annual amount of the state budget, and the debt, consisting of loans contracted principally for the construction of railways, of which there are about 350 m., is 12,000,000 francs.

Among towns next to the capital, Luxemburg, are Echternach and Diekirch, both worthy of note for their blast furnaces. Grevenmacher is the centre of a great wine district.

The PROVINCE OF LUXEMBURG is the largest and least populous of the nine provinces of Belgium. Its capital is Arlon, which lies near the borders of the grand-duchy. A considerable part of the province is forested and the state requires systematic replanting. Marble, granite and slate quarries are worked in different districts. Successful attempts have been made to introduce fruit cultivation. The province is well watered by the Ourthe, the Semois and the Sûre. The general elevation of the country is about 500 ft., but the hills and plateaus which form the prominent feature in the scenery of Luxemburg range from 1200 to 1500 ft. The highest point of the province is the Baraque de Fraiture (1980 ft.), N.E. of La Roche. The woods are well stocked with red and roe deer, wild boar, hares, rabbits, pheasants, woodcock and snipe. The area of the province is 1725 sq. m. The population was 225,963 in 1904.

The HOUSE OF LUXEMBURG was descended from Count Conrad (d. 1086), and its fortunes were advanced through the election of Count Henry IV. as German king in 1308 and his coronation as emperor under the title of Henry VII. Henry's son was John, king of Bohemia, who fell on the field of Crécy, and John's eldest son was the emperor Charles IV., while another famous member of the family was Baldwin, archbishop of Treves (1285-1354), who took an active part in imperial affairs. Two of the sons of Charles IV., Wenceslaus and Sigismund, succeeded in turn to the imperial throne, and one of his nephews, Jobst, margrave of Moravia, was chosen German king in opposition to Sigismund in 1410. The French branch of the Luxemburg family was descended from Waleran (d. 1288), lord of Ligny and Roussy, a younger son of Count Henry II. Waleran's great-grandson was Guy (d. 1371), who married Matilda, sister and heiress of Guy V., count of Saint-Pol (d. 1360), and was created count of Ligny in 1367. Guy's son, Waleran (d. 1417), who became constable of France in 1412, had been carried as a prisoner to England, and had married Matilda, daughter of Thomas Holland, earl of Kent (d. 1360) and half-sister of King Richard II. To avenge Richard's death he made a raid on the Isle of Wight, and then took part in the civil wars in France. He left no sons, and was succeeded by his nephew, Peter, count of Brienne (d. 1433), who, like his brother Louis (d. 1443), cardinal archbishop of Rouen and chancellor of France, was found on the side of the English in their struggle against France. Another of Peter's brothers, John (d. 1440), a stout supporter of England, was made governor of Paris by Henry V. He sold Joan of Arc to the English. Peter's son and successor, Louis, fought at first for England, but about 1440 he entered the service of France and obtained the office of constable. King Louis XI. accused him of treachery, and he took refuge with Charles the Bold, duke of Burgundy; but the duke handed him over to the king and he was beheaded in 1475. The elder branch of his descendants became extinct in the male line in 1482, and was merged through the female line in the house of Bourbon-Vendôme. Louis's third son, Anthony (d. 1510), founded the family of Luxemburg-Brienne, the senior branch of which became extinct in 1608. A junior branch, however, was the family of the duke of Luxemburg-Piney, whose last representative, Margaret-Charlotte (d. 1680), married firstly Léon d'Albert de Luynes (d. 1630) and secondly Charles Henry de Clermont-Tonnerre (d. 1674). Her daughter by her second husband, Madeleine Charlotte, married Francis Henry de Montmorenci (d. 1695) and de Luynes, and, subsequently, members of the family of Montmorenci claimed the title of duke of Luxemburg. The Luxembourg palace in Paris owes its name to the fact that it was built on a site belonging to the duke of Luxemburg-Piney.

See N. van Werveke, *Beiträge zur Geschichte des Luxemburger Landes* (Luxemburg, 1886-1887); J. Schötter, *Geschichte des Luxemburger Landes* (Luxemburg, 1882); and N. Vigner, *Histoire de la maison de Luxembourg* (Paris, 1619).

[1]   It should be noticed, however, that the Salic law is subordinate to the Nassau family law, which provides for the succession in the case of the *complete extinction* of males. Thus Article xlii. of the Nassau Pact of the 30th of June 1783 provides "that in the event of the extinction of males, the rights of succession pass to the daughter or nearest heiress of the last male."

LUXEMBURG, or LÜTZELBURG (*i.e.* the little fortress or town), the capital of the grand-duchy of the same name (see above), situated on the Alzette, a tributary of the Sûre. Pop. (1905) 20,984. The situation is romantic, steep cliffs overhanging the winding river, and the principal portion of the town with the palace and public buildings covering a central plateau. The more densely populated parishes of Clausen, Pfaffenthal and Grund lie in the valley. As a fortress Luxemburg was considered the strongest in Europe after Gibraltar, which it was supposed to resemble because many of its casemates were cut into the rock. It was dismantled in 1867. Two colossal viaducts carry the railway and the approach from the railway station to the town. Since the place ceased to be a fortress the population has more than doubled, and the Alzette is lined with tanneries, breweries and distilleries. The Hôtel de Ville dates from 1844 and contains a collection of antiquities. The church of Notre Dame was built in 1613, and that of St Michael, with parts dating from 1320, contains the tomb of blind John of Luxemburg, king of Bohemia, slain at Crécy. There are two annual fête days, one in honour of Our Lady of Luxemburg, patroness of the city, held on the Sunday before Ascension Day, and the other the annual fair or *Schobermesse* (tent fair), instituted in 1340 and held each year on the 24th of August.

LUXEUIL-LES-BAINS, a town of eastern France, in the department of Haute-Saône, 18 m. N.E. of Vesoul. Pop. (1906) 5195. It is situated in a region of forests on the right bank of the Breuchin. It has an abbey-church dating from the 13th and 14th centuries, containing a curious 17th-century organ loft in the form of an immense bracket supported by a colossal figure of Hercules. The abbot's palace (16th and 18th centuries) serves as presbytery and town hall. A cloister of the 15th century and other buildings of the 17th century also remain. There are several mansions and houses dating from various periods from the 14th to the 16th century. The Maison Carrée, once the town hall, an interesting specimen of 15th-century architecture, was built by Perrin Jouffroy, father of Cardinal Jouffroy. The cardinal, who was born at Luxeuil in 1412, built the house with a graceful balcony and turret which faces the Maison Carrée. The Maison de la Baille and the Maison François I. are of the Renaissance period. The fine modern Grammont Hospital is in the style of Louis XIII. Luxeuil is renowned for its mineral springs, of which there are seventeen, two being ferruginous, and the rest charged with chloride of sodium; their temperatures range from 70° to 158° F. The water is employed for drinking and for baths. The bathing establishment contains a museum of Gallo-Roman antiquities and there are also remains of Roman baths and aqueducts to be seen in or near it. Luxeuil has a communal college. Copper-founding, the spinning and weaving of cotton, lace-making, dyeing and the distilling of kirsch are carried on.

Luxeuil was the Roman *Lixovium* and contained many fine buildings at the time of its destruction by the Huns under Attila in 451. In 590 St Columban here founded a monastery, afterwards one of the most famous in Franche Comté. In the 8th century it was destroyed by the Saracens; afterwards rebuilt, monastery and town were devastated by the Normans in the 9th century and plllaged on several occasions afterwards. The abbey schools were celebrated in the middle ages and the abbots had great influence; but their power was curtailed by the emperor Charles V. and the abbey was suppressed at the Revolution.

See H. Beaumont, *Étude hist. sur l'abbaye de Luxeuil, 590-1790* (Lux. 1895); Grandmongin and A. Garnier, *Hist. de la ville et des thermes de Luxeuil* (Paris, 1866), with 16 plates.

LUXOR, more properly El-Aksur, "The Castles" (plur. of kasr), a town of Upper Egypt, on the east bank of the Nile 450 m. above Cairo by river and 418 by rail. Pop. (1907 census) 12,644. It is the centre for visitors to the ruins of and about Thebes, and is frequented by travellers and invalids in the winter season, several fine hotels having been built for their accommodation. There are Anglican and Roman Catholic churches, and a hospital for natives, opened in 1891. The district is the seat of an extensive manufacture of forged antiques.

The temple of Luxor is one of the greatest of the monuments of Thebes (*q.v.*). It stands near the river bank on the S.W. side of the town and measures nearly 300 yds. from back to front. There may have been an earlier temple here, but the present structure, dedicated to the Theban triad of Ammon, Mut and Khons, was erected by Amenophis III. The great colonnade, which is its most striking feature, was apparently intended for the nave of a hypostyle hall like that of Karnak, but had to be hastily finished without the aisles. After the heresy of Amenophis IV. (Akhenaton), the decoration of this incomplete work was taken in hand by Tutenkhamun and Haremhib. The axis of the temple ran from S.W. to N.E.; a long paved road bordered by recumbent rams led from the façade to the temples of Karnak (*q.v.*) in a somewhat more easterly direction, and Rameses II. adopted the line of this avenue in adding an extensive court to the work of Amenophis, producing a curious change of axis. He embellished the walls and pylons of his court with scenes from his victories over Hittites and Syrians, and placed a number of colossal statues within it. In front of the pylon Rameses set up colossi and a pair of obelisks (one of which was taken to Paris in 1831 and re-erected in the Place de la Concorde). A few scenes and inscriptions were added by later kings, but the above is practically the history of the temple until Alexander the Great rebuilt the sanctuary itself. The chief religious festival of Thebes was that of "Southern Opi," the ancient name of Luxor. The sacred barks of the divinities preserved in the sanctuary of Karnak were then conveyed in procession by water to Luxor and back again; a representation of the festal scenes is given on the walls of the great colonnade. The Christians built churches within the temple. The greater part of the old village of Luxor lay inside the courts: it was known also as Abu 'l Haggag from a Moslem saint of the 7th century, whose tomb-mosque, mentioned by Ibn Batuta, stands on a high heap of débris in the court of Rameses. This is the last of the buildings and rubbish which encumbered the temple before the expropriation and clearances by the Service des Antiquités began in 1885. The principal street of Luxor follows the line of the ancient avenue.

See G. Daressy, *Notice explicative des ruines du temple de Louxor* (Cairo, 1803); Baedeker's *Egypt*.

(F. Ll. G.)

LUXORIUS, Roman writer of epigrams, lived in Africa during the reigns of the Vandal kings Thrasamund, Hilderic and Gelimer (A.D. 496-534). He speaks of his poor circumstances, but from the superscription *clarissimus* and *spectabilis* in one MS., he seems to have held a high official position. About a hundred epigrams by him in various metres (the elegiac predominating) have been preserved. They are after the manner of Martial, and many of them are coarse. They deal chiefly with the games of the circus and works of art, and the language shows the author to have been well acquainted with the legends and antiquities of the classical period of Rome.

Luxorius also wrote on grammatical subjects (see R. Ellis in *Journal of Philology*, viii., 1879). The epigrams are contained in the *Anthologia Latina*, edited by F. Bücheler and A. Riese (1894).

LUYNES, a territorial name belonging to a noble French house. The family of Albert, which sprang from Thomas Alberti (d. 1455), seigneur de Boussargues, *bailli* of Viviers and Valence, and *viguier* of Bagnols and Pont St Esprit in Languedoc, acquired the estate of Luynes (dep. of Indre-et-Loire) in the 16th century. Honoré d'Albert (d. 1592), seigneur de Luynes, was in the service of the three last Valois kings and of Henry IV., and became colonel of the French bands, commissary of artillery in Languedoc and governor of Beaucaire. He had three sons: Charles (1578-1621), first duke of Luynes, and favourite of Louis XIII.; Honoré (1581-1649), seigneur de Cadenet, who married Charlotte Eugénie d'Ailly, countess of Chaulnes, in 1619, and was created duke of Chaulnes in 1621; and Léon, seigneur de Brantes, who became duke of Luxemburg-Piney by his marriage in 1620 with Margaret Charlotte of Luxemburg.

By her marriage with Claude of Lorraine, duke of Chevreuse, Marie de Rohan, the widow of the first duke of Luynes, acquired in 1655 the duchy of Chevreuse, which she gave in 1663 to Louis Charles d'Albert, her son by her first husband; and from that time the title of duke of Chevreuse and duke of Luynes was borne by the eldest sons of the family of Luynes, which also inherited the title of duke of Chaulnes on the extinction of the descendants of Honoré d'Albert in 1698. The branch of the dukes of Luxemburg-Piney became extinct in 1697.

Charles (1578-1621), the first duke of Luynes, was brought up at court and attended the dauphin, who later became Louis XIII. The king shared his fondness for hunting and rapidly advanced him in favour. In 1615 he was appointed commander of the Louvre and counsellor, and the following year grand falconer of France. He used his influence over the king in the court intrigues against the queen-mother Marie de Medici and her favourite Concini. It was Luynes who, with Vitry, captain of the guard, arranged the plot that ended in Concini's assassination (1617) and secured all the latter's possessions in Italy and France. In the same year he was appointed captain of the Bastille and lieutenant-general of Normandy, and married Marie de Rohan, daughter of the duke of Montbazon. He employed extreme measures against the pamphleteers of the time, but sought peace in Italy and with the Protestants. In 1619 he negotiated the treaty of Angoulême by which Marie de Medici was

accorded complete liberty. He was made governor of Picardy in 1619; suppressed an uprising of nobles in 1620; and in 1621, with slight military ability or achievement, was appointed constable of France. His rapid rise to power made him a host of enemies, who looked upon him as but a second Concini. In order to justify his newly-won laurels, Luynes undertook an expedition against the Protestants, but died of a fever in the midst of the campaign, at Longueville in Guienne, on the 15th of December 1621.

His brother Honoré (1581-1649), first duke of Chaulnes, was governor of Picardy and marshal of France (1619), and defended his province successfully in 1625 and 1635. Louis Auguste d'Albert d'Ailly (1676-1744), duke of Chaulnes, also became marshal of France (1741). Louis Joseph d'Albert de Luynes (1670-1750), prince of Grimberghen, was in the service of the emperor Charles VII., and became field-marshal and ambassador in France.

Several members of the family of Albert were distinguished in letters and science. Louis Charles d'Albert (1620-1690), duke of Luynes, son of the constable, was an ascetic writer and friend of the Jansenists; Paul d'Albert de Luynes (1703-1788), cardinal and archbishop of Sens, an astronomer; Michel Ferdinand d'Albert d'Ailly (1714-1769), duke of Chaulnes, a writer on mathematical instruments, and his son Marie Joseph Louis (1741-1793), a chemist; and Honoré Théodore Paul Joseph (1802-1867), duke of Luynes, a writer on archaeology.

For the first duke see *Recueil des pièces les plus curieuses qui ont esté faites pendant le règne du connestable M. de Luynes* (2nd ed., 1624); Le Vassor, *Histoire de Louis XIII.* (Paris, 1757); Griffet, *Histoire du règne de Louis XIII., roi de France et de Navarre* (Paris, 1758); V. Cousin, "Le Duc et connétable de Luynes," in *Journal des savants* (1861-1863); B. Zeller, *Études critiques sur le règne de Louis XIII.: le connétable de Luynes, Montauban et la Valteline* (Paris, 1879); E. Pavie, *La Guerre entre Louis XIII. et Marie de Médicis* (Paris, 1899); Lavisse, *Histoire de France*, vi.[2], 141-216 (Paris, 1905).

LUZÁN CLARAMUNT DE SUELVES Y GURREA, IGNACIO (1702-1754), Spanish critic and poet, was born at Saragossa on the 28th of March 1702. His youth was passed under the care of his uncle, and, after studying at Milan, he graduated in philosophy at the university of Catania. In 1723 he took minor orders, but abandoned his intention of entering the church and took up his residence at Naples, where he read assiduously. Business took him to Spain in 1733, and he became known in Madrid as a scholar with a tendency towards innovations in literature. *La Poética, ó Reglas de la poesía en general y de sus principales especies* (1737) proved that this impression was correct. He at once took rank as the leader of the literary reformers, and his courteous determination earned him the respect of his opponents. In 1747 he was appointed secretary to the Spanish embassy in Paris and, on returning to Madrid in 1750, was elected to the "Academia Poética del Buen Gusto," where, on account of his travels, he was known by the sobriquet of *El Peregrino*. He became master of the mint and treasurer of the royal library. He died at Madrid, after a short illness, on the 19th of May 1754. Luzán was not the pioneer of Franco-Italian theories in Spain, but he was their most powerful exponent, and his *Poética* is an admirable example of destructive criticism. The defects of Lope de Vega and Calderón are indicated with vigilant severity, but on the constructive side Luzán is notably weak, for he merely proposes to substitute one exhausted convention for another. The doctrine of the dramatic unities had not the saving virtues which he ascribed to it, and, though he succeeded in banishing the older dramatists from the boards, he and his school failed to produce a single piece of more than mediocre merit. His theories, derived chiefly from Muratori, were ineffective in practice; but their ingenuity cannot be denied, and they acted as a stimulus to the partisans of the national tradition.

LUZ-SAINT-SAUVEUR, a town of south-western France in the department of Hautes-Pyrénées, 21 m. S. of Lourdes by rail. Pop. (1906) 1069. Luz is beautifully situated at a height of 2240 ft. on the Bastan. It has a remarkable church, built by the Templars in the 12th and 13th centuries and fortified later. The crenelated ramparts with which it is surrounded, and the tower to the north of the apse resembling a keep, give it the aspect of a fortress; other interesting features are the Romanesque north door and a chapel of the 16th century. The village of St Sauveur lies a little above Luz on the left bank of the gorge of the Gave de Pau, which is crossed higher up by the imposing Pont Napoléon (1860). It is a pleasant summer resort, and is visited for its warm sulphurous springs. Discovered in the 16th century, the waters came into vogue after 1820, in which year they were visited by the duchesses of Angoulême and Berry. There is much picturesque mountain scenery in the vicinity; 12 m. to the south is the village of Gavarnie, above which is the magnificent rock amphitheatre or *cirque* of Gavarnie, with its cascade, one of the highest in Europe.

LUZZATTI, LUIGI (1841-   ), Italian economist and financier, was born of Jewish parents at Venice on the 11th of March 1841. After completing his studies in law at the university of Padua, he attracted the attention of the Austrian police by his lectures on political economy, and was obliged to emigrate. In 1863 he obtained a professorship at the Milan Technical Institute; in 1867 he was appointed professor of constitutional law at Padua, whence he was transferred to the university of Rome. Gifted with eloquence and energy, he popularized in Italy the economic ideas of Schultze-Delitzsch, worked for the establishment of a commercial college at Venice, and contributed to the spread of people's banks on a basis of limited liability throughout the country. In 1869 he was appointed by Minghetti under secretary of state to the ministry of agriculture and commerce, in which capacity he abolished government control over commercial companies and promoted a state inquiry into the conditions of industry. Though theoretically a free trader, he was largely instrumental in creating the Italian protective system. In 1877 he participated in the commercial negotiations with France, in 1878 compiled the Italian customs tariff, and subsequently took a leading part in the negotiations of all the commercial treaties between Italy and other countries. Appointed minister of the treasury in the first Di Rudini cabinet of 1891, he imprudently abolished the system of frequent clearings of bank-notes between the state banks, a measure which facilitated the duplication of part of the paper currency and hastened the bank crisis of 1893. In 1896 he entered the second Di Rudini cabinet as minister of the treasury, and by timely legislation helped to save the bank of Naples from failure. After his fall from office in June 1898, his principal achievement was the negotiation of the Franco-Italian commercial treaty, though, as deputy, journalist and professor, he continued to take an active part in all political and economic manifestations. He was again minister of the treasury from November 1903 to March

1905 in Giolitti's second administration, and for the third time from February to May 1906, under Sonnino's premiership. During the latter term of office he achieved the conversion of the Italian 5% debt (reduced to 4% by the tax) to 3¾% to be eventually lowered to 3½%, an operation which other ministers had attempted without success; although the actual conversion was not completed until after the fall of the cabinet of which he formed part the merit is entirely his. In 1907 he was president of the co-operative congress at Cremona.

See L. Carpi's *Risorgimento Italiano*, vol. ii. (Milan, 1886), which contains a biographical sketch of Luzzatti.

LUZZATTO, MOSES ḤAYIM (1707-1747), Hebrew dramatist and mystic, was born in Padua 1707, and died at Acre 1747. He was influenced by Isaac Luria (*q.v.*) on the mystical side, and on the poetical side by Italian drama of the school of Guarini (*q.v.*). He attacked Leon of Modena's anti-Kabbalistic treatises, and as a result of his conflict with the Venetian Rabbinate left Italy for Amsterdam, where, like Spinoza, he maintained himself by grinding lenses. Here, in 1740, he wrote his popular religious manual the *Path of the Upright* (*Messilath Yesharim*) and other ethical works. He visited London, but finally settled in Palestine, where he died. Luzzatto's most lasting work is in the realm of Hebrew drama. His best-known compositions are: the *Tower of Victory* (*Migdal 'Oz*) and *Glory to the Upright* (*Layesharim Tehillah*). Both of these dramas, which were not printed at the time but were widely circulated in manuscript, are of the type which preceded the Shakespearean age—they are allegorical and all the characters are types. The beautiful Hebrew style created a new school of Hebrew poetry, and the Hebrew renaissance which resulted from the career of Moses Mendelssohn owed much to Luzzatto.

See Grätz, *History of the Jews*, v. ch. vii.; I. Abrahams, *Jewish Life in the Middle Ages*, pp. 190, 268; N. Slouschz, *The Renascence of Hebrew Literature*, ch. i.

(I. A.)

LUZZATTO, SAMUEL DAVID (1800-1865), Jewish scholar, was born at Trieste in 1800, and died at Padua in 1865. He was the most distinguished of the Italian Jewish scholars of the 19th century. The first Jew to suggest emendations to the text of the Hebrew Bible, he edited Isaiah (1856-1867), and wrote a commentary on the Pentateuch (1871). His grammatical works were mostly written in Italian. He also contributed to the history of the Synagogue liturgy, and enjoys with Geiger (*q.v.*) and Zunz (*q.v.*) the honour of reviving interest in the medieval Hebrew hymnology and secular verse.

See Grätz, *History of the Jews* (Eng. trans.), v. 622 seq.; N. Slouschz, *The Renascence of Hebrew Literature*, pp. 84-92; the *Jewish Encyclopedia*, viii. 225-226, with list of works.

(I. A.)

LYALL, SIR ALFRED COMYN (1835-   ), Anglo-Indian civil servant and man of letters, son of the Rev. Alfred Lyall, was born in 1835, and educated at Eton and Haileybury. He entered the Bengal civil service in 1855, saw service during the Mutiny in the Bulandshahr district, at Meerut, and with the Khaki Risala of volunteers. He was commissioner in Berar (1867), secretary to the government of India in the Home and Foreign departments, lieutenant-governor of the North-western Provinces (1882-1887), and member of the Council of India (1888-1903). Among his writings, his *Verses Written in India* (1889) attained considerable popularity, and in his *Asiatic Studies* (1882 and 1899) he displays a deep insight into Indian life and character. He wrote the *Life* of Lord Dufferin (1905), and made numerous contributions to periodical literature.

LYALL, EDNA, the pen-name of ADA ELLEN BAYLY (1857-1903), English novelist. She was born at Brighton in 1857, the daughter of a barrister. Her parents died while she was a child, and she was brought up at Caterham, Surrey. At Eastbourne, where most of her life was spent, she was well known for her philanthropic activity. She died on the 8th of February 1903. Edna Lyall's vogue as a novelist was the result of a combination of the story-teller's gift with a sincere ethical and religious spirit of Christian tolerance, which at the time was new to many readers. Though her *Won by Waiting* (1879) had some success, it was with *Donovan* (1882) and *We Two* (1884), in which the persecuted atheist was inevitably identified with Charles Bradlaugh, that she became widely popular. Other novels were *In the Golden Days* (1885), a story of the Great Rebellion; *Knight Errant* (1887); *Autobiography of a Slander* (1887); *A Hardy Norseman* (1889); *Derrick Vaughan, The Story of a Novelist* (1889); *To Right the Wrong* (1892); *Doreen* (1894), a statement of the case for Irish Home Rule; *The Autobiography of a Truth* (1896), the proceeds of which were devoted to the Armenian Relief Fund; *In Spite of All* (1901), which had originally been produced by Mr Ben Greet as a play; and *The Bruges Letters* (1902), a book for children.

A *Life* by J. N. Escreet appeared in 1904, and a shorter account of her by the Rev. G. A. Payne was printed at Manchester in 1903.

LYALLPUR, a district of India, in the Multan division of the Punjab. It was constituted in 1904 to comprise the "Chenab Colony," being the waste portion of the former Jhang district that is now irrigated by the Lower Chenab canal. Area, 3075 sq.

m.; pop. (1906) 654,666. It is traversed by a section of the North-western railway. The headquarters are at Lyallpur town (pop. in 1906, 13,483), named after Sir James Lyall, a lieutenant-governor. It contains several factories for ginning and pressing cotton.

See *Chenab Colony Gazetteer* (Lahore, 1904).

LYCAEUS (Mons Lycaeus, Λύχαιον ὄρος: mod. *Diaphorti*), a mountain in Arcadia, sacred to Zeus Lycaeus, who was said to have been born and brought up on it, and the home of Pelasgus and his son Lycaon, who is said to have founded the ritual of Zeus practised on its summit. This seems to have involved a human sacrifice, and a feast in which the man who received the portion of a human victim was changed to a wolf, as Lycaon had been after sacrificing a child. The altar of Zeus consists of a great mound of ashes with a retaining wall. It was said that no shadows fell within the precincts; and that any who entered it died within the year.

LYCANTHROPY (Gr. λύκος, wolf, ἄνθρωπος, man), a name employed (1) in folk-lore for the liability or power of a human being to undergo transformation into an animal; (2) in pathology for a form of insanity in which the patient believes that he is transformed into an animal and behaves accordingly.

I. Although the term lycanthropy properly speaking refers to metamorphosis into a wolf (see W<small>ERWOLF</small>), it is in practice used of transformation into any animal. The Greeks also spoke of kynanthropy (κύων, dog); in India and the Asiatic islands the tiger is the commonest form, in North Europe the bear, in Japan the fox, in Africa the leopard or hyena, sometimes also the lion, in South America the jaguar; but though there is a tendency for the most important carnivorous animal of the area to take the first place in stories and beliefs as to transformation, the less important beasts of prey and even harmless animals like the deer also figure among the wer-animals.

Lycanthropy is often confused with transmigration; but the essential feature of the wer-animal is that it is the alternative form or the double of a living human being, while the soul-animal is the vehicle, temporary or permanent, of the spirit of a dead human being. The vampire is sometimes regarded as an example of lycanthropy; but it is in human form, sometimes only a head, sometimes a whole body, sometimes that of a living person, at others of a dead man who issues nightly from the grave to prey upon the living.

Even if the denotation of lycanthropy be limited to the animal-metamorphosis of living human beings, the beliefs classed together under this head are far from uniform, and the term is somewhat capriciously applied. The transformation may be voluntary or involuntary, temporary or permanent; the wer-animal may be the man himself metamorphosed, it may be his double whose activity leaves the real man to all appearance unchanged, it may be his soul, which goes forth seeking whom it may devour and leaving its body in a state of trance; or it may be no more than the messenger of the human being, a real animal or a familiar spirit, whose intimate connexion with its owner is shown by the fact that any injury to it is believed, by a phenomenon known as repercussion, to cause a corresponding injury to the human being.

The phenomenon of repercussion, the power of animal metamorphosis, or of sending out a familiar, real or spiritual, as a messenger, and the supernormal powers conferred by association with such a familiar, are also attributed to the magician, male and female, all the world over; and witch superstitions are closely parallel to, if not identical with, lycanthropic beliefs, the occasional involuntary character of lycanthropy being almost the sole distinguishing feature. In another direction the phenomenon of repercussion is asserted to manifest itself in connexion with the bush-soul of the West African and the *nagual* of Central America; but though there is no line of demarcation to be drawn on logical grounds, the assumed power of the magician and the intimate association of the bush-soul or the *nagual* with a human being are not termed lycanthropy. Nevertheless it will be well to touch on both these beliefs here.

In North and Central America, and to some extent in West Africa, Australia and other parts of the world, every male acquires at puberty a tutelary spirit (see D<small>EMONOLOGY</small>); in some tribes of Indians the youth kills the animal of which he dreams in his initiation fast; its claw, skin or feathers are put into a little bag and become his "medicine" and must be carefully retained, for a "medicine" once lost can never be replaced. In West Africa this relation is said to be entered into by means of the blood bond, and it is so close that the death of the animal causes the man to die and vice versa. Elsewhere the possession of a tutelary spirit in animal form is the privilege of the magician. In Alaska the candidate for magical powers has to leave the abodes of men; the chief of the gods sends an otter to meet him, which he kills by saying "O" four times; he then cuts out its tongue and thereby secures the powers which he seeks. The Malays believe that the office of *pawang* (priest) is only hereditary if the soul of the dead priest, in the form of a tiger, passes into the body of his son. While the familiar is often regarded as the alternative form of the magician, the *nagual* or bush-soul is commonly regarded as wholly distinct from the human being. Transitional beliefs, however, are found, especially in Africa, in which the power of transformation is attributed to the whole of the population of certain areas. The people of Banana are said to change themselves by magical means, composed of human embryos and other ingredients, but in their leopard form they may do no hurt to mankind under pain of retaining for ever the beast shape. In other cases the change is supposed to be made for the purposes of evil magic and human victims are not prohibited. We can, therefore, draw no line of demarcation, and this makes it probable that lycanthropy is connected with nagualism and the belief in familiar spirits, rather than with metempsychosis, as Dr Tylor argues, or with totemism, as suggested by J. F. M'Lennan. A further link is supplied by the Zulu belief that the magician's familiar is really a transformed human being; when he finds a dead body on which he can work his spells without fear of discovery, the wizard breathes a sort of life into it, which enables it to move and speak, it being thought that some dead wizard has taken possession of it. He then burns a hole in the head and through the aperture extracts the tongue. Further spells have the effect of changing the revivified body into the form of some animal, hyena, owl or wild cat, the latter being most in favour. This creature then becomes the wizard's servant and obeys him in all things; its chief use is, however, to inflict sickness and death upon persons who are disliked by its master.

Lycanthropy in Europe.—The wolf is the commonest form of the wer-animal (see W<small>ERWOLF</small>), though in the north the bear disputes its pre-eminence. In ancient Greece the dog was also associated with the belief. Marcellus of Sida, who wrote under the Antonines, gives an account of a disease which befell people in February; but a pathological state seems to be meant.

Lycanthropy in Africa.—In Abyssinia the power of transformation is attributed to the Boudas, and at the same time we have records of pathological lycanthropy (see below). Blacksmiths are credited with magical powers in many parts of the world, and it is significant that the Boudas are workers in iron and clay; in the *Life of N. Pearce* (i. 287) a European observer tells a story of a supposed transformation which took place in his presence and almost before his eyes; but it does not appear how far

hallucination rather than coincidence must be invoked to explain the experience.

The Wer-tiger of the East Indies.—The Poso-Alfures of central Celebes believe that man has three souls, the *inosa*, the *angga* and the *tanoana*. The *inosa* is the vital principle; it can be detected in the veins and arteries; it is given to man by one of the great natural phenomena, more especially the wind. The *angga* is the intellectual part of man; its seat is unknown; after death it goes to the under-world, and, unlike the *inosa*, which is believed to be dissolved into its original elements, takes possession of an immaterial body. The *tanoana* is the divine in man and after death returns to its lord, Poewempala boeroe. It goes forth during sleep, and all that it sees it whispers into the sleeper's ear and then he dreams. According to another account, the *tanoana* is the substance by which man lives, thinks and acts; the *tanoana* of man, plants and animals is of the same nature. A man's *tanoana* can be strengthened by those of others; when the *tanoana* is long away or destroyed the man dies. The *tanoana* seems to be the soul of which lycanthropic feats are asserted.

Among the Toradjas of central Celebes it is believed that a man's "inside" can take the form of a cat, wild pig, ape, deer or other animal, and afterwards resume human form; it is termed *lamboyo*. The exact relation of the *lamboyo* to the *tanoana* does not seem to be settled; it will be seen below that the view seems to vary. According to some the power of transformation is a gift of the gods, but others hold that werwolfism is contagious and may be acquired by eating food left by a werwolf or even by leaning one's head against the same pillar. The Todjoers hold that any one who touches blood becomes a werwolf. In accordance with this view is the belief that werwolfism can be cured; the breast and stomach of the werman must be rubbed and pinched, just as when any other witch object has to be extracted. The patient drinks medicine, and the contagion leaves the body in the form of snakes and worms. There are certain marks by which a werman can be recognized. His eyes are unsteady and sometimes green with dark shadows underneath. He does not sleep soundly and fireflies come out of his mouth. His lips remain red in spite of betel chewing, and he has a long tongue. The Todjoers add that his hair stands on end.

Some of the forms of the *lamboyo* are distinguishable from ordinary animals by the fact that they run about among the houses; the wer-buffalo has only one horn, and the wer-pig transforms itself into an ants' nest, such as hangs from trees. Some say that the werman does not really take the form of an animal himself, but, like the sorcerer, only sends out a messenger. The *lamboyo* attacks by preference solitary individuals, for he does not like to be observed. The victim feels sleepy and loses consciousness; the *lamboyo* then assumes human form (his body being, however, still at home) and cuts up his victim, scattering the fragments all about. He then takes the liver and eats it, puts the body together again, licks it with his long tongue and joins it together. When the victim comes to himself again he has no idea that anything unusual has happened to him. He goes home, but soon begins to feel unwell. In a few days he dies, but before his death he is able sometimes to name the werman to whom he has fallen a victim.

From this account it might be inferred that the *lamboyo* was identical with the *tanoana*; the absence of the *lamboyo* seems to entail a condition of unconsciousness, and it can assume human form. In other cases, however, the *lamboyo* seems to be analogous to the familiar of the sorcerer. The Toradjas tell a story of how a man once came to a house and asked the woman to give him a rendezvous; it was night and she was asleep; the question was put three times before the answer was given "in the tobacco plantation." The husband was awake, and next day followed his wife, who was irresistibly drawn thither. The werman came to meet her in human form, although his body was engaged in building a new house, and caused the woman to faint by stamping three times on the ground. Thereupon the husband attacked the werman with a piece of wood, and the latter to escape transformed himself into a leaf; this the husband put into a piece of bamboo and fastened the ends so that he could not escape. He then went back to the village and put the bamboo in the fire. The werman said "Don't," and as soon as it was burnt he fell dead.

In another case a woman died, and, as her death was believed to be due to the malevolence of a werwolf, her husband watched by her body. For, like Indian witches, the werwolf, for some reason, wishes to revive his victim and comes in human form to carry off the coffin. As soon as the woman was brought to life the husband attacked the werwolf, who transformed himself into a piece of wood and was burnt. The woman remained alive, but her murderer died the same night.

According to a third form of the belief, the body of the werman is itself transformed. One evening a man left the hut in which a party were preparing to pass the night; one of his companions heard a deer and fired into the darkness. Soon after the man came back and said he had been shot. Although no marks were to be seen he died a few days later.

In Central Java we meet with another kind of wer-tiger. The power of transformation is regarded as due to inheritance, to the use of spells, to fasting and will-power, to the use of charms, &c. Save when it is hungry or has just cause for revenge it is not hostile to man; in fact, it is said to take its animal form only at night and to guard the plantations from wild pigs, exactly as the *balams* (magicians) of Yucatan were said to guard the corn fields in animal form. Variants of this belief assert that the werman does not recognize his friends unless they call him by name, or that he goes out as a mendicant and transforms himself to take vengeance on those who refuse him alms. Somewhat similar is the belief of the Khonds; for them the tiger is friendly; he reserves his wrath for their enemies, and a man is said to take the form of a tiger in order to wreak a just vengeance.

Lycanthropy in South America.—According to K. F. P. v. Martius the *kanaima* is a human being who employs poison to carry out his function of blood avenger; other authorities represent the *kanaima* as a jaguar, which is either an avenger of blood or the familiar of a cannibalistic sorcerer. The Europeans of Brazil hold that the seventh child of the same sex in unbroken succession becomes a wer-man or woman, and takes the form of a horse, goat, jaguar or pig.

II. As a pathological state lycanthropy may be described as a kind of hysteria, and may perhaps be brought into connexion with the form of it known as *latah*. It is characterized by the patient's belief that he has been metamorphosed into an animal, and is often accompanied by a craving for strange articles of food, including the flesh of living beings or of corpses. In the lower stages of culture the state of the patient is commonly explained as due to possession, but where he leaves the neighbourhood of man real metamorphosis may be asserted, as in ordinary lycanthropic beliefs. Marcellus of Sida says that in Greece the patients frequented the tombs at night; they were recognizable by their yellow complexion, hollow eyes and dry tongue. The Garrows of India are said to tear their hair when they are seized with the complaint, which is put down to the use of a drug applied to the forehead; this recalls the stories of the witch's salve in Europe. In Abyssinia the patient is usually a woman; two forms are distinguished, caused by the hyena and the leopard respectively. A kind of trance ushers in the fit; the fingers are clenched, the eyes glazed and the nostrils distended; the patient, when she comes to herself, laughs hideously and runs on all fours. The exorcist is a blacksmith; as a rule, he applies onion or garlic to her nose and proceeds to question the evil spirit.

Bibliography.—For the anthropological side of the subject see bibliography to Werwolf; also *Tijdskrift voor indische Taal, Land en Volkenkunde*, xxviii. 338, xli. 548, 568; *Med. Zendelingsgenootschap*, xxxix. 3, 16; O. Stoll, *Suggestion*, p. 418; W. H. Brett, *Indians of British Guiana*. For the pathological side, see Hack Tuke, *Dict. of Psychological Medicine*, s.v. "Lycanthropy"; *Dict. des sciences médicales*; Waldmeier, *Autobiography*, p. 64; A. J. Hayes, *Source of Blue Nile*, p. 286 seq.; *Abh. phil.-hist. Klasse kgl. sächsische Gesellschaft der Wiss.* 17, No. 3.

(N. W. T.)

LYCAON, in Greek mythology, son of Pelasgus, the mythical first king of Arcadia. He, or his fifty impious sons, entertained Zeus and set before him a dish of human flesh; the god pushed away the dish in disgust and either killed the king and his sons by lightning or turned them into wolves (Apollodorus iii. 8; Ovid, *Metam.* i. 198). Some say that Lycaon slew and dished up his own son Nyctimus (Clem. Alex. *Protrept.* ii. 36; Nonnus, *Dionys.* xviii. 20; Arnobius iv. 24). The deluge was said

to have been sent by Zeus in the time of Deucalion in consequence of the sons' impiety. Pausanias (viii. 2) says that Lycaon sacrificed a child to Zeus on the altar on mount Lycaeus, and immediately after the sacrifice was turned into a wolf. This gave rise to the story that a man was turned into a wolf at each annual sacrifice to Zeus Lycaeus, but recovered his human form if he abstained from human flesh for ten years. The oldest city, the oldest cultus (that of Zeus Lycaeus), and the first civilization of Arcadia are attributed to Lycaon. His story has been variously interpreted. According to Weizsäcker, he was an old Pelasgian or pre-Hellenic god, to whom human sacrifice was offered, bearing a non-Hellenic name similar to λύκος, whence the story originated of his metamorphosis into a wolf. His cult was driven out by that of the Hellenic Zeus, and Lycaon himself was afterwards represented as an evil spirit, who had insulted the new deity by setting human flesh before him. Robertson Smith considers the sacrifices offered to the wolf-Zeus in Arcadia to have been originally cannibal feasts of a wolf-tribe, who recognized the wolf as their totem. Usener and others identify Lycaon with Zeus Lycaeus, the god of light, who slays his son Nyctimus (the dark) or is succeeded by him, in allusion to the perpetual succession of night and day. According to Ed. Meyer, the belief that Zeus Lycaeus accepted human sacrifice in the form of a wolf was the origin of the myth that Lycaon, the founder of his cult, became a wolf, *i.e.* participated in the nature of the god by the act of sacrifice, as did all who afterwards duly performed it. W. Mannhardt sees in the ceremony an allusion to certain agricultural rites, the object of which was to prevent the failure of the crops and to avert pestilence (or to protect them and the flocks against the ravages of wolves). Others (*e.g.* V. Bérard) take Zeus Lycaeus for a Semitic Baal, whose worship was imported into Arcadia by the Phoenicians; Immerwahr identifies him with Zeus Phyxios, the god of the exile who flees on account of his having shed blood. Another explanation is that the place of the sacred wolf once worshipped in Arcadia was taken in cult by Zeus Lycaeus, and in popular tradition by Lycaon, the ancestor of the Arcadians, who was supposed to have been punished for his insulting treatment of Zeus. It is possible that the whole may be merely a reminiscence of a superstition similar to the familiar werwolf stories.

See articles by P. Weizsäcker in Roscher's *Lexikon* and by G. Fougères (*s.v.* "Lykaia") in Daremberg and Saglio's *Dictionnaire des antiquités*; W. Immerwahr, *Die Kulte und Mythen Arkadiens*, 1. (1891), p. 14; L. R. Farnell, *Cults of the Greek States*, i. (1896), p. 40; A. Lang, *Myth, Ritual and Religion* (1899); C. Pascal, *Studii di antichità e mitologia* (1896), who sees in Lycaon a god of death honoured by human sacrifice; Ed. Meyer, *Forschungen zur alten Geschichte*, i. (1892), p. 60; W. Mannhardt, *Wald- und Feldkulte*, ii. (1905); G. Fougères, *Mantinée et l'Arcadie orientale* (1898), p. 202; V. Bérard, *De l'origine des cultes arcadiens* (1894); H. D. Müller, *Mythologie der griechischen Stämme*, ii. (1861), p. 78; H. Usener, *Rheinisches Museum*, liii. (1898), p. 375; G. Görres, *Berliner Studien für classische Philologie*, x. 1 (1889), who regards the Lycaea as a funeral festival connected with the changes of vegetation; Vollgraf, *De Ovidii mythopoeia*; a concise statement of the various forms of the legend in O. Gruppe, *Griechische Mythologie*, ii. p. 920, n. 4; see also Lycanthropy; D. Bassi, "Apollo Liceo," in *Rivista di storia antica*, i. (1895); and Frazer's *Pausanias*, iv. p. 189.

<div align="right">(J. H. F.)</div>

LYCAONIA, in ancient geography, a large region in the interior of Asia Minor, north of Mount Taurus. It was bounded on the E. by Cappadocia, on the N. by Galatia, on the W. by Phrygia and Pisidia, while to the S. it extended to the chain of Mount Taurus, where it bordered on the country popularly called in earlier times Cilicia Tracheia and in the Byzantine period Isauria; but its boundaries varied greatly at different times. The name is not found in Herodotus, but Lycaonia is mentioned by Xenophon as traversed by Cyrus the younger on his march through Asia. That author describes Iconium as the last city of Phrygia; and in Acts xiv. 5 St Paul, after leaving Iconium, crossed the frontier and came to Lystra in Lycaonia. Ptolemy, on the other hand, includes Lycaonia as a part of the province of Cappadocia, with which it was associated by the Romans for administrative purposes; but the two countries are clearly distinguished both by Strabo and Xenophon and by authorities generally.

Lycaonia is described by Strabo as a cold region of elevated plains, affording pasture to wild asses and to sheep; and at the present day sheep abound, but asses are practically unknown. Amyntas, king of Galatia, to whom the district was for a time subject, maintained there not less than three hundred flocks. It forms part of the interior tableland of Asia Minor, and has an elevation of more than 3000 ft. It suffers from want of water, aggravated in some parts by abundance of salt in the soil, so that the northern portion, extending from near Iconium to the salt lake of Tatta and the frontiers of Galatia, is almost wholly barren, only small patches being cultivated near Iconium and the large villages. The soil, where water is supplied, is productive. In ancient times great attention was paid to storing and distributing the water, so that much land now barren was formerly cultivated and supported a large number of cities.

The plain is interrupted by some minor groups of mountains, of volcanic character, of which the Kara Dagh in the south, a few miles north of Karaman, rises above 7000 ft., while the Karadja Dagh, north-east of it, though of inferior elevation, presents a striking range of volcanic cones. The mountains in the north-west, near Iconium and Laodicea, are the termination of the Sultan Dagh range, which traverses a large part of Phrygia.

The Lycaonians appear to have been in early times to a great extent independent of the Persian empire, and were like their neighbours the Isaurians a wild and lawless race of freebooters; but their country was traversed by one of the great natural lines of high road through Asia Minor, from Sardis and Ephesus to the Cilician gates, and a few considerable towns grew up along or near this line. The most important was Iconium, in the most fertile spot in the country, of which it was always regarded by the Romans as the capital, although ethnologically it was Phrygian. It is still called Konia, and it was the capital of the Seljuk Turkish empire for several centuries. A little farther north, immediately on the frontier of Phrygia, stood Laodicea (Ladik), called Combusta, to distinguish it from the Phrygian city of that name; and in the south, near the foot of Mount Taurus, was Laranda, now called Karaman, which has given name to the province of Karamania. Derbe and Lystra, which appear from the Acts of the Apostles to have been considerable towns, were between Iconium and Laranda. There were many other towns, which became bishoprics in Byzantine times. Lycaonia was Christianized very early; and its ecclesiastical system was more completely organized in its final form during the 4th century than that of any other region of Asia Minor.

After the defeat of Antiochus the Great, Lycaonia was given by the Romans to Eumenes II., king of Pergamos. About 160 B.C. part of it, the "Tetrarchy of Lycaonia," was added to Galatia; and in 129 B.C. the eastern half (usually called during the following 200 years Lycaonia proper) was given to Cappadocia as an eleventh strategia. In the readjustment of the Provinciae, 64 B.C., by Pompey after the Mithradatic wars, he gave the northern part of the tetrarchy to Galatia and the eastern part of the eleventh strategia to Cappadocia. The remainder was attached to Cilicia. Its administration and grouping changed often under the Romans. In A.D. 371 Lycaonia was first formed into a separate province. It now forms part of the Konia viláyet.

The Lycaonians appear to have retained a distinct nationality in the time of Strabo, but their ethnical affinities are unknown. The mention of the Lycaonian language in the Acts of the Apostles (xiv. 11) shows that the native language was spoken by the common people at Lystra about A.D. 50; and probably it was only later and under Christian influence that Greek took its place.

See Sir W. M. Ramsay, *Historical Geography of Asia Minor* (1890), *Historical Commentary on Galatians* (1899) and *Cities of St Paul* (1907); also an article on the topography in the *Jahreshefte des Oesterr. Archaeolog. Instituts*, 194 (Beiblatt) pp. 57-132.

<div align="right">(W. M. Ra.)</div>

LYCEUM, the latinized form of Gr. Λύκειον, the name of a gymnasium and garden with covered walks, near the temple of Apollo Lyceus (Ἀπόλλων Λύκειος) at Athens. Aristotle taught here, and hence the name was applied to his school of philosophy. The name had been used in many languages for places of instruction, &c. In France the term *lycée* is given to the secondary schools which are administered by the state, in contradistinction to the communal *collèges*.

LYCIA, in ancient geography, a district in the S.W. of Asia Minor, occupying the coast between Caria and Pamphylia, and extending inland as far as the ridge of Mt Taurus. The region thus designated is a peninsula projecting southward from the great mountain masses of the interior. It is for the most part a rugged mountainous country, traversed by offshoots of the Taurus range, which terminate on the coast in lofty promontories. The coast, though less irregular than that of Caria, is indented by a succession of bays—the most marked of which is the Gulf of Macri (anc. *Glaucus Sinus*) in the extreme west. A number of smaller bays, and broken rocky headlands, with a few small islets, constitute the coast-line thence to the S.E. promontory of Lycia, formed by a long narrow tongue of rocky hill, known in ancient times as the "Sacred Promontory" (Hiera Acra), with three small adjacent islets, called the Chelidonian islands, which was regarded by some ancient geographers as the commencement of Mt. Taurus. Though the mountain ranges of Lycia are all offshoots of Mt, Taurus, in ancient times several of them were distinguished by separate names. Such were Daedala in the west, adjoining the Gulf of Macri, Cragus on the sea-coast, west of the valley of the Xanthus, Massicytus (10,000 ft.) nearly in the centre of the region, and Solyma in the extreme east above Phaselis (7800 ft.). The steep and rugged pass between Solyma and the sea, called the Climax ("Ladder"), was the only direct communication between Lycia and Pamphylia.

The only two considerable rivers are: (1) the Xanthus, which descends from the central mass of Mt Taurus, and flows through a narrow valley till it reaches the city of the same name, below which it forms a plain of some extent before reaching the sea, and (2) the Limyrus, which enters the sea near Limyra. The small alluvial plains at the mouths of these rivers are the only level ground in Lycia, but the hills that rise thence towards the mountains are covered with a rich arborescent vegetation. The upper valleys and mountain sides afford good pasture for sheep, and the main Taurus range encloses several extensive upland basin-shaped valleys (*vailas*), which are characteristic of that range throughout its extent (see Asia Minor).

The limits of Lycia towards the interior seem to have varied at different times. The high and cold upland tract to the north-east, called Milyas, was by some writers included in that province, though it is naturally more connected with Pisidia. According to Artemidorus (whose authority is followed by Strabo), the towns that formed the Lycian league in the days of its integrity were twenty-three in number; but Pliny states that Lycia once possessed seventy towns, of which only twenty-six remained in his day. Recent researches have fully confirmed the fact that the sea-coast and the valleys were thickly studded with towns, many of which are proved by existing remains to have been places of importance. By the aid of inscriptions the position of the greater part of the cities mentioned in ancient authors can be fixed. On the gulf of Glaucus, near the frontiers of Caria, stood Telmessus, an important place, while a short distance inland from it were the small towns of Daedala and Cadyanda. At the entrance of the valley of the Xanthus were Patara, Xanthus itself, and, a little higher up, Pinara on the west and Tlos on the east side of the valley, while Araxa stood at the head of the valley, at the foot of the pass leading into the interior. Myra, one of the most important cities of Lycia, occupied the entrance of the valley of the Andriacus; on the coast between this and the mouth of the Xanthus stood Antiphellus, while in the interior at a short distance were found Phellus, Cyaneae and Candyba. In the alluvial plain formed by the rivers Arycandus and Limyrus stood Limyra, and encircling the same bay the three small towns of Rhodiapolis, Corydalla and Gagae. Arycanda commanded the upper valley of the river of the same name. On the east coast stood Olympus, one of the cities of the league, while Phaselis, a little farther north, which was a much more important place, never belonged to the Lycian league and appears always to have maintained an independent position.

The cold upland district of the Milyas does not seem to have contained any town of importance. Podalia appears to have been its chief place. Between the Milyas and the Pamphylian Gulf was the lofty mountain range of Solyma, which was supposed to derive its name from the Solymi, a people mentioned by Homer in connexion with the Lycians and the story of Bellerophon. In the flank of this mountain, near a place called Deliktash, was the celebrated fiery source called the Chimaera, which gave rise to many fables. It has been visited in modern times by Captain F. Beaufort, T. A. B. Spratt and Edward Forbes, and other travellers, and is merely a stream of inflammable gas issuing from crevices in the rocks, such as are found in several places in the Apennines. No traces of recent volcanic action exist in Lycia.

History.—The name of the Lycians, *Lukki*, is first met with in the Tel el-Amarna tablets (1400 B.C.) and in the list of the nations from the eastern Mediterranean who invaded Egypt in the reign of Mineptah, the successor of Rameses II. At that time they seem to have occupied the Cilician coast. Their occupation of Lycia was probably later, and since the Lycian inscriptions are not found far inland, we may conclude that they entered the country from the sea. On the other hand the name appears to be preserved in Lycaonia, where some bands of them may have settled. According to Herodotus they called themselves Termilae, written Trmmile in the native inscriptions, and he further states that the original inhabitants of the country were the Milyans and Solymi, the Lycians being invaders from Crete. In this tradition there is a reminiscence of the fact that the Lycians had been sea-rovers before their settlement in Lycia. The Lycian Sarpedon was believed to have taken part in the Trojan war. The Lydians failed to subdue Lycia, but after the fall of the Lydian empire it was conquered by Harpagus the general of Cyrus, Xanthus or Arnna, the capital, being completely destroyed. While acknowledging the suzerainty of Persia, however, the Lycians remained practically independent, and for a time joined the Delian league. "The son of Harpagus" on the obelisk of Xanthus boasts of having sacked numerous cities in alliance with the Athenian goddess. The Lycians were incorporated into the empire of Alexander and his successors, but even after their conquest by the Romans, preserved their federal institutions as late as the time of Augustus. According to Strabo the principal towns in the league were Xanthus, Patara, Pinara, Olympus, Myra and Tlos; each of these had three votes in the general assembly, while the other towns had only two or one. Taxation and the appointment of the Lyciarch and other magistrates were vested in the assembly. Under Claudius Lycia was formally annexed to the Roman empire, and united with Pamphylia: Theodosius made it a separate province.

Antiquities.—Few parts of Asia Minor were less known in modern times than Lycia up to the 19th century. Captain Beaufort was the first to visit several places on the sea-coast, and the remarkable rock-hewn tombs of Telmessus had been already described by Dr Clarke, but it was Sir Charles Fellows who first discovered and drew attention to the extraordinary richness of the district in ancient remains, especially of a sepulchral character. His visits to the country in 1838 and 1840 were followed by an expedition sent by the British government in 1842 to transport to England the valuable monuments now in the British Museum, while Admiral Spratt and Edward Forbes explored the interior, and laid down its physical features on an excellent map. The monuments thus brought to light are among the most interesting of those discovered in Asia Minor, and prove the existence of a distinct native architecture, especially in the rock-cut tombs. But the theatres found in almost every town, some

of them of very large size, are sufficient to attest the pervading influence of Greek civilization; and this is confirmed by the sculptures, which are for the most part wholly Greek. None of them, indeed, can be ascribed to a very early period, and hardly any trace can be found of the influence of Assyrian or other Oriental art.

One of the most interesting results of these recent researches has been the discovery of numerous inscriptions in the native language of the country, and written in an alphabet peculiar to Lycia. A few of these inscriptions are bilingual, in Greek and Lycian, and the clue thus afforded to their interpretation has been followed up, first by Daniel Sharpe and Moritz Schmidt, and in more recent years by J. Imbert, W. Arkwright, V. Thomsen, A. Torp, S. Bugge and E. Kalinka.

The alphabet was derived from the Doric alphabet of Rhodes, but ten other characters were added to it to express vocalic and other sounds not found in Greek. The attempts to connect the language with the Indo-European family have been unsuccessful; it belongs to a separate family of speech which we may term "Asianic." Most of the inscriptions are sepulchral; by far the longest and most important is that on an obelisk found at Xanthus, which is a historical document, the concluding part of it being in a peculiar dialect, supposed to be an older and poetical form of the language. Among the deities mentioned are Trzzube (Trosobis) and Trqqiz or Trqqas.

Lycian art was modelled on that of the Greeks. The rock-cut tomb usually represented the house of the living, with an elaborate façade, but in one or two instances, notably that of the so-called Harpy-tomb, the façade is surmounted by a tall, square tower, in the upper part of which is the sepulchral chamber. Lycian sculpture followed closely the development of Greek sculpture, and many of the sculptures with which the tombs are adorned are of a high order of merit. The exquisite bas-reliefs on a Lycian sarcophagus now in the museum of Constantinople are among the finest surviving examples of classical art. The bas-reliefs were usually coloured. For the coinage, see NUMISMATICS, section "Asia Minor."

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(A. H. S.)

LYCK, or LYK, a town of Germany, in the Prussian province of East Prussia, 112 m. by rail S.E. of Königsberg, and close to the frontier of Poland, on a lake and river of the same name. Pop. (1900) 11,386. It is the chief town of the region known as Masuria. On an island in the lake is a castle formerly belonging to the Teutonic order, and dating from 1273, now used as a prison. There are iron-foundries, distilleries, breweries, tanneries, paper mills and flour mills, and a trade in grain and cattle.

LYCOPHRON, Greek poet and grammarian, was born at Chalcis in Euboea. He flourished at Alexandria in the time of Ptolemy Philadelphus (285-247 B.C.). According to Suïdas, he was the son of Socles, but was adopted by Lycus of Rhegium. He was entrusted by Ptolemy with the task of arranging the comedies in the Alexandrian library, and as the result of his labours composed a treatise *On Comedy*. His own compositions, however, chiefly consisted of tragedies (Suïdas gives the titles of twenty, of which very few fragments have been preserved), which secured him a place in the Pleiad of Alexandrian tragedians. One of his poems, *Alexandra* or *Cassandra*, containing 1474 iambic lines, has been preserved entire. It is in the form of a prophecy uttered by Cassandra, and relates the later fortunes of Troy and of the Greek and Trojan heroes. References to events of mythical and later times are introduced, and the poem ends with a reference to Alexander the Great, who was to unite Asia and Europe in his world-wide empire. The style is so enigmatical as to have procured for Lycophron, even among the ancients, the title of "obscure" (σκοτεινός). The poem is evidently intended to display the writer's knowledge of obscure names and uncommon myths; it is full of unusual words of doubtful meaning gathered from the older poets, and many long-winded compounds coined by the author. It has none of the qualities of poetry, and was probably written as a show-piece for the Alexandrian school. It was very popular in the Byzantine period, and was read and commented on very frequently; the collection of scholia by Isaac and John Tzetzes is very valuable, and the MSS. of the *Cassandra* are numerous.[1] A few well-turned lines which have been preserved from Lycophron's tragedies show a much better style; they are said to have been much admired by Menedemus of Eretria, although the poet had ridiculed him in a satyric drama. Lycophron is also said to have been a skilful writer of anagrams.

Editio princeps (1513); J. Potter (1697, 1702); L. Sebastiani (1803); L. Bachmann (1830); G. Kinkel (1880); E. Scheer (1881-1908), vol. ii. containing the scholia. The most complete edition is by C. von Holzinger (with translation, introduction and notes, 1895). There are translations by F. Dehèque (1853) and Viscount Royston (1806; a work of great merit). See also Wilamowitz-Möllendorff, *De Lycophronis Alexandra* (1884); J. Konze, *De Dictione Lycophronis* (1870). The commentaries of the brothers Tzetzes have been edited by C. O. Müller (1811).

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[1] Two passages of the *Cassandra*, 1446-1450 and 1226-1282, in which the career of the Roman people and their universal empire are spoken of, could not possibly have been written by an Alexandrian poet of 250 B.C. Hence it has been maintained by Niebuhr and others that the poem was written, by a later poet mentioned by Tzetzes, but the opinion of Welcker that these paragraphs are a later interpolation is generally considered more probable.

LYCOPODIUM, the principal genus of the Lycopodiaceae, a natural order of the Fern-allies (see PTERIDOPHYTA). They are flowerless herbs, with an erect, prostrate or creeping widely-branched stem, with small simple leaves which thickly cover the stem and branches. The "fertile" leaves are arranged in cones, and bear spore-cases (sporangia) in their axils, containing spores of one kind only. The prothallium developed from the spore is a subterranean mass of tissue of considerable size, and bears the male and female organs (*antheridia* and *archegonia*). There are about a hundred species widely distributed in temperate and tropical climates; five occur in Britain on heaths and moors, chiefly in mountainous districts, and are known as

club-mosses The commonest species, *L. clavatum*, is also known as stag-horn moss.
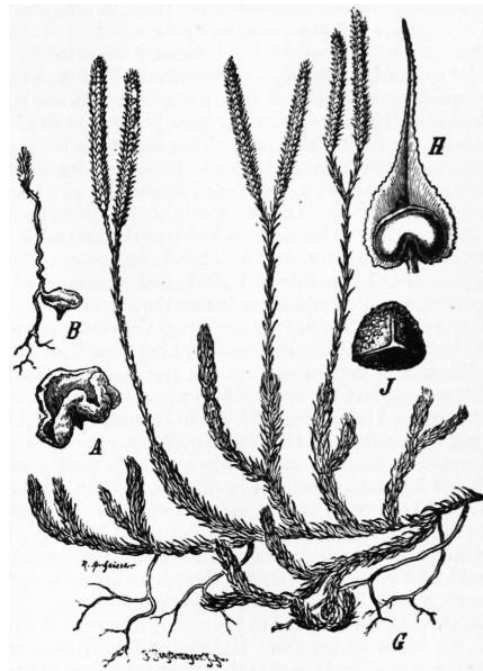
From Strasburger's *Lehrbuch der Botanik*, by permission of Gustav Fischer.

FIG. 1.—Lycopodium clavatum.

FIG. 1.—Lycopodium clavatum.
A, Old prothallus.
B, Prothallus bearing a young sporophyte.
G, Polian of a mature plant, showing the creeping habit, the adventitious roots and the specialized erect branches bearing the strobile or cones.

H, Sporophyte bearing the single sporangium on its upper surface.
J, Spore.

Gerard, in 1597, described two kinds of lycopodium (*Herball*, p. 1373) under the names *Muscus denticulatus* and *Muscus clavatus* (*L. clavatum*) as "Club Mosse or Woolfes Clawe Mosse," the names being in Low Dutch, "Wolfs Clauwen," from the resemblance of the club-like or claw-shaped shoots to the toes of a wolf, "whereupon we first named it *Lycopodion*." Gerard also speaks of its emetic and many other supposed virtues. *L. Selago* and *L. catharticum* (a native of the Andes) have been said to be, at least when fresh, cathartic; but, with the exception of the spores of *L. clavatum* ("lycopodium powder"), lycopodium as a drug has fallen into disuse. The powder is used for rolling pills in, as a dusting powder for infants' sores, &c. A *tinctura lycopodii*, containing one part of the powder to ten of alcohol (90%), has been given, in doses of 15 to 60 minims, in cases of irritation and spasm of the bladder. The powder is highly inflammable, and is used in pyrotechny and for artificial lightning on the stage. If the hand be covered with the powder it cannot be wetted on being plunged into water. Another use of lycopodium is for dyeing; woollen cloth boiled with species of lycopodium, as *L. clavatum*, becomes blue when dipped in a bath of Brazil wood.

LYCOSURA (mod. *Palaeokastro* or *Siderokastro*), a city of Arcadia, reputed to be the most ancient city in Greece, and to have been founded by Lycaon the son of Pelasgus. Its fame in later times was chiefly associated with the temple of Despoena, containing the colossal group made by Damophon of Messene, of Despoena and Demeter seated, with Artemis and the Titan Anytus standing beside them. The temple and considerable remains of the group of sculpture were found in 1889. The date of both has been a matter of dispute, Damophon being placed at dates varying from the 4th century B.C. to the age of Hadrian. But it has now been shown that he lived in the 2nd century B.C. Remains of a portico, altars and other structures have also been found.

See Πρακτικὰ τῆς Ἀρχ. Ἑταιρίας (1896); G. Dickens, *Annual of British School* at Athens, xii. and xiii.

LYCURGUS (Gr. Λυκοῦργος), in Greek history, the reputed founder of the Spartan constitution. Plutarch opens his biography of Lycurgus with these words: "About Lycurgus the lawgiver it is not possible to make a single statement that is not called in question. His genealogy, his travels, his death, above all, his legislative and constitutional activity have been variously recorded, and there is the greatest difference of opinion as to his date." Nor has modern historical criticism arrived at any certain results. Many scholars, indeed, suppose him to be in reality a god or hero, appealing to the existence of a temple and cult of Lycurgus at Sparta as early as the time of Herodotus, (i. 66), and to the words of the Delphic oracle (Herod. i. 65)—

δίζω ἤ σε θεὸν μαντεύσομαι ἤ ἄνθρωπον.

If this be so, he is probably to be connected with the cult of Apollo Lycius or with that of Zeus Lycaeus. But the majority of modern historians agree in accepting Lycurgus as an historical person, however widely they may differ about his work.

According to the Spartan tradition preserved by Herodotus, Lycurgus was a member of the Agiad house, son of Agis I. and brother of Echestratus. On the death of the latter he became regent and guardian of his nephew Labotas (Leobotes), who was still a minor. Simonides, on the other hand, spoke of him as a Eurypontid, son of Prytanis and brother of Eunomus, and later the tradition prevailed which made him the son of Eunomus and Dionassa, and half-brother of the king Polydectes, on whose death he became guardian of the young king Charillus. According to Herodotus he introduced his reforms immediately on becoming regent, but the story which afterwards became generally accepted and is elaborated by Plutarch represented him as occupying for some time the position of regent, then spending several years in travels, and on his return to Sparta carrying through his legislation when Charillus was king. This latter version helped to emphasize the disinterestedness of the lawgiver, and also supplied a motive for his travels—the jealousy of those who accused him of trying to supplant his nephew on the throne. He is said to have visited Crete, Egypt and Ionia, and some versions even took him to Spain, Libya and India.

Various beliefs were held as to the source from which Lycurgus derived his ideas of reform. Herodotus found the tradition current among the Spartans that they were suggested to Lycurgus by the similar Cretan institutions, but even in the 5th century there was a rival theory that he derived them from the Delphic oracle. These two versions are united by Ephorus, who argued that, though Lycurgus had really derived his system from Crete, yet to give it a religious sanction he had persuaded the Delphic priestess to express his views in oracular form.

The Reforms.—Herodotus says that Lycurgus changed "all the customs," that he created the military organization of ἐνωμοτίαι (*enomoties*), τριηκάδες (*triecades*) and συσσίτια (*syssitia*), and that he instituted the ephorate and the council of elders. To him, further, are attributed the foundation of the apella (the citizen assembly), the prohibition of gold and silver currency, the partition of the land (γῆς ἀναδασμός) into equal lots, and, in general, the characteristic Spartan training (ἀγωγή). Some of these statements are certainly false. The council of elders and the assembly are not in any sense peculiar to Sparta, but are present in the heroic government of Greece as depicted in the Homeric poems. The ephors, again, are almost universally held to be either an immemorial heritage of the Dorian stock or—and this seems more probable—an addition to the Spartan constitution made at a later date than can be assigned to Lycurgus. Further, the tradition of the Lycurgan partition of the land is open to grave objections. Grote pointed out (*History of Greece*, pt. ii. ch. 6) that even from the earliest historical times we find glaring inequalities of property at Sparta, and that the tradition was apparently unknown to all the earlier Greek historians and philosophers down to Plato and Aristotle: Isocrates (xii. 259) expressly denied that a partition of land had ever taken place in the Spartan state. Again, the tradition presupposes the conquest by the Spartans of the whole, or at least the greater part, of Laconia, yet Lycurgus must fall in the period when the Spartans had not yet subjugated even the middle Eurotas plain, in which their city lay. Finally, we can point to an adequate explanation of the genesis of the tradition in the ideals of the reformers of the latter part of the 3rd century, led by the kings Agis IV. and Cleomenes III. (*q.v.*). To them the cause of Sparta's decline lay in the marked inequalities of wealth, and they looked upon a redistribution of the land as the reform most urgently needed. But it was characteristic of the Greeks to represent the ideals of the present as the facts of the past, and so such a story as that of the Lycurgan γῆς ἀναδασμός may well have arisen at this time. It is at least noteworthy that the plan of Agis to give 4500 lots to Spartans and 15,000 to perioeci suspiciously resembles that of Lycurgus, in whose case the numbers are said to have been 9000 and 30,000 respectively. Lastly, the prohibition of gold and silver money cannot be attributed to Lycurgus, for at so early a period coinage was yet unknown in Greece.

Lycurgus, then, did not create any of the main elements of the Spartan constitution, though he may have regulated their powers and defined their position. But tradition represented him as finding Sparta the prey of disunion, weakness and lawlessness, and leaving her united, strong and subject to the most stable government which the Greek world had ever seen. Probably Grote comes near to the truth when he says that Lycurgus "is the founder of a warlike brotherhood rather than the lawgiver of a political community." To him we may attribute the unification of the several component parts of the state, the strict military organization and training which soon made the Spartan hoplite the best soldier in Greece, and above all the elaborate and rigid system of education which rested upon, and in turn proved the strongest support of, that subordination of the individual to the state which perhaps has had no parallel in the history of the world.

Lycurgus's legislation is very variously dated, and it is not possible either to harmonize the traditions or to decide with confidence between them. B. Niese (*Hermes*, xlii. 440 sqq.) assigns him to the first half of the 7th century B.C. Aristotle read Lycurgus's name, together with that of Iphitus, on the discus at Olympia which bore the terms of the sacred truce, but even if the genuineness of the document and the identity of this Lycurgus with the Spartan reformer be granted, it is uncertain whether the discus belongs to the so-called first Olympiad, 776 B.C., or to an earlier date. Most traditions place Lycurgus in the 9th century: Thucydides, whom Grote follows, dates his reforms shortly before 804, Isocrates and Ephorus go back to 869, and the chronographers are divided between 821, 828 and 834 B.C. Finally, according to a tradition recorded by Xenophon (*Resp. Laced.* x. 8), he was contemporary with the Heraclidae, in which case he would belong to the 10th century B.C.

AUTHORITIES.—Our chief ancient authorities, besides Plutarch's biography, are:—Herodotus i. 65; Xenophon, *Respublica Lacedaemoniorum*; Ephorus *ap.* Strabo x. 481, 482; Aristotle, *Politics*, ii.; Pausanias iii. and v. 4; and scattered passages in Plato, Isocrates, Polybius, Diodorus, Polyaenus, &c. Of modern works the most important are: E. Meyer, "Lykurgos von Sparta," in *Forschungen zur alten Geschichte* (Halle, 1892), i. 211 sqq.; A. Kopstadt, *De rerum Laconicarum constitutionis Lycurgeae origine et indole* (Greifswald, 1849); H. K. Stein, *Kritik der Überlieferung über den spartanischen Gesetzgeber Lykurg* (Glatz, 1882); S. Wide, "Bemerkungen zur spartanischen Lykurglegende," in *Skand. Archiv.* i. (1891), 90 sqq.; E. Nusselt, *Das Lykurgproblem* (Erlangen, 1898); H. Bazin, *De Lycurgo* (Paris, 1885); C. Reuss, *De Lycurgea quae fertur agrorum divisione* (Pforzheim, 1878); A. Busson, *Lykurgos und die grosse Rhetra* (Innsbruck, 1887); H. Gelzer, "Lykurg und die delphische Priesterschaft" in *Rhein. Mus.* xxviii. 1 sqq.; F. Winicker, *Stand der Lykurgischen Frage* (Graudenz, 1884); G. Attinger, *Essai sur Lycurgue et ses institutions* (Neuchâtel, 1892); the general Greek histories, and the works on the Spartan constitution cited under SPARTA.

(M. N. T.)

LYCURGUS (*c.* 396-325 B.C.), one of the "ten" Attic orators. Through his father, Lycophron, he belonged to the old Attic priestly family of the Eteobutadae. He is said to have been a pupil both of Plato and of Isocrates. His early career is unknown, but after the real character of the struggle with Philip of Macedon became manifest he was recognized, with Demosthenes and Hypereides, as one of the chiefs of the national party. He left the care of external relations to his colleagues, and devoted himself to internal organization and finance. He managed the finances of Athens for twelve successive years (338-326), at first directly as treasurer of the revenues (ὁ ἐπὶ τῇ διοικήσει) for four years, and in two succeeding terms, when the actual office was forbidden him by law, through his son and a nominal official chosen from his party. Part of one of the deeds in which he rendered account of his term of office is still preserved in an inscription. During this time he raised the public income from 600 to 1200 talents yearly. He increased the navy, repaired the dockyards, and completed an arsenal, the σκευοθήκη designed by the architect Philo. He was also appointed to various other offices connected with the preservation and improvement of the

city. He was very strict in his superintendence of the public morals, and passed a sumptuary law to restrain extravagance. He did much to beautify the city; he reconstructed the great Dionysiac theatre and the gymnasium in the Lyceum, and erected the Panathenaic stadium on the Ilissus. He is mentioned as the proposer of five laws, of which the most famous was that statues of the three great tragedians should be erected in the theatre, and that their works should be carefully edited and preserved among the state archives. For his services he was honoured with crowns, statues and a seat in the town hall; and after his death his friend Stratocles drew up a decree (still extant in pseudo-Plutarch, *Vit. dec. orat.* p. 851; see also E. L. Hicks, *Greek Historical Inscriptions*, 1st ed., No. 145), ordering the erection of a statue of bronze to Lycurgus, and granting the honours of the Prytaneum to his eldest son. He was one of the orators whose surrender was demanded by Alexander the Great, but the people refused to give him up. He died while president of the theatre of Dionysus, and was buried on the road leading to the Academy at the expense of the state.

Lycurgus was a man of action; his orations, of which fifteen were published, are criticized by the ancients for their awkward arrangement, harshness of style, and the tendency to digressions about mythology and history, although their noble spirit and lofty morality are highly praised. The one extant example, *Against Leocrates*, fully bears out this criticism. After the battle of Chaeroneia (338), in spite of the decree which forbade emigration under pain of death, Leocrates had fled from Athens. On his return (probably about 332) he was impeached by Lycurgus, but acquitted, the votes of the judges being equally divided.

The speech has been frequently edited. Editio princeps (Aldine, 1513); F. G. Kiessling (1847) with M. H. E. Meier's commentary on pseudo-Plutarch's *Life of Lycurgus* and the fragments of his speeches; C. Rehdantz (1876); T. Thalheim (1880); C. Scheibe (1885); F. Blass (ed. major, 1889), with bibliography of editions and articles (ed. minor, 1902); E. Sofer (Leipzig, 1905), with notes and introd. There is an index to Andocides, Lycurgus and Dinarchus by L. L. Forman (Oxford, 1897). The exhaustive treatise of F. Dürrbach, *L'Orateur Lycurgue* (1890), contains a list of the most important review articles on the financial and naval administration of Lycurgus and on his public works; see also C. Droege, *De Lycurgo publicarum pecuniarum administratore* (Minden, 1880). Several fragments of his various laws have been preserved in inscriptions (*Corpus inscriptionum atticarum*, ii. 162, 163, 173, 176, 180). On the history of the period see authorities under Demosthenes.

LYCURGUS, "THE LOGOTHETE" (1772-1851), Greek leader in the War of Independence, was born in the island of Samos. He was educated at Constantinople, received the usual training, and followed the customary career of a Phanariot Greek. He accompanied Constantine Ypsilanti when he was appointed hospodar of Walachia, as secretary, and served Ypsilanti's successor, Alexander Soutzos, as treasurer and chancellor (Logothete). In 1802 he returned to Samos, and having become suspected by the Turkish government was imprisoned. He fled to Smyrna, when he was pardoned and released by the Turks. When the War of Independence began he induced his countrymen to declare Samos independent, and was chosen ruler. His share in the War of Independence is chiefly memorable because he provoked the massacre of Chios in 1822. Lycurgus conducted an expedition of 2500 to that island, which was held by a Turkish garrison under Velna Pasha. His force was insufficient, the time was ill-chosen, for a strong Turkish fleet was at sea, and Lycurgus displayed utter incapacity as a military leader. After these events, he was deposed by the Samians, but recovered some influence and had a share in the defence of Samos against the Turks in 1824. When the island was left under the authority of Turkey by the protocol of the 3rd of February 1830, he helped to obtain autonomy for the Samians. He retired to Greece and died on the 22nd of May 1851.

See G. Finlay, *History of the Greek Revolution* (London, 1861).

LYDD, a market town and municipal borough in the southern parliamentary division of Kent, England, 71½ m. S.E. by E. of London by a branch of the South-Eastern & Chatham railway. Pop. (1901) 2675. It lies in the open lowland of Dunge Marsh. To the south-east are the bare shingle banks of the promontory of Dungeness. Its church of All Saints has a beautiful Perpendicular tower with rich vaulting within. The neighbourhood affords pasture for large flocks of sheep. On the land known as the Rypes, in the neighbourhood, there is a military camp, with artillery and rifle ranges; hence the name given to the explosive "lyddite." The town is governed by a mayor, 4 aldermen and 12 councillors. Area, 12,043 acres.

The first settlement at Lydd (Hlide, Lide, Lyde) was probably due to its convenience as a fishing-station. After the Conquest it became a seaport of some consequence and although now, owing to the alteration of the coast, it stands nearly 3 m. inland a number of its inhabitants are still fishermen. In 774 land in Lydd was granted by Offa to the monks of Christ Church, Canterbury, and the archbishop of Canterbury evidently held the lordship of the town from an early date. At some time before the reign of Edward I. Lydd was made a member of the Cinque Port of Romney, and in 1290 was granted the same liberties and free customs as the Cinque Ports on condition of aiding the service of its head-port to the crown with one ship. This charter was confirmed by Edward III. in 1365. The corporation also possesses documents of 1154, 1399 and 1413, granting to the archbishop's men of Lydd the privileges enjoyed by the Cinque Ports and confirming all former privileges. Lydd is called a borough in the Hundred Rolls. Its incorporation under a bailiff, of which there is evidence in the 15th century, may have been due to the archbishop or to the court of Shepway, but it was not incorporated by the crown until 1885, when, by a charter under the Municipal Acts, the last bailiff was elected the first mayor. In 1494 a grant was made to the bailiff, jurats and commonalty of a yearly fair on the 12th of July and two days following. A fair was held under this grant until 1874.

LYDENBURG, a town and district of the Transvaal, South Africa. The town is 60 m. by rail N.N.E. of Belfast on the Pretoria-Delagoa Bay railway. Pop. (1904) 1523. It is picturesquely situated on the Spekboom tributary of the Olifants river at an altitude of 4900 ft. Some 15 m. E. is the Mauchberg (8725 ft.), the highest point in the Transvaal. The town is the chief centre for the Lydenburg goldfields. Next to Lydenburg the most important settlement in these goldfields is Pilgrim's Rest, pop. (1904) 1188, 23 m. N.E. of Lydenburg. Lydenburg (the town of suffering) was founded in 1846 by Boers who two years previously had established themselves farther north at Ohrigstad, which they abandoned on account of the fever endemic there. Lydenburg at once became the capital of a district (of the same name) which then embraced all the eastern part of the Transvaal. In 1856 the Boers of Lydenburg separated from their brethren and proclaimed an independent republic, which was, however, incorporated with the South African Republic in 1860. The discovery of gold near the town was made in 1869, and in

1873 the first successful goldfield in the Transvaal was opened here. It was not until 1910, however, that Lydenburg was placed in railway communication with the rest of the country. The present district of Lydenburg consists of the north-east and central parts of the original district. In the Lulu Mountains, a spur of the Drakensberg, and some 40 m. N.W. of Lydenburg, was the stronghold of the Kaffir chief Sikukuni, whose conflict with the Boers in 1876 was one of the causes which led to the annexation of the Transvaal by Great Britain in 1877. (See TRANSVAAL: *History*.)

LYDFORD, or LIDFORD, a village, once an important town, in the western parliamentary division of Devonshire, England, near the western confines of Dartmoor, 27 m. N. of Plymouth by the London & South-Western railway. From its Perpendicular church of St Petrock fine views of the Dartmoor tors are seen. The village stands on the small river Lyd, which traverses a deep narrow chasm, crossed by a bridge of single span; and at a little distance a tributary stream forms a cascade in an exquisite glen. Close to the church are slight remains of the castle of Lydford.

Lydford (*Lideford*) was one of the four Saxon boroughs of Devon, and possessed a mint in the days of Æthelred the Unready. It first appears in recorded history in 997, when the Danes made a plundering expedition up the Tamar and Tavy as far as "Hlidaforda." In the reign of Edward the Confessor it was the most populous centre in Devonshire after Exeter, but the Domesday Survey relates that forty houses had been laid waste since the Conquest, and the town never recovered its former prosperity; the history from the 13th century centres round the castle, which is first mentioned in 1216, when it was granted to William Briwere, and was shortly afterwards fixed as the prison of the stannaries and the meeting-place of the Forest Courts of Dartmoor. A gild at Lideford is mentioned in 1180, and the pipe roll of 1195 records a grant for the reestablishment of the market. In 1238 the borough, which had hitherto been crown demesne, was bestowed by Henry III. on Richard, earl of Cornwall, who in 1268 obtained a grant of a Wednesday market and a three days' fair at the feast of St Petrock. The borough had a separate coroner and bailiff in 1275, but it was never incorporated by charter, and only once, in 1300, returned members to parliament. Lydford prison is described in 1512 as "one of the most hainous, contagious and detestable places in the realm," and "Lydford Law" was a by-word for injustice. At the time of the Commonwealth the castle was entirely in ruins, but in the 18th century it was restored and again used as a prison and as the meeting-place of the manor and borough courts.

LYDGATE, JOHN (*c*. 1370-*c*. 1451), English poet, was born at the village of Lydgate, some 6 or 7 m. from Newmarket. It is, however, with the Benedictine abbey of Bury St Edmunds that he is chiefly associated. Probably he was educated at the school attached to the monastery, and in his *Testament* he has drawn a lively picture of himself as a typical orchard-robbing boy, who had scant relish for matins, fought, and threw creed and paternoster at the cock. He was ordained sub-deacon in 1389, deacon in 1393, and priest in 1397. These dates are valuable as enabling us to fix approximately the date of his birth, which must have occurred somewhere about 1370. Lydgate passed as a portent of learning, and, according to Bale, he pursued his studies not only at both the English universities but in France and Italy. Koeppel (see *Laurents de Premierfait und John Lydgates Bearbeitungen von Boccaccios De Casibus*, Munich, 1885) has thrown much doubt on this statement as regards Italy, but Lydgate knew France and visited Paris in an official capacity in 1426. Bale is also the authority for another assertion that figures in what has been aptly termed the poet's "traditional biography," viz. that Lydgate, on completing his own education, kept school for the sons of noblemen and gentlemen. This "traditional biography" prolongs his life to the year 1461, but it is quite improbable that he lived many years after 1446, when Abbot Curteys died and John Baret, treasurer of Bury, signed an extant receipt for a pension which he shared with Lydgate, and which continued to be paid till 1449. If it be true, as Bishop Alcock of Ely affirms, that Lydgate wrote a poem on the loss of France and Gascony, it seems necessary to suppose that he lived two years longer, and thus indications point to the year 1451, or thereabouts, as the date of his death.

Lydgate had a consuming passion for literature, and it was probably that he might indulge this taste more fully that in 1434 he retired from the priorate of Hatfield Broadoak (or Hatfield Regis), to which he had been appointed in June 1423. After 1390 —but whilst he was still a young man—he made the acquaintance of Geoffrey Chaucer, with whose son Thomas he was on terms of considerable intimacy. This friendship appears to have decided Lydgate's career, and in his *Troy-book* and elsewhere are reverent and touching tributes to his "master." The passages in question do not exaggerate his obligations to the "well of English." The themes of all his more ambitious poems can be traced to Chaucerian sources. *The Story of Thebes*, for instance, was doubtless suggested by the "romance" which Cressida and her companions are represented as reading when interrupted by Pandarus (*Troilus and Cressida*, II. xii.-xvi.). The *Falls of Princes*, again, is merely the *Monk's Tale* "writ large."

Lydgate is a most voluminous writer. The *Falls of Princes* alone comprises 7000 stanzas; and his authentic compositions reach the enormous total of 150,000 lines. Cursed with such immoderate fluency Lydgate could not sustain himself at the highest level of artistic excellence; and, though imbued with a sense of the essentials of poetry, and eager to prove himself in its various manifestations, he stinted himself of the self-discipline necessary to perfection of form. As the result the bulk of his composition is wholly or comparatively rough-hewn. That he was capable of better work than is suggested by his average accomplishment is shown by two allegorical poems—the *Complaint of the Black Knight* and the *Temple of Glass* (once attributed to Hawes). In these he reveals himself as a not unworthy successor of Chaucer, and the pity of it is that he should have squandered his powers in a futile attempt to create an entire literature. For a couple of centuries Lydgate's reputation equalled, if it did not surpass, that of his master. This was in a sense only natural, since he was the real founder of the school of which Stephen Hawes was a distinguished ornament, and which "held the field" in English letters during the long and dreary interval between Chaucer and Spenser. One of the most obvious defects of this school is excessive attachment to polysyllabic terms. Lydgate is not quite so great a sinner in this respect as are some of his successors, but his tendency cannot be mistaken, and John Metham is amply justified in his censure—

> Eke John Lydgate, sometime monk of Bury,
> His books indited with terms of rhetoric
> And half-changed Latin, with conceits of poetry.

Pedantry was an inevitable effect of the early Renaissance. French literature passed through the same phase, from which indeed it was later in emerging; and the ultimate consequence was the enrichment of both languages. It must be conceded as no small merit in Lydgate that, in an age of experiment he should have succeeded so often in hitting the right word. Thomas Warton remarks on his lucidity. Since his writings are read more easily than Chaucer's, the inference is plain—that he was more effectual as a maker of our present English. In spite of that, Lydgate is characteristically medieval—medieval in his prolixity, his platitude, his want of judgment and his want of taste; medieval also in his pessimism, his Mariolatry and his horror of death. These attributes jarred on the sensitive Ritson, who racked his brains for contumelious epithets such as

"stupid and disgusting," "cart-loads of rubbish," &c.; and during the greater part of the 18th and 19th centuries Lydgate's reputation was at its lowest ebb. Recent criticism has been far more impartial, and almost too much respect has been paid to his attainments, especially in the matter of metre, though Lydgate himself, with offensive lightheartedness, admits his poor craftsmanship.

Lydgate's most doughty and learned apologist is Dr Schick, whose preface to the *Temple of Glass* embodies practically all that is known or conjectured concerning this author, including the chronological order of his works. With the exception of the *Damage and Destruction in Realms*—an account of Julius Caesar, his wars and his death—they are all in verse and extremely multifarious—narrative, devotional hagiological, philosophical and scientific, allegorical and moral, historical, satirical and occasional. The *Troy-book*, undertaken at the command of Henry V., then prince of Wales, dates from 1412-1420; the *Story of Thebes* from 1420-1422; and the *Falls of Princes* towards 1430. His latest work was *Secreta Secretorum* or *Secrets of Old Philosophers*, rhymed extracts from a pseudo-Aristotelian treatise. Lydgate certainly possessed extraordinary versatility, which enabled him to turn from elaborate epics to quite popular poems like the *Mumming at Hertford*, *A Ditty of Women's Horns* and *London Lickpenny*. The humour of this last is especially bright and effective, but, unluckily for the author, the piece is believed to have been retouched by some other hand. The longer efforts partake of the nature of translations from sundry medieval compilations like those of Guido di Colonna and Boccaccio, which are in Latin.

See publications of the Early English Text Society, especially the *Temple of Glass*, edited by Dr Schick; Koeppel's *Lydgate's Story of Thebes, eine Quellenuntersuchung* (Munich, 1884), and the same scholar's *Laurents de Premierfait und John Lydgates Bearbeitungen von Boccaccios De Casibus Illustrium Virorum* (Munich, 1885); Warton's *History of English Poetry*; Ritson's *Bibliotheca Anglo-Poetica*; Furnivall's *Political Poems* (E. E. T. S.); and Sidney Lee's article in the *Dict. Nat. Biog.*

(F. J. S.)

LYDIA, in ancient geography, a district of Asia Minor, the boundaries of which it is difficult to fix, partly because they varied at different epochs. The name is first found under the form of *Luddi* in the inscriptions of the Assyrian king Assur-bani-pal, who received tribute from Gyges about 660 B.C. In Homer we read only of Maeonians (*Il.* ii. 865, v. 43, x. 431), and the place of the Lydian capital Sardis is taken by Hydē (*Il.* xx. 385), unless this was the name of the district in which Sardis stood (see Strabo xiii. p. 626).[1] The earliest Greek writer who mentions the name is Mimnermus of Colophon, in the 37th Olympiad. According to Herodotus (i. 7), the Meiones (called Maeones by other writers) were named Lydians after Lydus, the son of Attis, in the mythical epoch which preceded the rise of the Heraclid dynasty. In historical times the Maeones were a tribe inhabiting the district of the upper Hermus, where a town called Maeonia existed (Pliny, *N.H.* v. 30; Hierocles, p. 670). The Lydians must originally have been an allied tribe which bordered upon them to the north-west, and occupied the plain of Sardis or Magnesia at the foot of Tmolus and Sipylus. They were cut off from the sea by the Greeks, who were in possession, not only of the Bay of Smyrna, but also of the country north of Sipylus as far as Temnus in the pass (*boghaz*), through which the Hermus forces its way from the plain of Magnesia into its lower valley.[2] In a Homeric epigram the ridge north of the Hermus, on which the ruins of Temnus lie, is called Sardenē. Northward the Lydians extended at least as far as the Gygaean Lake (Lake Coloe, mod. Mermereh), and the Sardenē range (mod. Dumanli Dagh). The plateau of the Bin Bir Tepē, on the southern shore of the Gygaean Lake, was the chief burial-place of the inhabitants of Sardis, and is still thickly studded with tumuli, among which is the "tomb of Alyattes" (260 ft. high). Next to Sardis the chief city was Magnesia ad Sipylum (*q.v.*), in the neighbourhood of which is the famous seated figure of "Niobe" (*Il.* xxiv. 614-617), cut out of the rock, and probably intended to represent the goddess Cybele, to which the Greeks attached their legend of Niobe. According to Pliny (v. 31), Tantalis, afterwards swallowed up by earthquake in the pool Salē or Saloē, was the ancient name of Sipylus and "the capital of Maeonia" (Paus. vii. 24; Strabo xii. 579). Under the Heraclid dynasty the limits of Lydia must have been already extended, since according to Strabo (xiii. 590), the authority of Gyges reached as far as the Troad. Under the Mermnads Lydia became a maritime as well as an inland power. The Greek cities were conquered, and the coast of Ionia included within the Lydian kingdom. The successes of Alyattes and of Croesus finally changed the Lydian kingdom into a Lydian empire, and all Asia Minor westward of the Halys, except Lycia, owned the supremacy of Sardis. Lydia never again shrank back into its original dimensions. After the Persian conquest the Maeander was regarded as its southern boundary, and in the Roman period it comprised the country between Mysia and Caria on the one side and Phrygia and the Aegean on the other.

Lydia proper was exceedingly fertile. The hill-sides were clothed with vine and fir, and the rich broad plain of Hermus produced large quantities of corn and saffron. The climate of the plain was soft but healthy, though the country was subject to frequent earthquakes. The Pactolus, which flowed from the fountain of Tarnē in the Tmolus mountains, through the centre of Sardis, into the Hermus, was believed to be full of golden sand; and gold mines were worked in Tmolus itself, though by the time of Strabo the proceeds had become so small as hardly to pay for the expense of working them (Strabo xiii. 591). Maeonia on the east contained the curious barren plateau known to the Greeks as the Katakekaumenē ("Burnt country"), once a centre of volcanic disturbance. The Gygaean lake (where remains of pile dwellings have been found) still abounds with carp.

Herodotus (i. 171) tells us that Lydus was a brother of Mysus and Car. The statement is on the whole borne out by the few Lydian, Mysian and Carian words that have been preserved, as well as by the general character of the civilization prevailing among the three nations. The race was probably a mixed one, consisting of aborigines and Aryan immigrants. It was characterized by industry and a commercial spirit, and, before the Persian conquest, by bravery. The religion of the Lydians resembled that of the other civilized nations of Asia Minor. It was a nature worship, which at times became wild and sensuous. By the side of the supreme god Medeus stood the sun-god Attis, as in Phrygia the chief object of the popular cult. He was at once the son and bridegroom of Cybele (*q.v.*) or Cybebe, the mother of the gods, whose image carved by Broteas, son of Tantalus, was adored on the cliffs of Sipylus (Paus. iii. 22). The cult may have been brought westward by the Hittites who have left memorials of themselves in the pseudo-Sesostris figures of Kara-bel (between Sardis and Ephesus) as well as in the figure of the Mother-goddess, the so-called Niobe. At Ephesus, where she was adored under the form of a meteoric stone, she was identified with the Greek Artemis (see also GREAT MOTHER OF THE GODS). Her mural crown is first seen in the Hittite sculptures of Boghaz Keui (see PTERIA and HITTITES) on the Halys. The priestesses by whom she was served are depicted in early art as armed with the double-headed axe, and the dances they performed in her honour with shield and bow gave rise to the myths which saw in them the Amazons, a nation of woman-warriors. The pre-Hellenic cities of the coast—Smyrna, Samorna (Ephesus), Myrina, Cyme, Priene and Pitane—were all of Amazonian origin, and the first three of them have the same name as the Amazon Myrina, whose tomb was pointed out in the Troad. The prostitution whereby the Lydian girls gained their dowries (Herod, i. 93) was a religious exercise, as among the Semites, which marked their devotion to the goddess Cybele. In the legend of Heracles, Omphale takes the place of Cybele, and was perhaps her Lydian title. Heracles is here the sun-god Attis in a new form; his Lydian name is unknown, since E. Meyer has shown (*Zeitschr. d. Morg. Gesell.* xxxi. 4) that Sandon belongs not to Lydia but to Cilicia. By the side of Attis stood Manes or Men, identified later with the Moon-god.

According to the native historian Xanthus (460 B.C.) three dynasties ruled in succession over Lydia. The first, that of the Attiads, is mythical. It was headed by a god, and included geographical personages like Lydus, Asies and Meies, or such heroes of folk-lore as Cambletes, who devoured his wife. To this mythical age belongs the colony which, according to Herodotus (i. 94), Tyrsenus, the son of Attis, led to Etruria. Xanthus, however, puts Torrhebus in the place of Tyrsenus, and makes him the eponym of a district in Lydia. It is doubtful whether Xanthus recognized the Greek legends which brought Pelops from Lydia, or rather Maeonia, and made him the son of Tantalus. The second dynasty was also of divine origin, but the names which head

it prove its connexion with the distant East. Its founder, a descendant of Heracles and Omphale, was, Herodotus tells us (i. 7), a son of Ninus and grandson of Belus. The Assyrian inscriptions have shown that the Assyrians had never crossed the Halys, much less known the name of Lydia, before the age of Assur-bani-pal, and consequently the theory which brought the Heraclids from Nineveh must be given up. But the Hittites, another Oriental people, deeply imbued with the elements of Babylonian culture, had overrun Asia Minor and established themselves on the shores of the Aegean before the reign of the Egyptian king Rameses II.

The subject allies who then fight under their banners include the Masu or Mysians and the Dardani of the Troad, while the Hittites have left memorials in Lydia. G. Dennis discovered an inscription in Hittite hieroglyphics attached to the figure of "Niobe" on Sipylus, and a similar inscription accompanies the figure (in which Herodotus, ii. 106, wished to see Sesostris or Rameses II.) in the pass of Karabel. We learn from Eusebius that Sardis was first captured by the Cimmerii 1078 B.C.; and since it was four centuries later before the real Cimmerii (*q.v.*) appeared on the horizon of history, we may perhaps find in the statement a tradition of the Hittite conquest. As the authority of the Hittite satraps at Sardis began to decay the Heraclid dynasty arose. According to Xanthus, Sadyattes and Lixus were the successors of Tylon the son of Omphale. After lasting five hundred and five years, the dynasty came to an end in the person of Sadyattes, as he is called by Nicolas of Damascus, whose account is doubtless derived from Xanthus. The name Candaules, given him by Herodotus, meant "dog strangler" and was a title of the Lydian Hermes. Gyges (*q.v.*) put him to death and established the dynasty of the Mermnads, 687 B.C. Gyges initiated a new policy, that of making Lydia a maritime power; but towards the middle of his reign the kingdom was overrun by the Cimmerii. The lower town of Sardis was taken, and Gyges sent tribute to Assur-bani-pal, as well as two Cimmerian chieftains he had himself captured in battle. A few years later Gyges joined in the revolt against Assyria, and the Ionic and Carian mercenaries he despatched to Egypt enabled Psammetichus to make himself independent. Assyria, however, was soon avenged. The Cimmerian hordes returned, Gyges was slain in battle (652 B.C.), and Ardys his son and successor returned to his allegiance to Nineveh. The second capture of Sardis on this occasion was alluded to by Callisthenes (Strabo xiii. 627). Alyattes, the grandson of Ardys, finally succeeded in extirpating the Cimmerii, as well as in taking Smyrna, and thus providing his kingdom with a port. The trade and wealth of Lydia rapidly increased, and the Greek towns fell one after the other before the attacks of the Lydian kings. Alyattes's long reign of fifty-seven years saw the foundation of the Lydian empire. All Asia Minor west of the Halys acknowledged his sway, and the six years' contest he carried on with the Medes was closed by the marriage of his daughter Aryenis to Astyages. The Greek cities were allowed to retain their own institutions and government on condition of paying taxes and dues to the Lydian monarch, and the proceeds of their commerce thus flowed into the imperial exchequer. The result was that the king of Lydia became the richest prince of his age. Alyattes was succeeded by Croesus (*q.v.*), who had probably already for some years shared the royal power with his father, or perhaps grandfather, as V. Floigl thinks (*Geschichte des semitischen Alterthums*, p. 20). He reigned alone only fifteen years, Cyrus the Persian, after an indecisive battle on the Halys, marching upon Sardis, and capturing both acropolis and monarch (546 B.C.). The place where the acropolis was entered was believed to have been overlooked by the mythical Meles when he carried the lion round his fortress to make it invulnerable; it was really a path opened by one of the landslips, which have reduced the sandstone cliff of the acropolis to a mere shell, and threaten to carry it altogether into the plain below. The revolt of the Lydians under Pactyas, whom Cyrus had appointed to collect the taxes, caused the Persian king to disarm them, though we can hardly credit the statement that by this measure their warlike spirit was crushed. Sardis now became the western capital of the Persian empire, and its burning by the Athenians was the indirect cause of the Persian War. After Alexander the Great's death, Lydia passed to Antigonus; then Achaeus made himself king at Sardis, but was defeated and put to death by Antiochus. The country was presented by the Romans to Eumenes, and subsequently formed part of the proconsular province of Asia. By the time of Strabo (xiii. 631) its old language was entirely supplanted by Greek.

The Lydian empire may be described as the industrial power of the ancient world. The Lydians were credited with being the inventors, not only of games such as dice, huckle-bones and ball (Herod, i. 94), but also of coined money. The oldest known coins are the electrum coins of the earlier Mermnads (Madden, *Coins of the Jews*, pp. 19-21), stamped on one side with a lion's head or the figure of a king with bow and quiver; these were replaced by Croesus with a coinage of pure gold and silver. To the latter monarch were probably due the earliest gold coins of Ephesus (Head, *Coinage of Ephesus*, p. 16). The electrum coins of Lydia were of two kinds, one weighing 168.4 grains for the inland trade, and another of 224 grains for the trade with Ionia. The standard was the silver mina of Carchemish (as the Assyrians called it) which contained 8656 grains. Originally derived by the Hittites from Babylonia, but modified by themselves, this standard was passed on to the nations of Asia Minor during the period of Hittite conquest, but was eventually superseded by the Phoenician mina of 11,225 grains, and continued to survive only in Cyprus and Cilicia (see also Numismatics). The inns, which the Lydians were said to have been the first to establish (Herod. i. 94), were connected with their attention to commercial pursuits. Their literature has wholly perished. They were celebrated for their music and gymnastic exercises, and their art formed a link between that of Asia Minor and that of Greece. R. Heberdey's excavations at Ephesus since 1896, like those of D. G. Hogarth in 1905, belong to the history of Greek and not native art. The ivory figures, however, found by Hogarth on the level of the earliest temple of Artemis show Asiatic influence, and resemble the so-called "Phoenician" ivories from the palace of Sargon at Calah (Nimrud). For a description of a pectoral of white gold, ornamented with the heads of animals, human faces and the figure of a goddess, discovered in a tomb on Tmolus, see *Academy*, January 15, 1881, p. 45. Lydian sculpture was probably similar to that of the Phrygians. Phallic emblems, for averting evil, were plentiful; the summit of the tomb of Alyattes is crowned with an enormous one of stone, about 9 ft. in diameter. The tumulus itself is 281 yds. in diameter and about half a mile in circumference. It has been partially excavated by G. Spiegelthal and G. Dennis, and a sepulchral chamber discovered in the middle, composed of large well-cut and highly polished blocks of marble, the chamber being 11 ft. long, nearly 8 ft. broad and 7 ft. high. Nothing was found in it except a few ashes and a broken vase of Egyptian alabaster. The stone basement which, according to Herodotus, formerly surrounded the mound has disappeared.

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(A. H. S.)

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1   Pliny (v. 30) makes it the Maeonian name.

2   See Sir W. M. Ramsay in the *Journal of Hellenic Studies*, ii. 2.

LYDUS ("The Lydian"), **JOANNES LAURENTIUS**, Byzantine writer on antiquarian subjects, was born at Philadelphia in Lydia about A.D. 490. At an early age he set out to seek his fortune in Constantinople, and held high court and state offices under Anastasius and Justinian. In 552 he lost favour, and was dismissed. The date of his death is not known, but he was probably alive during the early years of Justin II. (reigned 565-578). During his retirement he occupied himself in the compilation of works on the antiquities of Rome, three of which have been preserved: (1) *De Ostentis* (Περὶ διοσημειῶν), on the origin and progress of the art of divination; (2) *De Magistratibus reipublicae Romanae* (Περὶ ἀρχῶν τῆς Ῥωμαίων πολιτείας), especially valuable for the administrative details of the time of Justinian; (3) *De Mensibus* (Περὶ μηνῶν), a history of the

different festivals of the year. The chief value of these books consists in the fact that the author made use of the works (now lost) of old Roman writers on similar subjects. Lydus was also commissioned by Justinian to compose a panegyric on the emperor, and a history of his successful campaign against Persia; but these, as well as some poetical compositions, are lost.

Editions of (1) by C. Wachsmuth (1897), with full account of the authorities in the prolegomena; of (2) and (3) by R. Wünsch (1898-1903); see also the essay by C. B. Hase (the first editor of the *De Ostentis*) prefixed to I. Bekker's edition of Lydus (1837) in the Bonn *Corpus scriptorum hist. Byzantinae*.

LYE (O. Eng. *léag*, cf. Dutch *loog*, Ger. *Lauge*, from the root meaning to wash, see in Lat. *lavare*, and Eng. "lather," froth of soap and water, and "laundry"), the name given to the solution of alkaline salts obtained by leaching or lixiviating wood ashes with water, and sometimes to a solution of a caustic alkali. Lixiviation (Lat. *lixivium*, lye, *lix*, ashes) is the action of separating, by the percolation of water, a soluble from an insoluble substance. "Leaching," the native English term for this process, is from "leach," to water, the root probably being the same as in "lake."

LYELL, SIR CHARLES (1797-1875), British geologist, was the eldest son of Charles Lyell of Kinnordy, Forfarshire, and was born on the 14th of November 1797, on the family estate in Scotland. His father (1767-1849) was known both as a botanist and as the translator of the *Vita Nuova* and the *Convito* of Dante: the plant *Lyellia* was named after him. From his boyhood Lyell had a strong inclination for natural history, especially entomology, a taste which he cultivated at Bartley Lodge in the New Forest, to which his family had removed soon after his birth. In 1816 he entered Exeter College, Oxford, where the lectures of Dr Buckland first drew his attention to geological study. After taking his degree of B.A. in 1819 (M.A. in 1821) he entered Lincoln's Inn, and in 1825, after a delay caused by chronic weakness of the eyes, he was called to the bar, and went on the western circuit for two years. During this time he was slowly gravitating towards the life of a student of science. In 1819 he had been elected a fellow of the Linnean and Geological Societies, communicating his first paper, "On a Recent Formation of Freshwater Limestone in Forfarshire," to the latter society in 1822, and acting as one of the honorary secretaries in 1823. In that year he went to France, with introductions to Cuvier, Humboldt and other men of science, and in 1824 made a geological tour in Scotland in company with Dr Buckland. In 1826 he was elected a fellow of the Royal Society, from which in later years he received both the Copley and Royal medals; and in 1827 he finally abandoned the legal profession, and devoted himself to geology.

At this time he had already begun to plan his chief work, *The Principles of Geology*. The subsidiary title, "An Attempt to Explain the Former Changes of the Earth's Surface by Reference to Causes now in Operation," gives the keynote of the task to which Lyell devoted his life. A journey with Murchison in 1828 gave rise to joint papers on the volcanic district of Auvergne and the Tertiary formations of Aix-en-Provence. After parting with Murchison he studied the marine remains of the Italian Tertiary Strata and then conceived the idea of dividing this geological system into three or four groups, characterized by the proportion of recent to extinct species of shells. To these groups, after consulting Dr Whewell as to the best nomenclature, he gave the names now universally adopted—Eocene (*dawn of recent*), Miocene (*less of recent*), and Pliocene (*more of recent*); and with the assistance of G. P. Deshayes he drew up a table of shells in illustration of this classification. The first volume of the *Principles of Geology* appeared in 1830, and the second in January 1832. Received at first with some opposition, so far as its leading theory was concerned, the work had ultimately a great success, and the two volumes had already reached a second edition in 1833 when the third, dealing with the successive formations of the earth's crust, was added. Between 1830 and 1872 eleven editions of this work were published, each so much enriched with new material and the results of riper thought as to form a complete history of the progress of geology during that interval. Only a few days before his death Sir Charles finished revising the first volume of the 12th edition; the revision of the second volume was completed by his nephew Mr (afterwards Sir) Leonard Lyell; and the work appeared in 1876.

In August 1838 Lyell published the *Elements of Geology*, which, from being originally an expansion of one section of the *Principles*, became a standard work on stratigraphical and palaeontological geology. This book went through six editions in Lyell's lifetime (some intermediate editions being styled *Manual of Elementary Geology*), and in 1871 a smaller work, the *Student's Elements of Geology*, was based upon it. His third great work, *The Antiquity of Man*, appeared in 1863, and ran through three editions in one year. In this he gave a general survey of the arguments for man's early appearance on the earth, derived from the discoveries of flint implements in post-Pliocene strata in the Somme valley and elsewhere; he discussed also the deposits of the Glacial epoch, and in the same volume he first gave in his adhesion to Darwin's theory of the origin of species. A fourth edition appeared in 1873.

In 1831-1833 Lyell was professor of geology at King's College, London, and delivered while there a course of lectures, which became the foundation of the *Elements of Geology*. In 1832 he married Mary (1809-1873) eldest daughter of Leonard Horner (*q.v.*), and she became thenceforward associated with him in all his work, and by her social qualities making his home a centre of attraction. In 1834 he made an excursion to Denmark and Sweden, the result of which was his Bakerian lecture to the Royal Society "On the Proofs of the gradual Rising of Land in certain Parts of Sweden." He also brought before the Geological Society a paper "On the Cretaceous and Tertiary Strata of Seeland and Möen." In 1835 he became president of the Geological Society. In 1837 he was again in Norway and Denmark, and in 1841 he spent a year in travelling through the United States, Canada and Nova Scotia. This last journey, together with a second one to America in 1845, resulted not only in papers, but also in two works not exclusively geological, *Travels in North America* (1845) and *A Second Visit to the United States* (1849). During these journeys he estimated the rate of recession of the falls of Niagara, the annual average accumulation of alluvial matter in the delta of the Mississippi, and studied those vegetable accumulations in the "Great Dismal Swamp" of Virginia, which he afterwards used in illustrating the formation of beds of coal. He also studied the coal-formations in Nova Scotia, and discovered in company with Dr (afterwards Sir J. W.) Dawson (*q.v.*) of Montreal, the earliest known landshell, *Pupa vetusta*, in the hollow stem of a Sigillaria. In bringing a knowledge of European geology to bear upon the extended formations of North America Lyell rendered immense service. Having visited Madeira and Teneriffe in company with G. Hartung, he accumulated much valuable evidence on the age and deposition of lava-beds and the formation of volcanic cones. He also revisited Sicily in 1858, when he made such observations upon the structure of Etna as refuted the theory of "craters of elevation" upheld by Von Buch and Élie de Beaumont (see *Phil. Trans.*, 1859).

Lyell was knighted in 1848, and was created a baronet in 1864, in which year he was president of the British Association at Bath. He was elected corresponding member of the French Institute and of the Royal Academy of Sciences at Berlin, and was created a knight of the Prussian Order of Merit.

During the later years of his life his sight, always weak, failed him altogether. He died on the 22nd of February 1875, and was buried in Westminster Abbey. Among his characteristics were his great thirst for knowledge, his perfect fairness and sound judgment; while the extreme freshness of his mind enabled him to accept and appreciate the work of younger men.

The LYELL MEDAL, established in 1875 under the will of Sir Charles Lyell, is cast in bronze and is to be awarded annually (or from time to time) by the Council of the Geological Society. The medallist may be of any country or either sex. Not less than one-third of the annual interest of a sum of £2000 is to be awarded with the medal; the remaining interest, known as the LYELL GEOLOGICAL FUND, is to be given in one or more portions at the discretion of the Council for the encouragement of geological science.

See *Life, Letters and Journals of Sir Charles Lyell, Bart.*, edited by his sister-in-law, Mrs Lyell (2 vols., 1881); *Charles Lyell and Modern Geology*, by T. G. Bonney (1895).

<div align="right">(H. B. Wo.)</div>

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LYLY (LILLY, or LYLIE), JOHN (1553-1606), English writer, the famous author of *Euphues*, was born in Kent in 1553 or 1554. At the age of sixteen, according to Wood, he became a student of Magdalen College, Oxford, where in due time he proceeded to his bachelor's and master's degrees (1573 and 1575), and from whence we find him in 1574 applying to Lord Burghley "for the queen's letters to Magdalen College to admit him fellow." The fellowship, however, was not granted, and Lyly shortly after left the university. He complains of what seems to have been a sentence of rustication passed upon him at some period in his academical career, in his address to the gentlemen scholars of Oxford affixed to the second edition of the first part of *Euphues*, but in the absence of any further evidence it is impossible to fix either its date or its cause. If we are to believe Wood, he never took kindly to the proper studies of the university. "For so it was that his genius being naturally bent to the pleasant paths of poetry (as if Apollo had given to him a wreath of his own bays without snatching or struggling) did in a manner neglect academical studies, yet not so much but that he took the degrees in arts, that of master being compleated 1575." After he left Oxford, where he had already the reputation of "a noted wit," Lyly seems to have attached himself to Lord Burghley. "This noble man," he writes in the "Glasse for Europe," in the second part of *Euphues* (1580), "I found so ready being but a straunger to do me good, that neyther I ought to forget him, neyther cease to pray for him, that as he hath the wisdom of Nestor, so he may have the age, that having the policies of Ulysses he may have his honor, worthy to lyve long, by whom so many lyve in quiet, and not unworthy to be advaunced by whose care so many have been preferred." Two years later we possess a letter of Lyly to the treasurer, dated July 1582, in which the writer protests against some accusation of dishonesty which had brought him into trouble with his patron, and demands a personal interview for the purpose of clearing his character. What the further relations between them were we have no means of knowing, but it is clear that neither from Burghley nor from the queen did Lyly ever receive any substantial patronage. In 1578 he began his literary career by the composition of *Euphues, or the Anatomy of Wit*, which was licensed to Gabriel Cawood on the 2nd of December, 1578, and published in the spring of 1579. In the same year the author was incorporated M.A. at Cambridge, and possibly saw his hopes of court advancement dashed by the appointment in July of Edmund Tylney to the office of master of the revels, a post at which, as he reminds the queen some years later, he had all along been encouraged to "aim his courses." *Euphues and his England* appeared in 1580, and, like the first part of the book, won immediate popularity. For a time Lyly was the most successful and fashionable of English writers. He was hailed as the author of "a new English," as a "raffineur de l'Anglois"; and, as Edmund Blount, the editor of his plays, tells us in 1632, "that beautie in court which could not parley Euphuism was as little regarded as she which nowe there speakes not French." After the publication of *Euphues*, however, Lyly seems to have entirely deserted the novel form himself, which passed into the hands of his imitators, and to have thrown himself almost exclusively into play-writing, probably with a view to the mastership of revels whenever a vacancy should occur. Eight plays by him were probably acted before the queen by the children of the Chapel Royal and the children of St Paul's between the years 1584 and 1589, one or two of them being repeated before a popular audience at the Blackfriars Theatre. Their brisk lively dialogue, classical colour and frequent allusions to persons and events of the day maintained that popularity with the court which *Euphues* had won. Lyly sat in parliament as member for Hindon in 1589, for Aylesbury in 1593, for Appleby in 1597 and for Aylesbury a second time in 1601. In 1589 Lyly published a tract in the Martin Marprelate controversy, called *Pappe with an hatchet, alias a figge for my Godsonne; Or Crack me this nut; Or a Countrie Cuffe, &c.*[1] About the same time we may probably date his first petition to Queen Elizabeth. The two petitions, transcripts of which are extant among the Harleian MSS., are undated, but in the first of them he speaks of having been ten years hanging about the court in hope of preferment, and in the second he extends the period to thirteen years. It may be conjectured with great probability that the ten years date from 1579, when Edmund Tylney was appointed master of the revels with a tacit understanding that Lyly was to have the next reversion of the post. "I was entertained your Majestie's servaunt by your own gratious favor," he says, "strengthened with condicions that I should ayme all my courses at the Revells (I dare not say with a promise, but with a hopeful Item to the Revercion) for which these ten yeres I have attended with an unwearyed patience." But in 1589 or 1590 the mastership of the revels was as far off as ever—Tylney in fact held the post for thirty-one years—and that Lyly's petition brought him no compensation in other directions may be inferred from the second petition of 1593. "Thirteen yeres your highnes servant but yet nothing. Twenty freinds that though they saye they will be sure, I finde them sure to be slowe. A thousand hopes, but all nothing; a hundred promises but yet nothing. Thus casting up the inventory of my friends, hopes, promises and tymes, the *summa totalis* amounteth to just nothing." What may have been Lyly's subsequent fortunes at court we do not know. Edmund Blount says vaguely that Elizabeth "graced and rewarded" him, but of this there is no other evidence. After 1590 his works steadily declined in influence and reputation; other stars were in possession of the horizon; and so far as we know he died poor and neglected in the early part of James I.'s reign. He was buried in London at St Bartholomew the Less on the 20th of November, 1606. He was married, and we hear of two sons and a daughter.

Comedies.—In 1632 Edmund Blount published "Six Court Comedies," including *Endymion* (1591), *Sappho and Phao* (1584), *Alexander and Campaspe* (1584), *Midas* (1592), *Mother Bombie* (1594) and *Gallathea* (1592). To these should be added the *Woman in the Moone* (Lyly's earliest play, to judge from a passage in the prologue and therefore earlier than 1584, the date of *Alexander and Campaspe*), and *Love's Metamorphosis*, first printed in 1601. Of these, all but the last are in prose. A *Warning for Faire Women* (1599) and *The Maid's Metamorphosis* (1600) have been attributed to Lyly, but on altogether insufficient grounds. The first editions of all these plays were issued between 1584 and 1601, and the majority of them between 1584 and 1592, in what were Lyly's most successful and popular years. His importance as a dramatist has been very differently estimated. Lyly's dialogue is still a long way removed from the dialogue of Shakespeare. But at the same time it is a great advance in rapidity and resource upon anything which had gone before it; it represents an important step in English dramatic art. His nimbleness, and the wit which struggles with his pedantry, found their full development in the dialogue of *Twelfth Night* and *Much Ado about Nothing*, just as "Marlowe's mighty line" led up to and was eclipsed by the majesty and music of Shakespearian passion. One or two of the songs introduced into his plays are justly famous and show a real lyrical gift. Nor in estimating his dramatic position and his effect upon his time must it be forgotten that his classical and mythological plots, flavourless and dull as they would be to a modern audience, were charged with interest to those courtly hearers who saw in Midas Philip II., Elizabeth in Cynthia and perhaps Leicester's unwelcome marriage with Lady Sheffield in the love affair between Endymion and Tellus which brings the former under Cynthia's displeasure. As a matter of fact his reputation and popularity as a play-writer were considerable. Gabriel Harvey dreaded lest Lyly should make a play upon their quarrel; Meres, as is well known, places him among "the best for comedy"; and Ben Jonson names him among those foremost rivals who were

"outshone" and outsung by Shakespeare.

Euphues.—It was not, however, as a dramatist, but as the author of *Euphues*, that Lyly made most mark upon the Elizabethan world. His plays amused the court circle, but the "new English" of his novel threatened to permanently change the course of English style. The plot of *Euphues* is extremely simple. The hero, whose name may very possibly have been suggested by a passage in Ascham's *Schoolmaster*, is introduced to us as still in bondage to the follies of youth, "preferring fancy before friends, and this present humour before honour to come." His travels bring him to Naples, where he falls in love with Lucilla, the governor's light-minded daughter. Lucilla is already pledged to Euphues's friend Philautus, but Euphues's passion betrays his friendship, and the old lover finds himself thrown over by both friend and mistress. Euphues himself, however, is very soon forsaken for a more attractive suitor. He and Philautus make up their quarrel, and Euphues writes his friend "a cooling card," to be "applied to all lovers," which is so severe upon the fair sex that Lyly feels it necessary to balance it by a sort of apology addressed "to the grave matrons and honest maidens of Italy." Euphues then leaves Naples for his native Athens, where he gives himself up to study, of which the first fruits are two long treatises—the first, "Euphues and his Ephoebus," a disquisition on the art of education addressed to parents, and the second, "Euphues and Atheos," a discussion of the first principles of religion. The remainder of the book is filled up with correspondence between Euphues and his friends. We have letters from Euphues to Philautus on the death of Lucilla, to another friend on the death of his daughter, to one Botonio "to take his exile patiently," and to the youth Alcius, remonstrating with him on his bad behaviour at the university. Finally a pair of letters, the first from Livia "at the emperour's court to Euphues at Athens," answered by "Euphues to Livia," wind up the first part, and announce to us Euphues's intention of visiting England. An address from Lyly to Lord Delawarr is affixed, to which was added in the second edition "An Address to the Gentlemen Scholars of England."

Euphues and his England is rather longer than the first part. Euphues and Philautus travel from Naples to England. They arrive at Dover, halt for the night at Fidus's house at Canterbury, and then proceed to London, where they make acquaintance with Surius, a young English gentleman of great birth and noble blood; Psellus, an Italian nobleman reputed "great in magick"; Martius, an elderly Englishman; Camilla, a beautiful English girl of insignificant family; Lady Flavia and her niece Fraunces. After endless correspondence and conversation on all kinds of topics, Euphues is recalled to Athens, and from there corresponds with his friends. "Euphues' Glasse for Europe" is a flattering description of England sent to Livia at Naples. It is the most interesting portion of the book, and throws light upon one or two points of Lyly's own biography. The author naturally seized the opportunity for paying his inevitable tribute to the queen, and pays it in his most exalted style. "O fortunate England that hath such a queene, ungratefull if thou praye not for hir, wicked if thou do not love hir, miserable if thou lose hir!"—and so on. The book ends with Philautus's announcement of his marriage to Fraunces, upon which Euphues sends characteristic congratulations and retires, "tormented in body and grieved in mind," to the Mount of Silexedra, "where I leave him to his musing or Muses."

Such is a brief outline of the book which for a time set the fashion for English prose. Two editions of each part appeared within the first year after publication, and thirteen editions of both are enumerated up to 1636, after which, with the exception of a modernized version in 1718, *Euphues* was never reprinted until 1868, when Dr Arber took it in hand. The reasons for its popularity are not far to seek. As far as matter was concerned it fell in with all the prevailing literary fashions. Its long disquisitions on love, religion, exile, women or education, on court life and country pleasures, handled all the most favourite topics in the secularized speculation of the time; its foreign background and travel talk pleased a society of which Lyly himself said "trafic and travel hath woven the nature of all nations into ours and made this land like arras full of device which was broadcloth full of workmanship"; and, although Lyly steered clear in it of the worst classical pedantries of the day, the book was more than sufficiently steeped in classical learning, and based upon classical material, to attract a literary circle which was nothing if not humanist. A large proportion of its matter indeed was drawn from classical sources. The general tone of sententious moralizing may be traced to Plutarch, from whom the treatise on education, "Euphues and his Ephoebus," and that on exile, "Letter to Botonio to take his exile patiently," are literally translated, as well as a number of other shorter passages either taken direct from the Latin versions or from some of the numerous English translations of Plutarch then current. The innumerable illustrations based upon a kind of pseudo natural history are largely taken from Pliny, while the mythology is that of Virgil and Ovid.

It was not the matter of *Euphues*, however, so much as the style which made it famous (see E<small>UPHUISM</small>). The source of Lyly's peculiar style has been traced by Dr Landmann (*Der Euphuismus, sein Wesen, seine Quelle, seine Geschichte*, &c. Giessen, 1881) to the influence of Don Antonio de Guevara, whose *Libro Aureo de Marco Aurelio* (1529)—a sort of historical romance based upon Plutarch and upon Marcus Aurelius's *Meditations*, the object of which was to produce a "mirror for princes," of the kind so popular throughout the Renaissance—became almost immediately popular in England. The first edition, or rather a French version of it, was translated into English by Lord Berners in 1531, and published in 1534. Before 1560 twelve editions of Lord Berners's translation had been printed, and before 1578 six different translators of this and later works of Guevara had appeared. The translation, however, which had most influence upon English literature was that by North, the well-known translator of Plutarch, in 1557, called *The Dial for Princes, Compiled by the Reverend Father in God Don Antony of Guevara, Byshop of Guadix, &c., Englished out of the Frenche by Th. North*. The sententious and antithetical style of the *Dial for Princes* is substantially that of *Euphues*, though Guevara on the whole handles it better than his imitator, and has many passages of real force and dignity. The general plan of the two books is also much the same. In both the biography is merely a peg on which to hang moral disquisitions and treatises. The use made of letters is the same in both. Even the names of some of the characters are similar. Thus Guevara's Lucilla is the flighty daughter of Marcus Aurelius. Lyly's Lucilla is the flighty daughter of Ferardo, governor of Naples; Guevara's Livia is a lady at the court of Marcus Aurelius, Lyly's Livia is a lady at the court "of the emperor," of whom no further description is given. The 9th, 10th, 11th and 12th chapters of the *Dial for Princes* suggested the discussion between Euphues and Atheos. The letter from Euphues to Alcius is substantially the same in subject and treatment as that from Marcus Aurelius to his nephew Epesipo. Both Guevara and Lyly translated Plutarch's work *De educatione liberorum*, Lyly, however, keeping closer than the Spanish author to the original. The use made by Lyly of the university of Athens was an anachronism in a novel intended to describe his own time. He borrowed it, however, from Guevara, in whose book a university of Athens was of course entirely in place. The "cooling card for all fond lovers" and the address to the ladies and gentlemen of Italy have their counterparts among the miscellaneous letters by Guevara affixed by North to the *Dial for Princes*; and other instances of Lyly's use of these letters, and of two other treatises by Guevara on court and country life, could be pointed out.

Lyly was not the first to appropriate and develop the Guevaristic style. The earliest book in which it was fully adopted was *A petite Pallace of Pettie his Pleasure*, by George Pettie, which appeared in 1576, a production so closely akin to *Euphues* in tone and style that it is difficult to believe it was not by Lyly. Lyly, however, carried the style to its highest point, and made it the dominant literary fashion. His principal followers in it were Greene, Lodge and Nash, his principal opponent Sir Philip Sidney; the *Arcadia* in fact supplanted *Euphues*, and the Euphuistic taste proper may be said to have died out about 1590 after a reign of some twelve years. According to Landmann, Shakespeare's *Love's Labour Lost* is a caricature of the Italianate and pedantic fashions of the day, not of the peculiar style of *Euphues*. The only certain allusion in Shakespeare to the characteristics of Lyly's famous book is to be found in *Henry IV.*, where Falstaff, playing the part of the king, says to Prince Hal, "Harry, I do not only marvel where thou spendest thy time, but also how thou art accompanied; for, though the camomile the more it is trodden on the faster it grows, yet youth the more it is wasted the sooner it wears." Here the pompous antithesis is evidently meant to caricature the peculiar Euphuistic sentence of court parlance.

(M. A. W.)

See Lyly's *Complete Works*, ed. R. W. Bond (3 vols., 1902); *Euphues*, from early editions, by Edward Arber (1868); A. W. Ward, *English Dramatic Literature*, i. 151; J. P. Collier, *History of Dramatis Poetry*, iii. 172; "John Lilly and Shakespeare," by C. C. Hense in the *Jahrbuch der deutschen Shakesp. Gesellschaft*, vols. vii. and viii. (1872, 1873); F. W. Fairholt, *Dramatic Works of John Lilly* (2 vols., 1858); *Shakespeare's Euphuism*, by W. L. Rushton; H. Morley, "Euphuism" in the *Quarterly Review*

(1861); R. W. Bond, "John Lyly, Novelist and Dramatist," in the *Quarterly Review* (Jan. 1896); J. A. Symonds, *Shakespeare's Predecessors* (1883); J. D. Wilson, *John Lyly* (Cambridge, 1905); A. Ainger, "Euphuism," in *Lectures and Essays* (1905); and Albert Feuillerat, *John Lyly. Contribution à l'histoire de la Renaissance en Angleterre* (1910).

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[1] The evidence for his authorship may be found in Gabriel Harvey's *Pierce's Supererogation* (written November 1589, published 1593), in Nash's *Have with you to Saffron Walden* (1596), and in various allusions in Lyly's own plays. See Fairholt's *Dramatic Works of John Lilly*, i. 20.

LYME REGIS, a market town and municipal borough and watering-place in the western parliamentary division of Dorsetshire, England, 151 m. W.S.W. of London by the London & South Western railway, the terminus of a light railway from Axminster. Pop. (1901) 2095. It is situated at the mouth of a narrow combe or valley opening upon a fine precipitous coast-line; there is a sandy shore affording excellent bathing, and the country inland is beautiful. The church of St Michael and All Angels is mainly Perpendicular, but the tower (formerly central) and the portion west of it are Norman. A guildhall and assembly rooms are the chief public buildings. The principal industries are stone-quarrying and the manufacture of cement. There is a curved pier of ancient foundation known as the Cobb. The harbour, with a small coasting trade, is under the authority of the corporation. The borough is under a mayor, 4 aldermen and 12 councillors. Area, 1237 acres.

No evidence of settlement on the site of Lyme Regis exists before that afforded by a grant, dated 774, purporting to be by Cynewulf, king of the West-Saxons, of land here to the church of Sherborne, and a similar grant by King Æthelstan to the church of Glastonbury. In 1086 three manors of Lyme are mentioned: that belonging to Sherborne abbey, which was granted at the dissolution to Thomas Goodwin, who alienated it in the following year; that belonging to Glastonbury, which seems to have passed into lay lands during the middle ages, and that belonging to William Belet. The last was acquired by the family of Bayeux, from whom it passed by marriage to Elias de Rabayne, whose nephew, Peter Baudrat, surrendered it to the crown in 1315-1316 when the king became lord of one moiety of the borough, henceforth known as Lyme Regis. Lyme ranked as a port in 1234, and Edward I. in 1284 granted to the town a charter making it a free borough, with a merchant gild, and in the same year the mayor and bailiffs are mentioned. In the following January the bailiffs were given freedom from pleading without the borough, freedom from toll and privileges implying considerable foreign trade; the importance of the port is also evident from the demand of two ships for the king's service in 1311. In 1332-1333 Edward III. granted Lyme to the burgesses at a fee-farm of 32 marks; on the petition of the inhabitants, who were impoverished by tempests and high tides, this was reduced to 100 shillings in 1410 and to 5 marks in 1481. In 1591 Elizabeth incorporated Lyme, and further charters were obtained from James I., Charles II. and William III. Lyme returned two members to parliament from 1295 to 1832 when the representation was reduced to one. The borough was disfranchised in 1867. The fairs granted in 1553 for the 1st of February and the 20th of September are now held on altered dates. Trade with France in wine and cloth was carried on as early as 1284, but was probably much increased on the erection of the Cobb, first mentioned in 1328 as built of timber and rock. Its medieval importance as the only shelter between Portland Roads and the river Exe caused the burgesses to receive grants of quayage for its maintenance in 1335 and many subsequent years, while its convenience probably did much to bring upon Lyme the unsuccessful siege by Prince Maurice in 1644. In 1685 Lyme was the scene of the landing of James, duke of Monmouth, in his attempt upon the throne.

LYMINGTON, a municipal borough and seaport in the New Forest parliamentary division of Hampshire, England, 98 m. S.W. from London by the London & South Western railway. Pop. (1901) 4165. It lies on the estuary of the Lymington, which opens into the Solent. The church of St Thomas à Becket is an irregular structure, dating from the reign of Henry VI., but frequently restored. There is some coasting trade, and yacht-building is carried on. Regular passenger steamers serve Yarmouth in the Isle of Wight. In summer the town is frequented for sea-bathing. It is governed by a mayor, 4 aldermen and 12 councillors. Area, 1515 acres.

There was a Roman camp near Lymington (*Lentune*, *Lementon*), and Roman relics have been found, but there is no evidence that a town existed here until after the Conquest. Lymington dates its importance from the grant of the town to Richard de Redvers, earl of Devon, in the reign of Henry I. No charter has been found, but a judgment given under a writ of *quo warranto* in 1578 confirms to the burgesses freedom from toll, passage and pontage, the tolls and stallage of the quay and the right to hold two fairs—privileges which they claimed under charters of Baldwin de Redvers and Isabel de Fortibus, countess of Albemarle, in the 13th century, and Edward Courtenay, earl of Devon, in 1405. The town was governed by the mayor and burgesses until the corporation was reformed in 1835. A writ for the election of a member to parliament was issued in the reign of Edward III., but no return was made. From 1585 two members were regularly returned; the number was reduced to one in 1867, and in 1885 the representation was merged in that of the county. Fairs on the 13th and 14th of May and the 2nd and 3rd of October, dating from the 13th century, are still held. The Saturday market probably dates from the same century. Lymington was made a port in the reign of Henry I., and its large shipping trade led to frequent disputes with Southampton as to the levying of duties. The case was tried in 1329 and decided against Lymington, but in 1750 the judgment was reversed, and since then the petty customs have been regularly paid. From an early date and for many centuries salt was the staple manufacture of Lymington. The rise of the mineral saltworks of Cheshire led to its decline in the 18th century, and later the renewed importance of Southampton completed its decay.

See E. King, *Borough and Parish of Lymington* (London, 1879).

LYMPH and **LYMPH FORMATION.** Lying close to the blood-vessels of a limb or organ a further set of vessels may be observed. They are very pale in colour, often almost transparent and very thin-walled. Hence they are frequently difficult to find and dissect. These are the lymphatic vessels, and they are found to be returning a fluid from the tissues to the bloodstream. When traced back to the tissues they are seen to divide and ultimately to form minute anastomosing tubules, the *lymph capillaries*. The capillaries finally terminate in the spaces between the structures of the tissue, but whether their free

ends are closed or are in open communication with the tissue spaces is still undecided. The study of their development shows that they grow into the tissue as a closed system of minute tubes, which indicates that in all probability they remain permanently closed. If we trace the lymphatic vessels towards the thorax we find that in some part of their course they terminate in structures known as lymphatic glands. From these again fresh lymphatic vessels arise which carry the fluid towards the main lymph-vessel, the *thoracic duct*. This runs up the posterior wall of the thorax close to the aorta, and finally opens into the junction of the internal jugular and left subclavian veins. The lymph-vessels from the right side of the head and neck and from the right arm open, however, into the right subclavian vein (see Lymphatic System below).

Chemical Constitution of Lymph.—The lymph collected from the thoracic duct during hunger is almost water clear and yellowish in colour. Its specific gravity varies from 1015 to 1025. It tastes salt and has a faint odour. It is alkaline in reaction, but is much less alkaline than blood-serum. Like blood it clots, but clots badly, only forming a soft clot which quickly contracts. The lymph collected from a lymphatic before it has passed through a lymph gland contains a few leucocytes, and though the number of lymphocytes is greater in the lymph after it has flowed through a gland it is never very great. In normal states there are no red blood corpuscles.

The total solids amount to 3.6 to 5.7%, the variations depending upon the amount of protein present. The lymph during hunger contains only a minute quantity of fat. Sugar (dextrose) is present in the same concentration as in the blood. The inorganic constituents are the same as in blood, but apparently the amounts of Ca, Mg and P_2O_5 are rather less than in serum. Urea is present to the same amount as in blood. If the lymph be collected after a meal, one important alteration is to be found. It now contains an abundance of fat in a very fine state of subdivision, if fat be present in the food. The concentrations of protein and dextrose are not altered during the absorption of these substances.

The Significance of Lymph.—In considering the significance and use of lymph we must note in the first place that it forms an alternative medium for the removal of water, dissolved materials, formed elements or particles away from the tissues. All materials supplied to a tissue are brought to it by the blood, and are discharged from the blood through the capillary wall. They thus come to lie in the tissue spaces between the cells, and from this supply of material in a dissolved state the cells take up the food they require. In the opposite direction the cell discharges its waste products into this same tissue fluid. The removal of material from the tissue fluid may be effected either by its being absorbed through the capillary wall into the bloodstream, or by sending it into the lymphatic vessels and thus away from the tissue. From this point of view the lymphatics may be looked upon in a sense as a drainage system of the tissues. Again, besides discharging fluid and dissolved material into the tissue spaces, the blood may also discharge leucocytes, and under many conditions this emigration of leucocytes may be very extensive. These also may leave the tissue space by the path of the lymph channels. Moreover, the tissues are at any time liable to be injured, and the injury as well as damaging many cells may cause rupture of capillaries (as in bruising) with escape of red blood-cells into the tissue spaces. If this occurs we know that the damaged cells are destroyed and their débris removed either by digestion by leucocytes or by disintegration and solution. The damage of a tissue also commonly involves an infection of the damaged area with living micro-organisms, and these are at once admitted to the tissue spaces. Hence we see that the lymphatics may be provided as channels by which a variety of substances can be removed from the tissue spaces. The question at once arises, is the lymph channel at all times open to receive the materials present in the tissue space? If such be the case, lymph is simply tissue fluid, and anything that modifies the constitution or amount of the tissue fluid should in like proportion lead to a variation in the amount and constitution of the lymph. But if the lymph capillary is a closed tubule at its commencement this does not follow.

From these considerations we see that in the first instance the whole problem of lymph formation is intimately bound up with the study of the interchanges of material between the blood and the various tissue cells. The exchange of material between blood and tissue cell may possibly be determined in one or both of two ways. Either it may result from changes taking place within the tissue cell, or the tissue cell remaining passive material may be sent to or withdrawn from it owing to a change occurring either in the composition of the blood or to a change in the circulation through the tissue. Let us take first the results following increased activity of a tissue. We know that increased activity of a tissue means increased chemical change within the tissue and the production of new chemical bodies of small molecular size (*e.g.* water, carbonic acid, &c.). The production of these metabolites means the destruction of some of the tissue substance, and to make good this loss the tissue must take a further amount of material from the blood. We know that this takes place, and moreover that the waste products resulting from activity are ultimately removed. The question then becomes: When does this restoration take place, and what is the intermediate state of the tissue? We know that increased activity is always accompanied by an increase in the blood-supply, indicating a greater supply of nutritive material, though it may be that, the increased supply required at the actual time of activity is oxygen only. Simultaneously the opportunity for a more rapid removal of the waste products is provided. We have to inquire then: Does this increased vascularity necessarily mean an increased outpouring of water and dissolved material into the tissues, for this might follow directly from the greater filling of the capillaries, or from the increased attracting power of the tissues to water (osmotic effect) due to the sudden production of substances of small molecular size within the tissue? The other possibility is that the increased volume of blood sent to the tissue is for the sole purpose of giving it a more rapid supply of oxygen, and that the ordinary normal blood-supply would amply suffice for renewing the chemical material used up during activity. Tissues undoubtedly vary among themselves in the amount of water and other materials they take from the blood when thrown into activity, and their behaviour in this respect depends upon the work they are called upon to perform. We must discriminate between the substance required by and consumed by the tissue, the chemical food which on combustion yields the energy by which the tissue performs work, and, on the other hand, the substance taken from the blood and either with or without further elaboration discharged from the tissue (as, for instance, in the process of secretion). The tissue contains in itself a store of food amply sufficient to enable it to continue working for a long time after its blood-supply has been stopped, and everything indicates that the supply of chemical energy to the tissue may be slow or even withheld for a considerable time. Hence we are led to conclude that the increased flow of blood sent to a tissue when it is thrown into activity is first and foremost to give that tissue an increased oxygen supply; secondly, to remove waste carbonic acid; thirdly, and only in the case of some tissues, to provide water salts and other materials for the outpouring of a secretion, as an instance of which we may take the kidney as a type. Hence there is no need to suppose that an extensive accumulation of fluid and dissolved substances takes place within a tissue when it becomes active. This must be an accumulation which would lead to an engorgement of the tissue spaces and then to a discharge of fluid along the lymph channels. To enable us to determine the various points just raised we must know whether an increased blood-supply to a tissue necessarily means an increased exudation of fluid into the tissue spaces, and moreover we must study the exchange of fluid between a tissue and the blood under as varied a series of conditions as possible, subsequently examining whether exchange of fluid and other substances between the tissue and the blood necessarily determines quantitatively the amount of lymph flowing from the tissue. Hence we will first study the exchanges between the blood and a tissue, and then turn our attention to the lymph-flow from the tissues.

The Exchanges of Fluids and dissolved Substances between the Blood and the Tissues.—Numerous experiments have been performed in studying the conditions under which fluid passes into the tissues and tissue spaces—or in the reverse direction into the blood. We may group them into (1) conditions during which the total volume of circulating fluid is increased or decreased; (2) conditions in which the character of the blood is altered, *e.g.* it is made more watery or its saline concentration is altered; (3) conditions in which the blood-supply to the part is altered; (4) conditions in which the physical character of the capillary wall is altered.

1. The total volume of blood in an animal has been increased among other ways by the transfusion of the blood of one animal directly into the veins of a second of the same species. It is found that within a very short time a large percentage of the plasma has been discharged from the blood-vessels. It has been sent into the tissues, notably the muscles, and it may be noted in passing without producing any increase in the lymph-flow from these vessels. An analogous experiment, but one which

avoids the fallacy introduced by injecting a second animal's blood, has been performed by driving all the blood out of one hind limb by applying a rubber bandage tightly round it from the foot upwards. This increases the volume of blood circulating in the rest of the body, and again a rapid disappearance of the fluid part of the blood from the vessels was observed—the fluid being mainly sent into the muscles, as was indicated by showing that the specific gravity of the muscles fell during the experiment. The experiments converse to these have also been studied. Bleeding is very rapidly followed by a large inflow of fluid into the circulating blood—this fluid being derived from all the tissues, and especially again from the muscles. Or again, when the bandage from the limb in the above-cited experiment was removed, the total capacity of the circulatory system was thereby suddenly increased, and it was found that the total volume of blood increased correspondingly, the increased volume of fluid being drawn from the tissues and especially again from the muscles. The rapidity with which this movement of fluid into or out of the blood takes place is very striking. The explanation usually offered is that the movement is effected by changes in the capillary pressure due to the alteration in the volume of blood circulating. While this seems feasible when the volume of blood is increased, it does not offer a satisfactory explanation of the rapid movement of fluid from the tissues when the volume of the blood is decreased. One must therefore look for yet further factors in this instance.

2. Let us next turn attention to the second of our three main variations, viz. that in which the composition of the blood is altered. It has long been known that the injection of water, or of solutions of soluble bodies such as salts, urea, sugar, &c., leads to a very rapid exchange of water and salts between the blood and the tissues. Thus if a solution less concentrated than the blood be injected, the blood is thereby diluted, but with very great rapidity water leaves the blood and is taken up by the tissues. Again, if a strong sugar or salt solution be injected, the first effect is a big discharge of water from the tissues into the blood and the movement of fluid is effected with great rapidity. In these instances a new physical factor is brought into play, viz. that of osmosis. When a solution of lower osmotic pressure than the blood is injected the osmotic pressure of the blood falls temporarily below that of the tissues, and water is therefore attracted to the tissues. The converse is the case when a solution of osmotic pressure higher than the blood is injected. This at first sight seems to be an all-sufficient explanation of the results recorded, but difficulties arise when we find that the tissues are not equally active in producing the effects. Thus it is found that the muscles and skin act as the chief water depot, while such tissues as the liver, intestines or pancreas take a relatively small share in the exchange. Again, when a strong sodium chloride solution is injected a considerable part of the sodium chloride is soon found to have left the blood, and it has been shown that the chloride depot is not identical with the water depot. The lung, for instance, is found to take up relatively far more of the salt than other tissues. Simultaneously with the passage of the salt into the tissue an exchange of water from the tissue into the blood can be observed, both processes being carried out very rapidly. The result is that the blood very quickly returns to a state in which its osmotic pressure is only slightly raised; the tissue, on the other hand, loses water and gains salt, and its osmotic pressure and specific gravity therefore rises. Again, the tissues do not participate equally in producing the final result, nor is the tissue which gives up the largest amount of water necessarily that which gains the largest amount of salt. The results following the injection of solutions of other bodies of small molecular size, *e.g.* urea or sugar, are quite analogous to those above described in the case of the non-toxic salt solutions. Hence we see that the rate of exchange of fluid and dissolved substance between a tissue and the blood can be extremely rapid and that the exchange can take place in either direction. We may also conclude that the main cause of the exchange, and possibly the only one, is the osmotic action set up by the solution injected, and that muscle tissue is particularly active in the process.

Seeing that a very considerable amount of water or of dissolved substance can be taken up from the blood into a tissue, the question next arises: Where is this material held, in the tissue cell or in the tissue space? Immediately the water or salt leaves the blood it reaches the tissue space, but unless the process be extreme in amount it probably passes at once into the tissue cell itself and is stored there. If the process is excessive oedema is set up and fluid accumulates in the tissue space.

These, taken quite briefly, are some of the more important conditions under which fluid exchanges, take place. They are selected here because of the extent and rapidity of the changes effected.

3. The third factor which may bring about a change in the amount of fluid sent to a tissue is a variation in the capillary pressure. A rise in capillary pressure will, if filtration can occur through the capillary wall, cause an increased exudation of fluid from the blood. Thus the rise in general blood-pressure following the injection of a salt solution could cause an increased filtration into the tissues. Or again, the hydraemia following a salt injection would favour an increased exudation because the blood would be more readily filtrable. We, however, know very little of the effect of changes in capillary pressure upon movement of fluid into the tissue spaces and tissues, most of such observations being confined to a study of their effect upon lymph-flow. We will therefore return to them in this connexion.

4. The remaining factor to be mentioned is a change in the character of the capillary wall. It is well known that many poisons can excite an increased exudation from the blood and the tissue may become oedematous. Of such bodies we may mention cantharidin and the lymphogogues of Class I (see later). A like change is also probably the cause of the oedema of nephritis and of heart disease. It has also been suggested that the capillaries of different organs show varying degrees of permeability, a suggestion to which we will return later.

Lymph Formation.—There are two theories current at the present day offering explanations of the manner in which lymph is formed. The first, which owes its inception to Ludwig, explains lymph formation upon physical grounds. Thus according to this theory the lymphatics are open capillary vessels at their origin in the tissues along which the tissue fluid is driven. The tissue fluid is discharged from the blood by filtration, and therefore its amount varies directly with the capillary pressure. The amount of fluid movement also is further determined by osmotic actions and by the permeability of the capillary wall.

The second theory first actively enunciated by Heidenhain regards lymph formation as a secretory process of the capillary wall, *i.e.* one in the discharge of which these cells perform work and are not merely passive as in the former theory. As we shall see, it is now probable that neither theory is completely correct.

In considering lymph formation we have to examine both the total amount of lymph formed in the body and the variations in amount leaving each separate organ under different conditions. In most investigations the lymph was collected from the thoracic duct, *i.e.* it was the lymph returned from all parts of the body with the exception of the right arm and right side of the head and neck. The collection of the lymph from organs is much more difficult to effect, and hence has not, to the present, been so extensively studied. We will consider first variations in the amount of the thoracic duct lymph. Lymph is always flowing along the thoracic duct, and if the body is at rest, it has been shown that this lymph is coming practically entirely from the intestines and liver, chiefly, moreover, from the liver. The variations in the amount flowing under various conditions has been extensively studied. We will discuss them under the following headings: Changes brought about (*a*) by altered circulatory conditions, (*b*) by the injection of various substances, and (*c*) as a result of throwing an organ into activity.

Ligature of the portal vein leads to an increased flow of duct lymph. Ligature of the inferior vena cava above the diaphragm also leads to a large increase in the flow of duct lymph. Ligature of the aorta may result in either an increased or decreased flow of direct lymph. One explanation of these results has been offered from a study of the changes in capillary pressure set up in the main organs involved. Thus, after ligature of the portal vein the capillary pressure in the intestines rises, and it was proved that the increase in thoracic duct lymph came from the intestines. Ligaturing the inferior vena cava causes a big rise in the pressure in the liver capillaries, the intestinal capillary pressure remaining practically unaltered. Here it was proved that the increase in lymph-flow came from the liver and was more copious in amount than in the former instance. A further difference is that this lymph is more concentrated, a feature which always characterizes liver lymph. Ligature of the aorta may or may not cause a rise in the liver capillary pressure, and it has been shown that if the pressure rises there is an increased lymph-flow from the liver and conversely. The increase of lymph comes entirely in this instance also from the liver. It is in fact but a special instance of the former experiment. From these results it has been argued that lymph formation is simply a

filtration fundamentally, and the lymph-flow is determined mainly by the capillary pressure. Variations in the quantity of lymph issuing from different organs have been on this theory ascribed to differences in the permeability of the capillaries of the organs. Thus as liver lymph is richest in protein content and is produced in greatest amount, it has been concluded that the liver capillaries possess the highest permeability. The intestines stand next in producing a concentrated lymph, and their capillaries are therefore assumed to stand second as regards permeability. Lastly, the lymph coming from limbs and other organs is much poorer in solids and much less copious in amount. Hence it is argued that their capillaries show the least permeability. It is, however, very unsafe to compare the liver capillaries with those of other organs, since they are not in reality capillaries but rather venous sinuses, and their relation to the liver cells is characteristically different from that of ordinary capillaries. If an animal is at rest, no lymph flows from the hind limbs. To obtain a sample of limb lymph it is necessary to massage the limb. If, however, the veins to the limb be ligatured, we obtain a flow of lymph. The ligature of course causes a rise of the capillary pressure, and it has been argued that this rise of pressure starts a filtration through the capillary wall and hence a flow of lymph. But the stoppage of the blood-flow also damages the capillary wall and tissue cells by asphyxiation, and the resulting lymph-flow is in all probability the resultant of many complex processes. This case is analogous to the production of oedema in cases of heart disease where the circulation is feeble and the oxygen supply to the parts deficient. The results of these experiments form the main evidence in support of the filtration theory of lymph formation. They were first systematically studied by Heidenhain, to whom we owe so much of our knowledge of lymph formation. He did not, however, conclude that they established the filtration theory.

In continuing his observations Heidenhain next studied the results following the injection of a number of substances into the blood. He found many which on injection gave rise to an increased lymph-flow from the thoracic duct, and arranged them in two classes. As instances of lymphogogues of the first class we may mention extract of mussels, leech extract, peptone, extract of crayfish muscle, extract of strawberries, of raspberries and many other like substances. Lymphogogues of the second class comprise neutral salt solutions, urea, sugar, &c. Considering the latter class first we may take as a type a solution of sodium chloride. Injection of such a solution causes a large increase in the lymph-flow, and it has been proved that the lymph comes from the liver and intestines only—chiefly from the former. It is especially to be noted that there is no lymph-flow from the limbs, and the same is true for all lymphogogues of this class. As indicated above, the injection of a saline solution leads to a large and rapidly effected transport of fluid from the blood into muscle tissue, but though there is this large increase in tissue fluid, no lymph flows from the tissue. This result very powerfully disfavours the filtration theory of lymph formation. It practically refutes the idea that lymph formation is solely dependent upon such processes as filtration, osmosis and capillary permeability only. It brings out quite clearly that the exchange of fluid and dissolved salts, &c., between the blood and a tissue, and the flow of lymph from that tissue, are two separate and distinct processes, and especially that the first does not determine the second. Also it is to be noted that the injection of a strong salt solution also excites a flow of duct lymph, again arising from the liver and intestines, but none from the limbs. In this instance, as previously stated, the muscles of the limbs are losing water, and so presumably are the liver and intestinal cells. This independence of tissue-blood exchange and lymph-flow is distinctly in favour of the view, which is rapidly gaining ground from histological observations, that in all instances the lymphatics commence in a tissue as closed capillary vessels.

Turning, in the next place, to the lymphogogues of the first class, it has been proved that the origin of this increase of flow is again from the liver. Very many of the substances of this class are bodies which may when taken cause urticarial (nettle-rash) eruptions, a state which is generally regarded as being due to an action upon the capillary endothelium. Their action as lymphogogues is also generally ascribed to an effect upon the capillary wall rendering it according to some more permeable, according to others leading to a direct secretory action on the part of the endothelium. We also know that many of the bodies of this class act upon the liver in other directions than in exciting an increased lymph production. Thus they may cause an increase in bile secretion, or, as in the case of peptone, the liver cells may be excited to produce a new chemical material, in this instance an antithrombin.

We have now to consider the effect of throwing an organ into activity upon the lymph-flow from the organ. In all cases in which it has been examined it is found that increased activity is accompanied by increased lymph-flow. Thus, to take the instance of the submaxillary gland, which at rest does not discharge any lymph, stimulation of the chorda tympani is followed by a flow of lymph accompanying the flow of saliva simultaneously excited. The stimulation of the nerve also produces dilatation of the blood-vessels and therefore a rise in capillary pressure. But that this vascular change is not the factor determining the lymph-flow is proved by the administration of a small dose of atropine, which arrests the secretion without influencing the vascular reaction following chorda stimulation. After the atropine no lymph-flow occurs on stimulating the nerve. Many other instances of a similar kind might be adduced. Thus, we have seen that peptone specifically excites the liver cells and also causes an increased lymph-flow from the liver; or, as a last instance, the injection of bile salt excites a flow of bile and also excites a flow of lymph from the liver. The supporters of the filtration theory have argued that as activity of a tissue is necessarily accompanied by the discharge of metabolites from the active tissue cells, and as these are of small molecular size, they must set up an osmotic effect. Water is therefore drawn into the tissue spaces, and this rise in fluid content results mechanically in a flow of lymph from the organ. The lymph simply drains away along the open lymphatics. This argument, however, loses all its force when we recall the fact that we may set up an enormous flow of fluid and salt into a tissue and its tissue spaces without causing the least flow of lymph. Further, there is no reason to suppose that the metabolites discharged from a tissue during activity are produced in large quantities. The chief metabolite is undoubtedly carbonic acid, and this diffuses very rapidly and is quickly carried away by the blood. If, moreover, as is probably the case, the lymphatics commence as closed capillaries, we have a further difficulty in explaining how the fluid is driven through the lymphatic wall. Either we must imagine the wall to be porous or there must be a greater pressure outside than inside, and it is very difficult to conceive how this is possible. As a general conclusion, then, it seems much more probable that we are here dealing with a secretory process, and that the active tissue produces some substance or substances—it may be carbonic acid—which throws the lymphatic capillary cells into activity.

To sum up in a few words the present state of our knowledge as to lymph formation we may say that the exchange of water and salts between the blood and the tissues is probably entirely determined by processes of filtration and osmosis. Further, that the physical condition of the capillary cells is frequently altered by many chemical substances, and that in consequence it may permit exudation into the tissue spaces much more freely. In the next place, the flow of lymph from a tissue is not solely determined by the amount of the tissue fluids. The lymph capillaries start as closed tubules, and the endothelial walls of these tubules play an active part (secretory) in determining when water and other substances shall be admitted into the capillary and further determine the quantity of such discharge. Apparently, too, these cells are specifically excited when the tissue is thrown into activity, the exciting substance being a metabolite from the active tissue. Leucocytes also are capable of passing through or between the endothelial cells of the lymph capillary.

(T. G. Br.)

LYMPHATIC SYSTEM. In anatomy, the lymphatic system (Lat. *lympha*, clear water) comprises the *lymphoid* or *adenoid* tissue so plentifully distributed about the body, especially in the course of the alimentary canal (see CONNECTIVE TISSUES), *lymph spaces*, *lymphatic vessels* of which the lacteals are modifications, *lymphatic glands*, *haemolymph glands*, and the *thoracic* and *right lymphatic ducts* by which the lymph (*q.v.*) finally reaches the veins.

Lymph spaces are mere spaces in the connective tissue, which usually have no special lining, though sometimes there is a layer of endothelial cells like those of the lymphatic and blood vessels. Most of these spaces are very small, but sometimes, as in the case of the *sub-epicranial space* of the scalp, the *capsule of Tenon* in the orbit, and the *retropharyngeal space* in the neck, they are large and are adaptations to allow free movement. Opening from these spaces, and also communicating with the serous membranes by small openings called stomata,[1] are the *lymph capillaries* (see Vascular System), which converge to the *lymphatic vessels*. These resemble veins in having an internal layer of endothelium, a middle unstriped muscular coat, and an external coat of fibrous tissue, though in the smaller vessels the middle coat is wanting. They have numerous endothelial valves, formed of two crescentic segments allowing the lymph to pass toward the root of the neck. When the vessels are engorged these valves are marked by a constriction, and so the lymphatics have a beaded appearance. The vessels divide and anastomose very freely, and for this reason they do not, like the veins, increase in calibre as they approach their destination. It is usual to divide the lymphatic vessels into a superficial and a deep set; speaking generally, the superficial ones are found near the course of the superficial veins, while the deeper ones accompany the arteries. Probably any single drop of lymph passes sooner or later through one or more lymphatic glands, and so those vessels which are approaching a gland are called *afferent*, while those leaving are spoken of as *efferent lymphatics*. The *lacteals* are special lymphatic vessels which carry the chyle from the intestine; they begin in lymphatic spaces in the villi and round the solitary and agminated glands, and pass into the mesentery, where they come in contact with a large number of *mesenteric glands* before reaching the *receptaculum chyli*.

The *lymphatic glands* are pink bodies situated in the course of the lymphatic vessels, to which they act as filters. They are generally oval in shape and about the size of a bean, but sometimes, especially in the groin, they form irregular flattened masses 2 in. long, while, at other times, they are so small as almost to escape notice. They are usually found in groups.

Each gland has a fibrous capsule from which trabeculae pass toward the centre, where they break up and interlace, forming a network, and in this way a cortical and medullary region for each gland is distinguished; the intervals are nearly filled by lymphoid tissue, but close to the trabeculae is a lymph path or sinus, which is only crossed by the reticular stroma of the lymphoid tissue, and this probably acts as a mechanical sieve, entangling foreign particles; as an example of this the bronchial glands are black from carbon strained off in its passage from the lungs, while the axillary glands in a tattooed arm are blue. The blood-vessels enter at one spot, the *hilum*, and are distributed along the trabeculae. In addition to their function as filters the lymphatic glands are probably one of the sources from which the leucocytes are derived.

The exact position of the various groups of glands is very important from a medical point of view, but here it is only possible to give a brief sketch which will be helped by reference to the accompanying diagram. In the head are found *occipital* and *mastoid glands* (fig. 1, β), which drain the back of the scalp; *internal maxillary glands*, in the zygomatic fossa, draining the orbit, palate, nose and membranes of the brain; *preauricular glands* (fig. 1, α), embedded in the parotid, draining the side of the scalp, pinna, tympanum and lower eyelid; and *buccal glands*, draining the cheek region. In the neck are the *superficial cervical glands* (fig. 1, γ), along the course of the external jugular vein, draining the surface of the neck; the *submaxillary glands* (fig. 1, δ), lying just above the salivary gland of the same name and draining the front of the face and scalp; the *submental glands* (fig. 1, ε), beneath the chin, draining the lower lip, as well as sometimes the upper, and the front of the tongue; the *retropharyngeal glands*, draining the naso-pharynx and tympanum; the *pretracheal glands*, draining the trachea and lower part of the thyroid body; and the *deep cervical glands*, which are by far the most important and form a great mass close to the internal jugular vein; they receive afferent vessels from most of the glands already mentioned and so are liable to be affected in any trouble of the head or neck, especially of the deeper parts. Into them the lymphatics of the brain pass directly. The lower part of this mass is sometimes distinguished as a separate group called the *supra-clavicular glands*, which drain the back of the neck and receive afferents from the occipital and axillary glands. The efferents from the deep cervical glands join to form a common vessel known as the *jugular lymphatic trunk*, and this usually opens into the thoracic duct on the left side and the right lymphatic duct on the right.

In the thorax are found *intercostal glands* (fig. 2, I.), near the vertebral column draining the back of the thoracic walls and pleura; *internal mammary glands*, draining the front of the same parts as well as the inner part of the breast and the upper part of the abdominal wall; *diaphragmatic glands*, draining that structure and the convex surface of the liver; *anterior, middle, posterior and superior mediastinal glands*, draining the contents of those cavities. The *bronchial glands*, draining the lungs, have already been referred to.

In the abdomen and pelvis the glands are usually grouped round the large arteries and are divided into visceral and parietal. Among the visceral are the *gastric glands*, draining the stomach (these are divided into *coronary, subpyloric* and *retropyloric* groups); the *splenic glands* at the hilum of the spleen, draining that organ, the tail of the pancreas and the fundus of the stomach; the *hepatic glands* in the small omentum, draining the lower surface and deep parts of the liver; the *pancreatic glands*, behind the lesser sac of the peritoneum, draining the head and body of the pancreas, the *superior mesenteric glands*; from one to two hundred in number, lying in the mesentery and receiving the lacteals; the *ileo-caecal glands*, draining the caecum, one of which is known as the *appendicular* gland and drains the vermiform appendix and right ovary; the *colic glands*

Fig. 1.—Superficial Lymphatic Vessels and Glands.

α, Preauricular.
β, Mastoid.
γ, Superficial cervical.
δ, Submaxillary.
ε, Submental.
ζ, Infraclavicular.
η, Anterior axillary.
θ, Supratrochlear.
ι, Antecubital.
κ, Inguinal.
λ, Superficial femoral.

along the right and middle colic arteries, draining the ascending and transverse colon; the *inferior mesenteric glands* in the course of that artery, draining the descending iliac and pelvic colons; the *rectal* glands, behind the rectum, draining its upper part.

Among the parietal glands are the *external iliac glands*, divided into a lateral and mesial set (see fig. 2, E.I.), and receiving the inguinal efferent vessels and lymphatics from the bladder, prostate, cervix uteri, upper part of the vagina, glans penis vel clitoridis and urethra. The *supra* and *infra-umbilical glands* receive the deep lymphatics of the abdominal wall, the former communicating with the liver, the latter with the bladder. From the latter, vessels pass to the epigastric gland lying in front of the termination of the external iliac artery. The *internal iliac glands* (fig. 2, I. I.) are situated close to the branches of this artery and drain the rectum, vagina, prostate, urethra, buttock and perinaeum. *Common iliac glands* (fig. 2, C.I.) lie around that artery and receive afferents from the external and internal iliac glands as well as a few from the pelvic viscera.[2] The *aortic glands* are grouped all round the length of the aorta, and are divided into *pre*-, *retro*- and *lateral aortic* groups (fig. 2 P.A. and L), all of which communicate freely. The upper preaortic glands are massed round the coeliac axis, and receive afferents from the gastric, hepatic, splenic and pancreatic glands; they are known as *coeliac glands*. The *lateral aortic glands* drain the kidney, adrenal, testis, ovary, fundus of uterus and lateral abdominal walls. In the upper extremity a few small glands are sometimes found near the deep arteries of the forearm. At the bend of the elbow are the *ante-cubital* glands (fig. 1 λ) and just above the internal condyle, one or two *supra-trochlear glands* (fig. 1, θ). The *axillary glands* (fig. 1, η) are perhaps the most practically important in the body. They are divided into four sets: (1) *external*, along the axillary vessels, draining the greater part of the arm; (2) *anterior*, behind the lower border of the pectoralis major muscle, draining the surface of the thorax including the breast and upper part of the abdomen; (3) *posterior* along the subscapular artery, draining the back and side of the trunk as low as the umbilical zone; (4) superior or *infra-clavicular glands* (fig. 1, ζ), receiving the efferents of the former groups as well as lymphatics accompanying the cephalic vein. In the lower limb all the superficial lymphatics pass up to the groin, where there are two sets of glands arranged like a T. The *superficial femoral* glands (fig. 1, λ) are the vertical ones, and
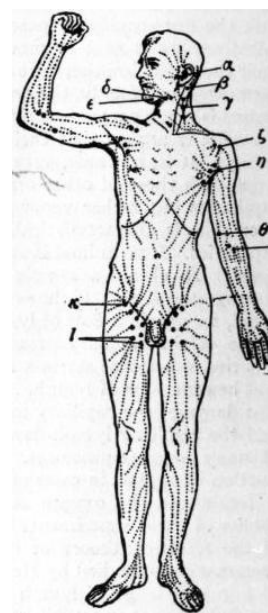
are grouped round the internal saphenous vein; they are very large, drain the surface of the leg, and are usually in two parallel rows. The *inguinal glands* form the cross bar of the T (fig. 1, κ), and drain part of the buttock, the surface of the abdomen below the umbilicus and the surface of the genital organs. The deep lymphatics of the leg drain into the *anterior tibial gland* on that artery, the *popliteal glands* in that space, and the *deep femoral glands* surrounding the common femoral vein.
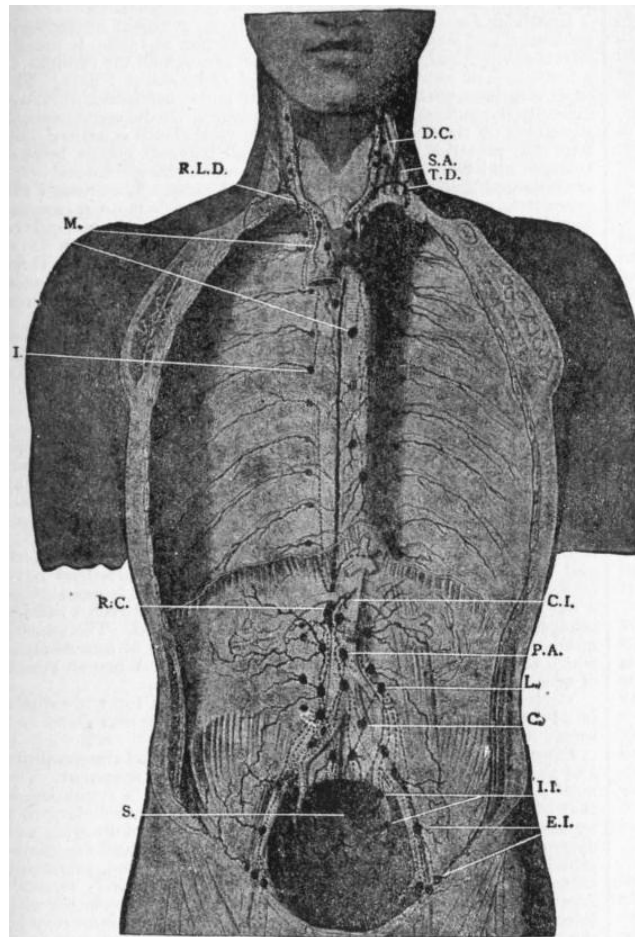
From A. M. Paterson, Cunningham's *Text-book of Anatomy*.

Fig. 2.—Deep Lymphatic Glands and Vessels of the Thorax and Abdomen (diagrammatic). Afferent vessels are represented by continuous lines and efferent and interglandular vessels by dotted lines.

C.	Common iliac glands.	M.	Mediastinal glands and vessels.
C.I.	Common intestinal trunk.	P.A.	Pre-aortic glands and vessels.
D.C.	Deep cervical glands.	R.C.	Receptaculum chylii.
E.I.	External iliac glands.	R.L.D.	Right lymphatic duct.
I.	Intercostal glands and vessels.	S.	Sacral glands.
I.I.	Internal iliac glands.	S.A.	Scalenus anticus muscle.
L.	Lateral aortic glands.	T.D.	Thoracic duct.

The *thoracic duct* begins as an irregular dilatation known as the *receptaculum chyli*, opposite the first and second lumbar vertebrae, which receives all the abdominal lymphatics as well as those of the lower intercostal spaces. The duct runs up on the right of the aorta through the posterior mediastinum and then traverses the superior mediastinum to the left of the oesophagus. At the root of the neck it receives the lymphatics of the left arm and left side of the neck and opens into the beginning of the left innominate vein, usually by more than one opening.

The *right lymphatic duct* collects the lymphatics from the right side of the neck and thorax, the right arm, right lung, right side of the heart and upper surface of the liver; it is often represented by several ducts which open separately into the right innominate vein.

Haemolymph glands are structures which have only been noticed since 1884. They differ from lymphatic glands in their much greater vascularity. They assist the spleen in the destruction of red blood corpuscles, and probably explain or help to explain the fact that the spleen can be removed without ill effects. In man they extend along the vertebral column from the coeliac axis to the pelvis, but are specially numerous close to the renal arteries.

T. Lewis suggests that lymphatic and haemolymph glands should be classified in the following way:—

	Haemal glands.	Simple.
		Specialized (Spleen)
Haemolymph Glands.	Haemal lymphatic glands.	1. Blood and lymph sinuses separate.
		2. Blood lymph sinuses.
		3. Other combined forms.
	Lymphatic glands.	

Details and references will be found in papers by T. Lewis, *J. Anat. & Phys.* vol. xxxviii. p. 312; W. B. Drummond, *Journ. Anat. and Phys.* vol. xxxiv. p. 198; A. S. Warthin, *Journ. Med. Research*, 1901, p. 3, and H. Dayton, *Am. Journ. of Med. Sciences*, 1904, p. 448. For further details of man's lymphatic system see *The Lymphatics* by Delamere, Poirier and Cuneo, translated by C. H. Leaf (London, 1903).

Embryology.—The lymphatic vessels are possibly developed by the hollowing out of mesenchyme cells in the same way that the arteries are; these cells subsequently coalesce and form tubes (see Vascular System). There is, however, a good deal of evidence to show that they are originally offshoots of the venous system, and that their permanent openings into the veins are either their primary points of communication or are secondarily acquired. The lymphatic and haemolymph glands are probably formed by the proliferation of lymphocytes around networks of lymphatic vessels; the dividing lymphocytes form the lymphoid

tissue, and eventually the network breaks up to form distinct glands into which blood vessels penetrate. If the blood vessels enlarge more than the lymphatic, haemolymph glands result, but if the lymphatic vessels become predominant ordinary lymphatic glands are formed. At an early stage in the embryo pig two thoracic ducts are formed, one on either side of the aorta, and the incomplete fusion of these may account for the division often found in man's duct. In the embryo pig too there have been found two pairs of lymph hearts for a short period.

See A. S. Warthin, *Journ. Med. Research*, vol. vii. p. 435; F. R. Sabin, *Am. Journ. of Anat.* i., 1902; and, for literature, *Development of the Human Body*, by J. P. McMurrich (London, 1906), and Quain's *Anatomy* (vol. i., London, 1908).

Comparative Anatomy.—A lymphatic system is recognized in all the Craniata, and in the lower forms (fishes and Amphibia) it consists chiefly of lymph spaces and sinuses in communication with the coelom. In fishes, for instance, there is a large *subvertebral lymph sinus* surrounding the aorta and another within the spinal canal. In Amphibia the subvertebral sinus is also found, and in the Anura (frogs and toads) there is a great *subcutaneous lymph sinus*. *Lymph hearts* are muscular dilatations of vessels and are found in fishes, amphibians, reptiles and bird embryos, and drive the lymph into the veins; they are not known in adult mammals.

In birds the thoracic duct is first recognized, and opens into both right and left precaval veins, as it always does in some mammals. In birds, however, some of the lymphatics open into the sacral veins, and it is doubtful whether true lymphatic glands ever occur. In birds and mammals lymphatic vessels become more definite and numerous and are provided with valves.

Haemolymph glands are present in mammals and birds, but have not been seen lower in the scale, though S. Vincent and S. Harrison point out the resemblance of the structure of the head kidney of certain Teleostean fishes to them (*Journ. Anat. and Phys.* vol. xxxi. p. 176).

For further details see *Comparative Anat. of Vertebrates*, by R. Wiedersheim (London, 1907).

(F. G. P.)

Diseases of the Lymphatic System and Ductless Glands.

Lymphadenitis or inflammatory infection of the lymphatic glands, is a condition characterized by hyperaemia of and exudation into the gland, which becomes reader, firmer and larger than usual. Three varieties may be distinguished: simple, suppurative and tuberculous. The cause is always the absorption of some toxic or infective material from the periphery. This may take place in several of the acute infectious diseases, notably in scarlet fever, mumps, diphtheria and German measles, or may be the result of poisoned wounds. The lymphatic glands are also affected in constitutional diseases such as syphilis. Simple lymphadenitis usually subsides of its own accord, but if toxins are produced in the inflamed area the enlargement is obvious and painful, while if pyogenic organisms are absorbed the inflammation progresses to suppuration.

Tuberculous lymphadenitis (scrofula) is due to the infection of the lymph glands by Koch's tubercle bacillus. This was formerly known as "King's Evil," as it was believed that the touch of the royal hand had power to cure it. It occurs most commonly in children and young adults whose surroundings are unhealthy, and who are liable to develop tuberculous disease from want of sufficient food and fresh air. Some local focus of irritation is usually present. The ways in which the tubercle bacillus enters the body are much disputed, but catarrh of the mucous membranes is regarded as a predisposing factor, and the tonsils as a probable channel of infection. Any lymphoid tissue in the body may be the seat of tuberculous disease, but the glands of the neck are the most commonly involved. The course of the disease is slow and may extend over a period of years. The earliest manifestation is an enlargement of the gland. It is possible in this stage for spontaneous healing to take place, but usually the disease progresses to caseation, in which tuberculous nodules are found diffused throughout the gland. Occasionally this stage may end in calcification of the caseous matter, the gland shrinking and becoming hard; but frequently suppuration follows from liquefaction of the caseating material. Foci of pus occur throughout the gland, causing destruction of the tissue, so that the gland may become a single abscess cavity. If left to itself the abscess sooner or later bursts at one or several points, leaving ulcerated openings through which a variable amount of pus escapes. Temporary healing may take place, to be again followed by further breaking down of the gland. This condition, if untreated, may persist for years and may finally give rise to a general tuberculosis. The treatment consists mainly in improving the general health with good diet, fresh air (particularly sea air), cod-liver oil and iron, and the removal of all sources of local irritation such as enlarged tonsils, adenoids, &c. Vaccination with tuberculin (TR) may be useful. Suppuration and extension of the disease require operative measures, and removal of the glands *en masse* can now be done through so small an opening as to leave only a very slight scar.

In *Tabes mesenterica* (tuberculosis of the mesenteric glands), usually occurring in children, the glands of the mesentery and retroperitonaeum become enlarged, and either caseate or occasionally suppurate. The disease may be primary or may be secondary to tuberculous disease of the intestines or to pulmonary phthisis. The patients are pale, wasted and anaemic, and the abdomen may be enormously enlarged. There is usually moderate fever, and thin watery diarrhoea. The caseating glands may liquefy and give rise to an inflammatory attack which may simulate appendicitis. Limited masses are amenable to surgical treatment and may be removed, while in the earlier stages constitutional treatment gives good results. Tuberculous peritonitis frequently supervenes on this condition.

Lymphadenoma (Hodgkin's Disease), a disease which was first fully described by Hodgkin in 1832, is characterized by a progressive enlargement of the lymphatic glands all over the body, and generally starts in the glands of the neck. The majority of cases occur in young adults, and preponderate in the male sex. The first symptom is usually enlargement of a gland in the neck, with generally progressive growth of the glands in the submaxillary region and axilla. The inguinal glands are early involved, and after a time the internal lymph glands follow. The enlargements are at first painless, but in the later stages symptoms are caused by pressure on the surrounding organs, and when the disease starts in the deeper structures the first symptoms may be pain in the chest and cough, pain in the abdomen, pain and oedema in the legs. The glands may increase until they are as large as eggs, and later may become firmly adherent one to another, forming large lobulated tumours. Increase of growth in this manner in the neck may cause obstructive dyspnoea and even death. In the majority of cases the spleen enlarges, and in rare instances lymphoid tumours may be found on its surface. Anaemia is common and is secondary in character; slight irregular fever is present, and soon a great and progressive emaciation takes place. The cases are of two types, the acute cases in which the enlargements take place rapidly and death may occur in two to three months, and the chronic cases in which the disease may remain apparently stationary. In acute lymphadenoma the prognosis is very unfavourable. Recovery sometimes takes place in the chronic type of the disease. Early surgical intervention has in some cases been followed by success. The application of X-rays is a valuable method of treatment, superficial glands undergoing a rapid diminution in size. Of drugs arsenic is of the most service, and mercurial inunction has been recommended by Dreschfeld. Organic extracts have of late been used in the treatment of lymphadenoma.

Glandular Fever is an acute infectious fever, generally occurring in epidemics, and was first described by E. Pfeiffer in 1889. It usually affects children and has a tendency to run through all the children of a family. The incubation period is said to be about 7 days. The onset is sudden, with pain in the neck and limbs, headache, vomiting, difficulty in swallowing and high temperature. On the second day, or sometimes on the first, swelling of the cervical glands is noticed, and later the posterior cervical, axillary and inguinal glands become enlarged and tender. In about half the cases the spleen and liver are enlarged and there is abdominal tenderness. West found the mesenteric nodes enlarged in 37 cases. Nephritis is an occasional complication, and constipation is very usual. The disease tends to subside of itself, and the fever usually disappears after a few days; the glandular swellings may, however, persist from one to three weeks. Considerable anaemia has been noticed to follow the illness. Rest in bed while the glands are enlarged, and cod-liver oil and iron to meet the anaemia, are the usual treatment.

Status lymphaticus (lymphatism) is a condition found in children and some adults, characterized by an enlargement of the lymphoid tissues throughout the body and more particularly by enlargement of the thymus gland. There is a special lowering of the patient's powers of resistance, and it has been said to account for a number of cases of sudden death. In all cases of status lymphaticus the thymus has been found enlarged. At birth the gland (according to Bovaird and Nicoll) weighs about 6 grammes, and does not increase after birth. In lymphatism it may weigh from 10 to 50 grammes. The clinical features are indefinite, and the condition frequently passes unrecognized during life. In most cases there is no hint of danger until the fatal

syncope sets in, which may be after any slight exertion or shock, the patient becoming suddenly faint, gasping and cyanosed, and the heart stopping altogether before the respirations have ceased. The most trifling causes have brought on fatal issues, such as a wet pack (Escherich) or a hypodermic injection, or even a sudden plunge into water though the head is not immersed. The greater number of deaths occur during the administration of anaesthetics, which seem peculiarly dangerous to these subjects. When an attack of syncope takes place no treatment is of any avail.

Virchow, West and Goodhardt have described a form of asthma in adults which they ascribe to a hypertrophied thymus gland and term "thymic asthma."

Diseases of the Spleen.—Physiological variations and abnormalities and absence of the spleen are so rare as to require no comment. The most usual pathological condition which gives rise to symptoms is that of *wandering spleen*, which may or may not be secondary to a wandering left kidney. It may produce symptoms of dragging and discomfort, dyspepsia, vomiting and abdominal pain, and sometimes jaundice (Treves), or the pedicle may become twisted, producing extremely severe symptoms. The treatment is entirely surgical. Abscess in the spleen occasionally occurs, usually in association with infective endocarditis or with general pyaemia. The spleen may be the seat of primary *new growths*, but these are rare, and only in a small portion of cases does it share in the metastatic reproduction of carcinoma. Infection of the spleen plays a prominent part in many diseases, such as malaria, typhoid fever, lymphadenoma and leucaemia.

Diseases of the thyroid gland (see GOITRE) and *Addison's disease* (of the suprarenal glands) are treated separately.

(H. L. H.)

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1   It has recently been stated that stomata do not exist in the peritoneum.

2   For further details of the pelvic glands see "Seventh Report of the Committee of Collective Investigation," *Journ. Anat. and Phys.* xxxii. 164.

LYNCH, PATRICIO (1825-1886) Chilean naval officer, was born in Valparaiso on the 18th of December 1825, his father being a wealthy Irish merchant resident in Chile, and his mother, Carmen Solo de Saldiva, a descendant of one of the best-known families in the country. Entering the navy in 1837, he took part in the operations which led to the fall of the dictator, Santa Cruz. Next, he sought a wider field, and saw active service in the China War on board the British frigate "Calliope." He was mentioned in despatches for bravery, and received the grade of midshipman in the British service. Returning to Chile in 1847 he became lieutenant, and seven years later he received the command of a frigate, but was deprived of his command for refusing to receive on board his ship political suspects under arrest. The Spanish War saw him again employed, and he was successively maritime prefect of Valparaiso, colonel of National Guards, and, finally, captain and minister of marine in 1872. In the Chile-Peruvian War a brilliant and destructive naval raid, led by him, was followed by the final campaign of Chorrillos and Miraflores (1880), in which he led at first a brigade (as colonel) and afterwards a division under Baquedano. His services at the battle of Chorrillos led to his appointment to command the Army of Occupation in Peru. This difficult post he filled with success, but his action in putting the Peruvian president, Garcia Calderon, under arrest excited considerable comment. His last act was to invest Iglesias with supreme power in Peru, and he returned to his own country in 1883. Promoted rear-admiral, he served as Chilean Minister at Madrid for two years, and died at sea in 1886. Lynch is remembered as one of the foremost of Chile's naval heroes.

LYNCHBURG, a city of Campbell county, Virginia, U.S.A., on the James river, about 125 m. W. by S. of Richmond. Pop. (1900) 18,891, of whom 8254 were negroes; (1910) 29,494. It is served by the Southern, the Chesapeake & Ohio and the Norfolk & Western railways. Its terraced hills command fine views of mountain, valley and river scenery, extending westward to the noble Peaks of Otter and lesser spurs of the Blue Ridge about 20 m. distant. On an elevation between Rivermont Avenue and the James river are the buildings of Randolph-Macon Woman's college (opened in 1893), which is conducted by a self-perpetuating board under the auspices of the Methodist Episcopal Church, South, and is one of the Randolph-Macon system of colleges and academies (see ASHLAND, VA.). In Lynchburg, too, are the Virginia Christian college (co-educational, 1903), and the Virginia collegiate and industrial school for negroes. The city has a public library, well-equipped hospitals, public parks and the Rivermont Viaduct, 1100 ft. long and 140 ft. high. Lynchburg is the see of a Protestant Episcopal bishop. Tobacco of a superior quality and large quantities of coal, iron ore and granite are produced in the neighbourhood. Good water power is furnished by the James river, and Lynchburg is one of the principal manufacturing cities of the state. The boot and shoe industry was established in 1900, and is much the most important. In 1905 the city was the largest southern manufacturer of these articles and one of the largest distributors in the country. The factory products increased in value from $2,993,551 in 1900 to $4,905,435 in 1905, or 65.9%.

Lynchburg, named in honour of John Lynch, who inherited a large tract of land here and in 1757 established a ferry across the James, was established as a village by Act of Assembly in 1786, was incorporated as a town in 1805, and became a city in 1852. During the Civil War it was an important base of supplies for the Confederates; on the 16th of June 1864 it was invested by Major-General David Hunter (1802-1886), but three days later he was driven away by General Jubal A. Early. In 1908 the city's corporate limits were extended.

LYNCH LAW, a term loosely applied to various forms of executing rough popular justice, or what is thought to be justice, for the punishment of offenders by a summary procedure, ignoring, or even contrary to, the strict forms of law. The word *lynching* "originally signified a whipping for reformatory purposes with more or less disregard for its legality" (Cutler), or the infliction of minor punishments without recourse to law; but during and after the Reconstruction Period in the United States, it came to mean, generally, the summary infliction of capital punishment. Lynch law is frequently prevalent in sparsely settled or frontier districts where government is weak and officers of the law too few and too powerless to enforce law and preserve order. The practice has been common in all countries when unsettled frontier conditions existed, or in periods of threatened anarchy. In what are considered civilized countries it is now found mainly in Russia, south-eastern Europe and in

America, but it is essentially and almost peculiarly an American institution. The origin of the name is obscure; different writers have attempted to trace it to Ireland, to England, to South Carolina, to Pennsylvania and to Virginia. It is certain that the name was first used in America, but it is not certain whether it came from Lynch's Creek, South Carolina, where summary justice was administered to outlaws, or from Virginia and Pennsylvania, where men named Lynch were noted for dealing out summary punishment to offenders.[1] In Europe early examples of a similar phenomenon are found in the proceedings of the Vehmgerichte in medieval Germany, and of Lydford law, gibbet law or Halifax law, Cowper justice and Jeddart justice in the thinly settled and border districts of Great Britain; and since the term "lynch law" came into colloquial use, it is loosely employed to cover any case in which a portion of the community takes the execution of its ideas of justice into its own hands, irrespective of the legal authorities.

In America during the 18th and 19th centuries the population expanded westward faster than well-developed civil institutions could follow, and on the western frontier were always desperadoes who lived by preying on the better classes. To suppress these desperadoes, in the absence of strong legal institutions, resort was continually made to lynch law. There was little necessity for it until the settlement crossed the Alleghany Mountains, but the following instances of lynching in the East may be mentioned: (1) the mistreatment of Indians in New England and the Middle Colonies in disregard of laws protecting them; (2) the custom found in various colonies of administering summary justice to wife-beaters, idlers and other obnoxious persons; (3) the acts of the Regulators of North Carolina, 1767-1771; (4) the popular tribunals of the Revolutionary period, when the disaffection toward Great Britain weakened the authority of the civil governments and the war replaced them by popular governments, at a time when the hostilities between "Patriots" and "Tories" were an incentive to extra-legal violence. In the South, lynching methods were long employed in dealing with agitators, white and black, who were charged with endeavouring to excite the slaves to insurrection or to crime against their masters, and in dealing with anti-slavery agitators generally.

In the West, from the Alleghanies to the Golden Gate, the pioneer settlers resorted to popular justice to get rid of bands of outlaws, and to regulate society during that period when laws were weak or confused, when the laws made in the East did not suit western conditions, and when courts and officials were scarce and distant. The Watauga settlements and the "State" of Franklin furnished examples of lynch law procedure almost reduced to organization. Men trained in the rough school of the wilderness came to have more regard for quick, ready-made, personal justice than for abstract justice and statutes; they were educated to defend themselves, to look to no law for protection or regulation; consequently they became impatient of legal forms and lawyers' technicalities; an appeal to statute law was looked upon with suspicion, and, if some personal matter was involved, was likely to result in deadly private feuds. Thus were formed the habits of thought and action of the western pioneers. Lynch law, not civil law, cleared the western forests, valleys and mountain passes of horse and cattle thieves, and other robbers and outlaws, gamblers and murderers. This was especially true of California and the states of the far West. H. H. Bancroft, the historian of *Popular Tribunals*, wrote in 1887 that "thus far in the history of these Pacific States far more has been done toward righting wrongs and administering justice outside the pale of law than within it." However, the lack of regard for law fostered by the conditions described led to a survival of the lynching habit after the necessity for it passed away. In parts of the Southern states, where the whites are few and greatly outnumbered by the blacks, certain of the conditions of the West have prevailed, and since emancipation released the blacks from restraint many of the latter have been lawless and turbulent. The Reconstruction, by giving to the blacks temporary political supremacy, increased the friction between the races, and greatly deepened prejudice. The numerous protective societies of whites, 1865-1876, culminating in the Ku Klux movement, may be described as an application of lynch law. With the increase of negro crimes came an increase of lynchings, due to prejudice, to the fact that for some time after Reconstruction the governments were relatively weak, especially in the districts where the blacks outnumber the whites, to the fact that negroes nearly always shield criminals of their own race against the whites, and to the frequent occurrence of the crime of rape by negro men upon white women.

Since 1882 the Chicago *Tribune* has collected statistics of lynching, and some interesting facts may be deduced from these tables.[2] During the twenty-two years from 1882 to 1903 inclusive, the total number of persons lynched in the United States was 3337, the number decreasing during the last decade; of these 2385 were in the South and 752 in the North; of those lynched in the East and West 602 were white and 75 black, and of those in the South 567 were white and 1985 black.[3] Lynchings occur mostly during periods of idleness of the lower classes; in the summer more are lynched for crimes against the person and in the winter (in the West) for crimes against property; the principal causes of lynching in the South are murder and rape, in the North and West, murder and offences against property; more blacks than whites were lynched between 1882 and 1903, the numbers being 2060 negroes, of whom 40 were women, and 1169 whites, of whom 23 were women; of the 707 blacks lynched for rape 675 were in the South; 783 blacks were lynched for murder, and 753 of these were in the South; most of the lynchings of whites were in the West; the lynching of negroes increased somewhat outside of the South and decreased somewhat in the South. Lynching decreases and disappears in a community as the population grows denser and civil institutions grow stronger; as better communications and good police make it harder to commit crime; and as public sentiment is educated to demand legal rather than illegal and irregular infliction of punishment for even the most horrible of crimes.

See James E. Cutler, *Lynch Law* (New York, 1905), an admirable and unbiased discussion of the subject; H. H. Bancroft, *Popular Tribunals* (2 vols., San Francisco, 1887); C. H. Shinn, *Mining Camps: A Study in American Frontier Government* (New York, 1885); and J. C. Lester and D. L. Wilson, *Ku Klux Klan* (New York, 1905).

(W. L. F.)

1　The usual explanation is that the name was derived from Charles Lynch (1736-1796), a justice of the peace in Virginia after 1774, who in 1780, toward the close of the War of Independence, greatly exceeded his powers in the punishment of Tories or Loyalists detected in a conspiracy in the neighbourhood of his home in Bedford county, Va. Lynch was a man of influence in his community, was for many years a member of the Virginia legislature, was a member of the famous Virginia Convention of 1776 and was later (in 1781) an officer in the American army. See an article, "The Real Judge Lynch," in the *Atlantic Monthly*, vol. lxxxviii. (Boston, 1901).

2　They have been corrected and somewhat modified by Dr. J. E. Cutler, from whose book the figures above have been taken. Lynching as used in this connexion applies exclusively to the illegal infliction of capital punishment.

3　For present purposes the former slave states (of 1860) constitute the South; the West is composed of the territory west of the Mississippi river, excluding Missouri, Arkansas, Louisiana, Texas and Oklahoma; the East includes those states east of the Mississippi river not included in the Southern group; the East and the West make up the North as here used—that is, the former free states of 1860.

LYNDHURST, JOHN SINGLETON COPLEY, Baron (1772-1863), lord chancellor of England, was born at Boston, Massachusetts, in 1772. He was the son of John Singleton Copley, the painter. He was educated at a private school and Cambridge university, where he was second wrangler and fellow of Trinity. Called to the bar at Lincoln's Inn in 1804, he gained a considerable practice. In 1817 he was one of the counsel for Dr J. Watson, tried for his share in the Spa Fields riot. On this occasion Copley so distinguished himself as to attract the attention of Castlereagh and other Tory leaders, under whose patronage he entered parliament as member for Yarmouth in the Isle of Wight. He afterwards sat for Ashburton, 1818-1826, and for Cambridge university 1826-1827. He was solicitor-general in 1819, attorney-general in 1824, master of the rolls in 1826 and lord chancellor in 1827, with the title of Lord Lyndhurst. Before being taken up by the Tories, Copley was a man of

the most advanced views, a republican and Jacobin; and his accession to the Tories excited a good deal of comment, which he bore with the greatest good humour. He gave a brilliant and eloquent but by no means rancorous support to all the reactionary measures of his chief. The same year that he became solicitor-general he married the beautiful and clever widow of Lieut.-Colonel Charles Thomas of the Coldstream Guards, and began to take a conspicuous place in society, in which his noble figure, his ready wit and his never-failing *bonhomie* made him a distinguished favourite.

As solicitor-general he took a prominent part in the trial of Queen Caroline. To the great Liberal measures which marked the end of the reign of George IV. and the beginning of that of William IV. he gave a vigorous opposition. He was lord chief baron of the exchequer from 1831 to 1834. During the Melbourne administration from 1835 to 1841 he figured conspicuously as an obstructionist in the House of Lords. In these years it was a frequent practice with him, before each prorogation of parliament, to entertain the House with a "review of the session," in which he mercilessly attacked the Whig government. His former adversary Lord Brougham, disgusted at his treatment by the Whig leaders, soon became his most powerful ally in opposition; and the two dominated the House of Lords. Throughout all the Tory governments from 1827 Lyndhurst held the chancellorship (1827-1830 and 1834-1835); and in the Peel administration (1841-1846) he resumed that office for the last time. As Peel never had much confidence in Lyndhurst, the latter did not exert so great an influence in the cabinet as his position and experience entitled him to do. But he continued a loyal member of the party. As in regard to Catholic emancipation, so in the agitation against the corn laws, he opposed reform till his chief gave the signal for concession, and then he cheerfully obeyed. After 1846 and the disintegration of the Tory party consequent on Peel's adoption of free trade, Lord Lyndhurst was not so assiduous in his attendance in parliament. Yet he continued to an extreme old age to take a lively interest in public affairs, and occasionally to astonish the country by the power and brilliancy of his speeches. That which he made in the House of Lords on the 19th of June 1854, on the war with Russia, made a sensation in Europe; and throughout the Crimean War he was a strong advocate of the energetic prosecution of hostilities. In 1859 he denounced with his old energy the restless ambition of Napoleon III. When released from office he came forward somewhat as the advocate of liberal measures. His first wife had died in 1834, and in August 1837 he had married Georgina, daughter of Lewis Goldsmith. She was a Jewess; and it was therefore natural that he strenuously supported the admission of Jews into parliament. He also advocated women's rights in questions of divorce. At the age of eighty-four he passed the autumn at Dieppe, "helping to fly paper kites, and amusing himself by turns with the writings of the Greek and Latin fathers on divorce and the amorous novels of Eugene Sue." His last speech, marked by "his wonted brilliancy and vigour," was delivered in the House of Lords at the age of eighty-nine. He died in London on the 12th of October 1863. He left no male issue and the title became extinct.

See *Lives of the Lord Chancellors of England*, vol. viii. (Lords Lyndhurst and Brougham), by Lord Campbell (1869). Campbell was a personal friend, but a political opponent. Brougham's *Memoirs*; *Greville Memoirs*; *Life of Lord Lyndhurst* (1883) by Sir Theodore Martin; J. B. Atlay, *The Victorian Chancellors* (1906).

LYNDSAY, SIR DAVID (*c.* 1490-*c.* 1555), Scottish poet, was the son of David Lyndsay of the Mount, near Cupar-Fife, and of Garmylton, near Haddington. His place of birth and his school are undetermined. It is probable that his college life was spent at St Andrews university, on the books of which appears an entry "Da Lindesay" for the session 1508-1509. He was engaged at court, first as an equerry, then as an "usher" to the young Prince James, afterwards James V. In 1522 he married Janet Douglas, a court seamstress, and seven years later was appointed Lyon King of Arms, and knighted. He was several times engaged in diplomatic business (twice on embassies abroad—to the Netherlands and France), and he was, in virtue of his heraldic office, a general master of ceremonies. After the death of James V., in 1542, he continued to sit in parliament as commissioner for Cupar-Fife; and in 1548 he was member of a mission to Denmark which obtained certain privileges for Scottish merchants. There is reason to believe that he died in or about 1555.

Most of Lyndsay's literary work, by which he secured great reputation in his own day and by which he still lives, was written during the period of prosperity at court. In this respect he is unlike his predecessor Gavin Douglas (*q.v.*), who forsook literature when he became a politician. The explanation of the difference is partly to be found in the fact that Lyndsay's muse was more occasional and satirical, and that the time was suitable to the exercise of his special gifts. It is more difficult to explain how he enjoyed a freedom of speech which is without parallel even in more secure times. He chastised all classes, from his royal master to the most simple. There is no evidence that he abjured Catholicism; yet his leading purpose was the exposure of its errors and abuses. His aid was readily accepted by the reforming party, and by their use of his work he shared with their leaders throughout many generations a reputation which is almost exclusively political and ecclesiastical.

Lyndsay's longer poems are *The Dreme* (1134 lines), *The Testament and Complaynt of the Papyngo* (1190 lines), *The Testament of Squyer Meldrum* (1859 lines), *Ane Dialog betwix Experience and ane Courteour of the Miserabyll Estait of the World* (6333 lines), and *Ane Pleasant Satyre of the Thrie Estaitis* (over 4000 lines). These represent, with reasonable completeness, the range of Lyndsay's literary talent. No single poem can give him a chief place, though here and there, especially in the last, he gives hints of the highest competence. Yet the corporate effect of these pieces is to secure for him the allowance of more than mere intellectual vigour and common sense. There is in his craftsmanship, in his readiness to apply the traditional methods to contemporary requirements, something of that accomplishment which makes even the second-rate man of letters interesting.

Lyndsay, the last of the Makars, is not behind his fellow-poets in acknowledgment to Chaucer. As piously as they, he reproduces the master's forms; but in him the sentiment and outlook have suffered change. His nearest approach to Chaucer is in *The Testament of Squyer Meldrum*, which recalls the sketch of the "young squire"; but the reminiscence is verbal rather than spiritual. Elsewhere his memory serves him less happily, as when he describes the array of the lamented Queen Magdalene in the words which Chaucer had applied to the eyes of his wanton Friar. So too, in the *Dreme*, the allegorical tradition survives only in the form. "Remembrance" conducts the poet over the old-world itinerary, but only to lead him to speculation on Scotland's woes and to an "Exhortatioun to the Kingis Grace" to bring relief. The tenor is well expressed in the motto from the Vulgate—"*Prophetias nolite spernere. Omnia autem probate: quod bonum est tenete.*" This didactic habit is freely exercised in the long *Dialog* (sometimes called the *Monarche*), a universal history of the medieval type, in which the falls of princes by corruption supply an object lesson to the unreformed church of his day. The *Satyre* is more direct in its attack on ecclesiastical abuse; and its dramatic form permits more lively treatment. This piece is of great historical interest, being the only extant example of a complete Scottish morality. It is in respect of literary quality Lyndsay's best work, and in dramatic construction and delineation of character it holds a high place in this *genre*. The farcical interludes (in places too coarse for modern taste) supply many touches of genuine comedy; and throughout the play there are passages, as in the speeches of Veritie in the First Part and of Dame Chastitie in the "Interlude of the Sowtar and the Taylor," in which word and line are happily conceived. The *Testament of the Papyngo* (popinjay), drawn in the familiar medieval manner, is another tract for the time, full of admonition to court and clergy. Of his shorter pieces, *The Complaynt and Publict Confessions of the Kingis Auld Hound, callit Bagsche, directit to Bawtie, the Kingis best belovit Dog, and his companyeonis*, and the *Answer to the Kingis Flyting* have a like pulpit resonance. The former is interesting as a forerunner of Burns's device in the "Twa Dogs." The *Deploratioun of the Deith of Queen Magdalene* is in the extravagant style of commemoration illustrated in Dunbar's Elegy on the Lord Aubigny. The *Justing betwix James Watsoun and Jhone Barbour* is a contribution to the popular taste for boisterous fun, in spirit, if not in form, akin to the *Christis Kirk on the Grene* series; and indirectly, with Dunbar's *Turnament* and *Of ane*

Blak-Moir, a burlesque of the courtly tourney. Lyndsay approaches Dunbar in his satire *The Supplicatioun in contemptioun of syde taillis* ("wide" trains of the ladies), which recalls the older poet's realistic lines on the filthy condition of the city streets. In Lyndsay's *Descriptioun of Pedder Coffeis* (pedlars) we have an early example of the studies in vulgar life which are so plentiful in later Scottish literature. In *Kitteis Confessioun* he returns, but in more sprightly mood, to his attack on the church.

In Lyndsay we have the first literary expression in Scotland of the Renaissance. His interest lies on the theological side of the revival; he is in no sense a humanist, and he is indifferent to the artistic claims of the movement. Still he appeals to the principle which is fundamental to all. He demands first-hand impression. He feels that men must get their lesson direct, not from intermediaries who understand the originals no more "than they do the ravyng of the rukis." Hence his persistent plea for the vernacular, nowhere more directly put than in the *Dialog*, in the "Exclamatioun to the Redar, toucheyng the wrytting of the vulgare and maternall language." Though he is concerned only in the theological and ecclesiastical application of this, he undoubtedly stimulated the use of the vernacular in a Scotland which in all literary matters beyond the concern of the irresponsible poet still used the *lingua franca* of Europe.

A complete edition of Lyndsay's poetical works was published by David Laing in 3 vols. in 1879. This was anticipated during the process of preparation by a cheaper edition (slightly expurgated) by the same editor in 1871 (2 vols.). The E.E.T.S. issued the first part of a complete edition in 1865 (ed. F. Hall). Five parts have appeared, four edited by F. Hall, the fifth by J. A. H. Murray. For the bibliography see Laing's 3 vol. edition, *u.s.* iii. pp. 222 et seq., and the E.E.T.S. edition *passim.* See also the editions by Pinkerton (1792), Sibbald (1803), and Chalmers (1806); and the critical accounts in Henderson's *Scottish Vernacular Literature* (1898), Gregory Smith's *Transition Period* (1900), and J. H. Millar's *Literary History of Scotland* (1903). A professional work prepared by Lyndsay in the Lyon Office, entitled the *Register of Scottish Arms* (now preserved in MS. in the Advocates' Library), was printed in 1821 and reprinted in 1878. It remains the most authoritative document on Scottish heraldry.

(G. G. S.)

LYNEDOCH, THOMAS GRAHAM, 1st Baron (1748-1843), British general, was the son of Thomas Graeme, laird of Balgowan, and was born on the 19th of October 1748. He was educated by private tutors, among whom was James Macpherson (*q.v.*), and was a gentleman commoner of Christ Church, Oxford, between 1766 and 1768. He then travelled on the continent of Europe, and in 1772 unsuccessfully contested a parliamentary seat in Perthshire. In 1774 he married a daughter of the ninth Lord Cathcart, and took a house in the Leicestershire hunting country. After a few years, owing to the state of his wife's health, Graham was compelled to live mainly in the south of Europe, though while at home he was a prominent sportsman and agriculturist. In 1787 he bought the small estate of Lynedoch or Lednock, a few miles from Perth. In 1791 his wife died in the Mediterranean, off Hyères. Graham tried to find distraction in renewed travels, and during his wanderings fell in with Lord Hood's fleet on its way to Toulon. He joined it as a volunteer, served on Lord Mulgrave's staff during the British occupation of Toulon, and returned, after the failure of the expedition, to Scotland, where he organized a regiment of infantry, the 90th Foot, Perthshire Volunteers (now 2nd Battalion Scottish Rifles). Graham's men were the first regiment in the army to be equipped and trained wholly as light infantry, though they were not officially recognized as such for many years. In the same year (1794) Graham became member of parliament, in the Whig interest, for the county of Perth. He saw some active service in 1795 in "conjunct expeditions" of the army and navy, and in 1796, being then a brevet colonel, he was appointed British commissioner at the headquarters of the Austrian army in Italy. He took part in the operations against Napoleon Bonaparte, was shut up in Mantua with Würmser's army, escaped in disguise, and after many adventures reached the relieving army of Alvinzi just before the battle of Rivoli. On returning to his regiment he served in more "conjunct" expeditions, in one of which, at Messina, he co-operated with Nelson, and in 1799 he was sent as brigadier-general to invest the fortress of Valetta, Malta. He blockaded the place for two years, and though Major-General Pigot arrived shortly before the close of the blockade and assumed command, the conquest of Malta stands almost wholly to the credit of Graham and his naval colleague Sir Alexander Ball. In 1801 Graham proceeded to Egypt, where his regiment was engaged in Abercromby's expedition, but arrived too late to take part in any fighting. He took the opportunity afforded by the peace of Amiens to visit Turkey, Austria, Germany and France, and only resumed command of his regiment in 1804. When the latter was ordered to the West Indies he devoted himself to his duties as a member of parliament. He sat for Perthshire until 1807, when he was defeated, as he was again in 1812. Graham was with Moore in Sweden in 1808 and in Spain 1808-1809, and was present at his death at the battle of Corunna. In 1809 he became a major-general, and after taking part in the disastrous Walcheren expedition he was promoted lieutenant-general and sent to Cadiz (1810).

In 1811, acting in conjunction with the Spanish army under General la Peña (see PENINSULAR WAR), he took the offensive, and won the brilliant action of Barossa (5th of March). The victory was made barren of result by the timidity of the Spanish generals. The latter nevertheless claimed more than their share of the credit, and Graham answered them with spirit. One of the Spanish officers he called out, fought and disarmed, and after refusing with contempt the offer of a Spanish dukedom, he resigned his command in the south and joined Wellington in Portugal. His seniority as lieutenant-general made him second in command of Wellington's army. He took part in the siege of Ciudad Rodrigo, and commanded a wing of the army in the siege of Badajoz and the advance to Salamanca. In July 1812, his eyesight becoming seriously impaired, he went home, but rejoined in time to lead the detached wing of the army in the wide-ranging manœuvre which culminated in the battle of Vittoria. Graham was next entrusted with the investment and siege of San Sebastian, which after a desperate defence fell on the 9th of September 1813. He then went home, but in 1814 accepted the command of a corps to be despatched against Antwerp. His assault on Bergen op Zoom was, however, disastrously repulsed (3rd of February 1814).

At the peace Graham retired from active military employment. He was created Baron Lynedoch of Balgowan in the peerage of the United Kingdom, but refused the offered pension of £2000 a year. In 1813 he proposed the formation of a military club in London, and though Lord St Vincent considered such an assemblage of officers to be unconstitutional, Wellington supported it and the officers of the army and navy at large received the idea with enthusiasm. Lynedoch's portrait, by Sir T. Lawrence, is in possession of this club, the (Senior) United Service. In his latter years he resumed the habits of his youth, travelling all over Europe, hunting with the Pytchley so long as he was able to sit his horse, actively concerned in politics and voting consistently for liberal measures. At the age of ninety-two he hastened from Switzerland to Edinburgh to receive Queen Victoria when she visited Scotland after her marriage. He died in London on the 18th of December 1843. He had been made a full general in 1821, and at the time of his death was a G.C.B., Colonel of the 1st (Royal Scots) regiment, and governor of Dumbarton Castle.

See biographies by John Murray Graham (2nd ed., Edinburgh, 1877) and Captain A. M. Delavoye (London, 1880); also the latter's *History of the 90th* (*Perthshire Volunteers*) (London, 1880), *Philipparts' Royal Military Calendar* (1820), ii. 147, and *Gentleman's Magazine*, new series, xxi. 197.

LYNN, a city and seaport of Essex county, Massachusetts, 9 m. N.E. of Boston, on the N. shore of Massachusetts Bay. Pop. (1900) 68,513, of whom 17,742 were foreign-born (6609 being English Canadians, 5306 Irish, 1527 English and 1280 French Canadians), and 784 were negroes; (1910 census) 89,336. It is served by the Boston & Maine and the Boston, Revere Beach & Lynn railways, and by an interurban electric railway, and has an area of 10.85 sq. m. The business part is built near the shore on low, level ground, and the residential sections are on the higher levels. Lynn Woods, a beautiful park, covers more than 2000 acres. On the shore, which has a fine boulevard, is a state bath house. The city has a handsome city hall, a free public library, founded in 1862, a soldiers' monument and two hospitals. Lynn is primarily a manufacturing city. The first smelting works in New England were established here in 1643. More important and earlier was the manufacture of boots and shoes, an industry introduced in 1636 by Philip Kertland, a Buckingham man; a corporation of shoemakers existed here in 1651, whose papers were lost in 1765. There were many court orders in the seventeenth century to butchers, tanners, bootmakers and cordwainers; and the business was made more important by John Adam Dagyr (d. 1808), a Welshman who came here in 1750 and whose work was equal to the best in England. In 1767 the output was 80,000 pairs; in 1795 about 300,000 pairs of women's shoes were made by 600 journeymen and 200 master workmen. The product of women's shoes had become famous in 1764, and about 1783 the use of morocco had been introduced by Ebenezer Breed. In 1900 and 1905 Lynn was second only to Brockton among the cities of the United States in the value of boots and shoes manufactured, and outranked Brockton in the three allied industries, the manufacture of boots and shoes, of cut stock and of findings. In the value of its total manufactured product Lynn ranked second to Boston in the state in 1905, having been fifth in 1900; the total number of factories in 1905 was 431; their capital was $23,139,185; their employees numbered 21,540; and their product was valued at $55,003,023 (as compared with $39,347,493 in 1900). Patent medicines and compounds and the manufacture of electrical machinery are prominent industries. The Lynn factories of the General Electric Company had in 1906 an annual product worth between $15,000,000 and $20,000,000. The foreign export of manufactured products is estimated at $5,000,000 a year.

Lynn was founded in 1629 and was called Saugus until 1637, when the present name was adopted, from Lynn Regis, Norfolk, the home of the Rev. Samuel Whiting (1597-1679), pastor at Lynn from 1636 until his death. From Lynn Reading was separated in 1644, Lynnfield in 1782, Saugus in 1815, and, after the incorporation of the city of Lynn in 1850, Swampscott in 1852, and in 1853 Nahant, S. of Lynn, on a picturesque peninsula and now a fashionable summer resort.

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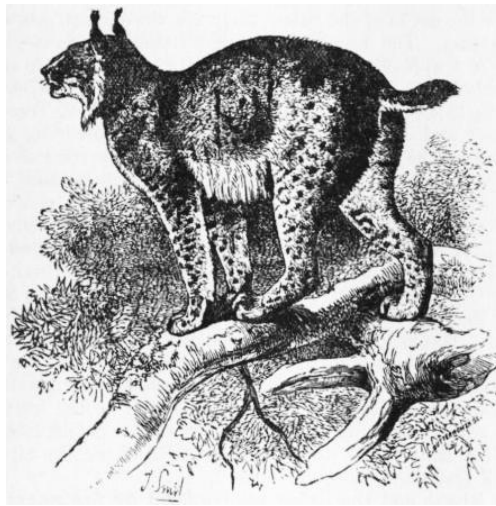
LYNTON and **LYNMOUTH,** two seaside villages in the Barnstaple parliamentary division of Devonshire, England, on the Bristol Channel; 17 m. E. of Ilfracombe, served by the Lynton light railway, which joins the South Western and Great Western lines at Barnstaple. Both are favoured as summer resorts. Lynmouth stands where two small streams, the East Lyn and West Lyn, flow down deep and well-wooded valleys to the sea. Lynton is on the cliff-edge, 430 ft. above. A lift connects the villages. The industries are fishing and a small coasting trade. Not far off are the Doone Valley, part of the vale of the East Lyn, here called Badgeworthy water, once the stronghold of a notorious band of robbers and famous through R. D. Blackmore's novel *Lorna Doone*; Watersmeet, where two streams, the Tavy and Walkham, join amid wild and beautiful scenery; and the Valley of Rocks, a narrow glen strewn with immense boulders. Lynton is an urban district, with a population (1901) of 1641.

LYNX (Lat. *Lynx*, Gr. λύγξ, probably connected with λεύοσειν, to see), a genus of mammals of the family *Felidae*, by some naturalists regarded only as a subgenus or section of the typical genus *Felis* (see CARNIVORA). As an English word (lynx) the name is used of any animal of this group. It is not certain to which of these, if to any of them, the Greek name λύγξ was especially applied, though it was more probably the caracal (*q.v.*) than any of the northern species. The so-called lynxes of Bacchus were generally represented as resembling leopards rather than any of the species now known by the name. Various fabulous properties were attributed to the animal, whatever it was, by the ancients, that of extraordinary powers of vision, including ability to see through opaque substances, being one; whence the epithet "lynx-eyed," which has survived to the present day.

Lynxes are found in the northern and temperate regions of both the Old and New World; they are smaller than leopards, and larger than true wild cats, with long limbs, short stumpy tail, ears tufted at the tip, and pupil of the eye linear when contracted. Their fur is generally long and soft, and always longish upon the cheeks. Their colour is light brown or grey, and generally spotted with a darker shade. The naked pads of the feet are more or less covered by the hair that grows between them. The skull and skeleton do not differ markedly from those of the other cats. Their habits are exactly those of the other wild cats. Their food consists of any mammals or birds which they can overpower. They commit extensive ravages upon sheep and poultry. They generally frequent rocky places and forests, being active climbers, and passing much of their time among the branches of the trees. Their skins are of considerable value in the fur trade. The northern lynx (*L. lynx* or *L. borealis*) of Scandinavia, Russia, northern Asia, and till lately the forest regions of central Europe, has not inhabited Britain during the historic period, but its remains have been found in cave deposits of Pleistocene age. Dr W. T. Blanford says that the characters on which E. Blyth relied in separating the Tibetan lynx (*L. isabellinus*) from the European species are probably due to the nature of its habitat among rocks, and that he himself could find no constant character justifying separation. The pardine lynx (*L. pardinus*) from southern Europe is a very handsome species; its fur is rufous above and white beneath.

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From a drawing by Wolf in Elliot's *Monograph of the Felidae*.
European Lynx.

Several lynxes are found in North America; the most northerly has been described as the Canadian lynx (*L. canadensis*); the bay lynx (*L. rufus*), with a rufous coat in summer, ranges south to Mexico, with spotted and streaked varieties—*L. maculatus* in Texas and southern California, and *L. fasciatus* in Washington and Oregon. The first three were regarded by St George Mivart as local races of the northern lynx. A fifth form, the plateau lynx (*L. baileyi*), was described by Dr C. H. Merriam in 1890, but the differences between it and the bay lynx are slight and unimportant.

LYON, MARY MASON (1797-1849), American educationalist, was born on the 28th of February 1797 on a farm near Buckland, Franklin county, Massachusetts. She began to teach when she was seventeen, and in 1817, with the earnings from her spinning and weaving, she went to Sanderson Academy, Ashfield. She supported herself there, at Amherst Academy, where she spent one term, and at the girls' school in Byfield, established in 1819 by Joseph Emerson (1777-1833), where she went in 1821, by teaching in district schools and by conducting informal normal schools. In 1822-1824 she was assistant principal of Sanderson Academy, and then taught in Miss Zilpah P. Grant's Adams Female Academy, in Londonderry (now Derry), N.H. This school had only summer sessions, and Miss Lyon spent her winters in teaching, especially at Buckland and at Ashfield, and in studying chemistry and natural science with Edward Hitchcock, the geologist. In 1828-1834 she taught in Miss Grant's school, which in 1828 had been removed to Ipswich, and for two years managed the school in Miss Grant's absence. In 1828-1830 she had kept up her winter "normal" school at Buckland, and this was the beginning of her greater plan, "a permanent institution consecrated to the training of young women for usefulness ... designed to furnish every advantage which the state of education in this country will allow ... to put within reach of students of moderate means such opportunities that none can find better." She was assisted by Dr Hitchcock, and her own mystical enthusiasm and practical common sense secured for her plan ready financial support. In 1835 a site was selected near the village of South Hadley and Mount Holyoke; in 1836 the school was incorporated as Mount Holyoke Female Seminary; and on the 8th of November 1837 it opened with Mary Lyon as principal, and, as assistant, Miss Eunice Caldwell, afterwards well known as Mrs J. P. Cowles of Ipswich Academy. Miss Lyon died at Mount Holyoke on the 5th of March 1849, having served nearly twelve years as principal of the seminary, on a salary of $200 a year. From her work at Holyoke sprang modern higher education for women in America.

See Edward Hitchcock, *Life and Labors of Mary Lyon* (1851); B. B. Gilchrist, *Life of Mary Lyon* (Boston, 1910).

LYON, NATHANIEL (1818-1861), American soldier, was born in Ashford, Connecticut, on the 14th of July 1818, and graduated at West Point in 1841. He was engaged in the Seminole War and the war with Mexico, won the brevet of captain for his gallantry at Contreras and Churubusco, and was wounded in the assault on the city of Mexico. In 1850, while serving in California, he conducted a successful expedition against the Indians. He was promoted captain in 1851, and two years later was ordered to the East, when he became an ardent opponent of "States' Rights" and slavery. He was stationed in Kansas and in Missouri on the eve of the Civil War. In Missouri not only was sentiment divided, but the two factions were eager to resort to force long before they were in the other border states. Lyon took an active part in organizing the Union party in Missouri, though greatly hampered, at first by the Federal government which feared to provoke hostilities, and afterwards by the military commander of the department, General W. S. Harney. On Harney's removal in April 1861, Lyon promptly assumed the command, called upon Illinois to send him troops, and mustered the Missouri contingent into the United States' service. He broke up the militia camp at St Louis established by the secessionist governor of Missouri, Claiborne F. Jackson, and but for the express prohibition of Harney, who had resumed the command, would have proceeded at once to active hostilities. In all this Lyon had co-operated closely with Francis P. Blair, Jr., who now obtained from President Lincoln the definitive removal of Harney and the assignment of Lyon to command the Department of the West, with the rank of brigadier-general. On Lyon's refusal to accede to the Secessionists' proposal that the state should be neutral, hostilities opened in earnest, and Lyon, having cleared Missouri of small hostile bands in the central part of the state, turned to the southern districts, where a Confederate army was advancing from the Arkansas border. The two forces came to action at Wilson's Creek on the 10th of August 1861. The Union forces, heavily outnumbered, were defeated, and Lyon himself was killed while striving to rally his troops. He bequeathed almost all he possessed, some $30,000, to the war funds of the national government.

See A. Woodward, *Memoir of General Nathaniel Lyon* (Hartford, 1862); James Peckham, *Life of Lyon* (New York, 1866); and T. L. Snead, *The Fight for Missouri* (New York, 1886). Also *Last Political Writings of General Nathaniel Lyon* (New York, 1862).

LYONNESSE, Lyonesse, Leonnoys or Leonais, a legendary country off the south coast of Cornwall, England. Lyonnesse is the scene of many incidents in the Arthurian romances, and especially in the romances of Tristram and Iseult. It also plays an important part in purely Cornish tradition and folk-lore. Early English chronicles, such as the *Chronicon e chronicis* of Florence of Worcester, who died in 1118, described minutely and without a suggestion of disbelief the flourishing state of Lyonnesse, and its sudden disappearance beneath the sea. The legend may be a greatly exaggerated version of some actual subsidence of inhabited land. There is also a very ancient local tradition, apparently independent of the story of Lyonnesse, that the Scilly Islands formed part of the Cornish mainland within historical times.

See *Florentii Wigorniensis monachi Chronicon ex chronicis*, &c., ed. B. Thorpe (London, 1848-1849).

LYONS, EDMUND LYONS, Baron (1790-1858), British admiral, was born at Burton, near Christchurch, Hampshire, on the 21st of November 1790. He entered the navy, and served in the Mediterranean, and afterwards in the East Indies, where in 1810 he won promotion by distinguished bravery. He became post-captain in 1814, and in 1826 commanded the "Blonde" frigate at the blockade of Navarino, and took part with the French in the capture of Kasteo Morea. Shortly before his ship was paid off in 1835 he was knighted. From 1840 till 1853 Lyons was employed on the diplomatic service, being successively minister to Greece, Switzerland and Sweden. On the outbreak of the war with Russia he was appointed second in command of the British fleet in the Black Sea under Admiral Dundas, whom he succeeded in the chief command in 1854. As admiral of the inshore squadron he had the direction of the landing of the troops in the Crimea, which he conducted with marvellous energy and despatch. According to Kinglake, Lyons shared the "intimate counsels" of Lord Raglan in regard to the most momentous questions of the war, and toiled, with a "painful consuming passion," to achieve the object of the campaign. His principal actual achievements in battle were two—the support he rendered with his guns to the French at the Alma in attacking the left flank of the Russians, and the bold and brilliant part he took with his ship the "Agamemnon" in the first bombardment of the forts of Sebastopol; but his constant vigilance, his multifarious activity, and his suggestions and counsels were much more advantageous to the allied cause than his specific exploits. In 1855 he was created vice-admiral; in June 1856 he was raised to the peerage with the title of Baron Lyons of Christchurch. He died on the 23rd of November 1858.

See Adam S. Eardley-Wilmot, R. N., *Life of Lord Lyons* (1898).

LYONS, RICHARD BICKERTON PEMELL LYONS, 1st Earl (1817-1887), British diplomatist, son of the preceding, was born at Lymington on the 26th of April 1817. He entered the diplomatic service, and in 1859-1864 was British minister at Washington, where, after the outbreak of the Civil War, the extremely important negotiations connected with the arrest of the Confederate envoys on board the British mail-steamer "Trent" devolved upon him. After a brief service at Constantinople, he succeeded Lord Cowley at the Paris embassy in 1867. In the war of 1870 he used his best efforts as a mediator, and accompanied the provisional government to Tours. He continued to hold his post with universal acceptance until November 1887. He died on the 5th of December 1887, when the title became extinct.

LYONS (Fr. *Lyon*), a city of eastern France, capital of the department of Rhône, 315 m. S.S.E. of Paris and 218 m. N. by W. of Marseilles on the Paris-Lyon railway. Pop. (1906) town, 430,186; commune, 472,114. Lyons, which in France is second only to Paris in commercial and military importance, is situated at the confluence of the Rhone and the Saône at an altitude of 540 to 1000 ft. above sea-level. The rivers, both flowing south, are separated on the north by the hill on which lies the populous working quarter of Croix-Rousse, then by the narrow tongue of land ending in the Perrache Quarter. The peninsula thus formed is over 3 m. long and from 650 to 1000 yds. broad. It is traversed lengthwise by the finest streets of the city, the rue de la République, the rue de l'Hôtel de Ville, and the rue Victor Hugo. Where it enters Lyons the Saône has on its right the faubourg of Vaise and on its left that of Serin, whence the ascent is made to the top of the hill of Croix-Rousse. Farther on, its right bank is bordered by the scarped heights of Fourvière, St Irénée, Ste Foy, and St Just, leaving room only for the quays and one or two narrow streets; this is the oldest part of the city. The river sweeps in a semicircle around this eminence (410 ft. above it), which is occupied by convents, hospitals and seminaries, and has at its summit the famous church of Notre-Dame de Fourvière, the resort of many thousands of pilgrims annually.

On the peninsula between the rivers, at the foot of the hill of Croix-Rousse, are the principal quarters of the town: the Terreaux, containing the hôtel de ville, and the chief commercial establishments; the wealthy residential quarter, centring round the Place Bellecour, one of the finest squares in France; and the Perrache. The Rhone and Saône formerly met on the site of this quarter, till, in the 18th century, the sculptor Perrache reclaimed it; on the peninsula thus formed stands the principal railway station, the Gare de Perrache with the Cours du Midi, the most extensive promenade in Lyons, stretching in front of it. Here, too, are the docks of the Saône, factories, the arsenal, gas-works and prisons. The Rhone, less confined than the Saône, flows swiftly in a wide channel, broken when the water is low in spring by pebbly islets. On the right hand it skirts first St Clair, sloping upwards to Croix-Rousse, and then the districts of Terreaux, Bellecour and Perrache; on the left it has a low-lying plain, occupied by the Parc de la Tête d'Or and the quarters of Brotteaux and Guillotière. The park, together with its lake, comprises some 285 acres, and contains a zoological collection, botanical and pharmaceutical gardens, and the finest greenhouses in France, with unique collections of orchids, palm-trees and *Cycadaceae*. It is defended from the Rhone by the Quai de la Tête d'Or, while on the east the railway line to Geneva separates it from the race-course. Brotteaux is a modern residential quarter. Guillotière to the south consists largely of workmen's dwellings, bordering wide, airy thoroughfares. To the east extend the manufacturing suburbs of Villeurbanne and Montchat. The population, displaced by the demolition of the lofty old houses and the widening of the streets on the peninsula, migrates to the left bank of the Rhone, the extension of the city into the plain of Dauphiné being unhindered.

The Rhone and the Saône are bordered by fine quays and crossed by 24 bridges—11 over the Rhone, 12 over the Saône, and 1 at the confluence. Of these the Pont du Change over the Saône and the Pont de la Guillotière over the Rhone have replaced medieval bridges, the latter of the two preserving a portion of the old structure.

Of the ancient buildings Notre-Dame de Fourvière is the most celebrated. The name originally applied to a small chapel built in the 9th century on the site of the old forum (*forum vetus*) from which it takes its name. It has been often rebuilt, the chief feature being a modern Romanesque tower surmounted by a cupola and statue of the Virgin. In 1872 a basilica was begun at its side in token of the gratitude of the city for having escaped occupation by the German troops. The building, finished in 1894, consists of a nave without aisles flanked at each exterior corner by a turret and terminating in an apse. The façade, the lower half of which is a lofty portico supported on four granite columns, is richly decorated on its upper half with statuary and sculpture. Marble and mosaic have been lavishly used in the ornamentation of the interior and of the crypt. Round the apse runs a gallery from which, according to an old custom, a benediction is pronounced upon the town annually on the 8th of September. From this gallery a magnificent view of the city and the surrounding country can be obtained. At the foot of the hill of Fourvière rises the cathedral of St Jean, one of the finest examples of early Gothic architecture in France. Begun in the 12th century, to the end of which the transept and choir belong, it was not finished till the 15th century, the gable and flanking towers of the west front being completed in 1480. A triple portal surmounted by a line of arcades and a rose window gives entrance to the church. Two additional towers, that to the north containing one of the largest bells in France, rise at the extremities of the transept. The nave and choir contain fine stained glass of the 13th and 14th centuries as well as good modern glass. The chapel of St Louis or of Bourbon, to the right of the nave, is a masterpiece of Flamboyant Gothic. To the right and left of the altar stand two crosses preserved since the council of 1274 as a symbol of the union then agreed upon between the Greek and Latin churches. Adjoining St Jean is the ancient Manécanterie or singers' house, much mutilated and frequently restored, but still preserving graceful Romanesque arcades along its front. St Martin d'Ainay, on the peninsula, is the oldest church in Lyons, dating from the beginning of the 6th century and subsequently attached to a Benedictine abbey. It was rebuilt in the 10th and 11th centuries and restored in modern times, and is composed of a nave with four aisles, a transept and choir terminating in three semicircular apses ornamented with paintings by Hippolyte Flandrin, a native of Lyons. The church is surmounted by two towers, one in the middle of the west front, the other at the crossing; the four columns supporting the latter are said to have come from an altar to Augustus. A mosaic of the 12th century, a high altar decorated with mosaic work and a beautifully carved confessional are among the works of art in the interior. St Nizier, in the heart of the city, was the first cathedral of Lyons; and the crypt in which St Pothinus officiated still exists. The present church is a Gothic edifice of the 15th century, with the exception of the porch, constructed by Philibert Delorme, a native of Lyons, in the 16th century. The Church of St Paul (12th and 15th centuries), situated on the right bank of the Saône, preserves an octagonal central tower and other portions of Romanesque architecture; that of St Bonaventure, originally a chapel of the Cordeliers, was rebuilt in the 15th and 19th centuries. With the exception of the imposing prefecture, the vast buildings of the faculties, which are in the Guillotière quarter, and the law court, the colonnade of which overlooks the Saône from its right bank, the chief civil buildings are in the vicinity of the Place des Terreaux. The east side of this square (so called from the *terreaux* or earth with which the canal formerly connecting the Rhone and the Saône hereabouts was filled) is formed by the hôtel de ville (17th century), the east façade of which, towards the Grand Theatre, is the more pleasing. The south side of the square is occupied by the Palais des Arts, built in the 17th century as a Benedictine convent and now accommodating the school of fine arts, the museums of painting and sculpture, archaeology and natural history, and the library of science, arts and industry. The museums are second in importance only to those of Paris. The collection of antiquities, rich in Gallo-Roman inscriptions, contains the bronze tablets discovered in 1528, on which is engraved a portion of a speech delivered in A.D. 48, by the emperor Claudius, advocating the admission of citizens of Gallia Comata to the Roman senate. The "Ascension," a masterpiece of Perugino, is the chief treasure of the art collection, in which are works by nearly all the great masters. A special gallery contains the works of artists of Lyons, among whom are numbered Antoine Berjon, Meissonier, Paul Chenavard, Puvis de Chavannes. In the Rue de la République, between the Place de la Bourse and the Place des Cordeliers, each of which contains one of its highly ornamented fronts, stands the Palais du Commerce et de la Bourse, the finest of the modern buildings of Lyons. The Bourse (exchange) has its offices on the ground floor round the central glass-roofed hall; the upper storeys accommodate the commercial tribunal, the council of trade arbitration, the chamber of commerce and the *Musée historique des Tissus*, in which the history of the weaving industry is illustrated by nearly 400,000 examples. In the buildings of the lycée on the right bank of the Rhone are the municipal library and a collection of globes, among them the great terrestrial globe made at Lyons in 1701, indicating the great African lakes.

Public Buildings.

The Hôtel Dieu, instituted according to tradition in the beginning of the 6th century by King Childebert, is still one of the chief charitable establishments in the city. The present building dates from the 18th century; its façade, fronting the west quay of the Rhone for over 1000 ft., was begun according to the designs of Soufflot, architect of the Pantheon at Paris. The Hospice de la Charité and the military hospital are on the same bank slightly farther down stream. The Hospice de l'Antiquaille, at Fourvière, occupies the site of the palace of the praetorian prefects, in which Germanicus, Claudius and Caracalla were born. Each of these hospitals contains more than 1000 beds. Lyons has many other benevolent institutions, and is also the centre of the operations of the Société de la Propagation de la Foi. The chief monuments are the equestrian statue of Louis XIV. in the Place Bellecour, the monuments of President Carnot, Marshal Suchet, the physicist André-Marie Ampère, and those in honour of the Republic and in memory of the citizens of the department who fell in the war of 1870-71. The most noteworthy fountain is that in the Place des Terreaux with the leaden group by Bartholdi representing the rivers on their way to the ocean.

There are Roman remains—baths, tombs and the relics of a theatre—in the St Just quarter on the right bank of the Saône. Three ancient aqueducts on the Fourvière level, from Montromant, Mont d'Or and Mont Pilat, can still be traced. Magnificent remains of the latter work may be seen at St Irénée and Chaponost. Traces also exist along the Rhone of a subterranean canal conveying the water of the river to a *naumachia* (lake for mimic sea-fights). Agrippa made Lyons the starting-point of the principal Roman roads throughout Gaul; and it remains an important centre in the general system of communication owing to its position on the natural highway from north to south-eastern France. The Saône above the town and the Rhone below have large barge and steamboat traffic. The main line of the Paris-Lyon-Méditerranée railway runs first through the station at Vaise, on the right bank of the Saône, and thence to that of Perrache, the chief station in the city. The line next in importance, that to Geneva, has its station in the Brotteaux quarter, and the line of the eastern Lyonnais to St Genix d'Aoste has a terminus at Guillotière; both these lines link up with the Paris-Lyon main line. The railway to Montbrison starts from the terminus of St Paul in Fourvière and that to Bourg, Trévoux and the Dombes region from the station of Croix-Rousse. A less important line to Vaugneray and Mornant has a terminus at St Just. Besides the extensive system of street tramways, cable tramways (*ficelles*) run to the summits of the eminences cf Croix-Rousse, Fourvière and St Just.

Lyons is, next to Paris, the principal fortress of the interior of France, and, like the capital, possesses a military governor. The immediate protection of the city is provided for on the east side by a modern enceinte, of simple trace, in the plain (subsidiary to this is a group of fairly modern detached forts forming an advanced position at the village of Bron), and on the west by a line of detached forts, not of recent design, along the high ground on the right bank of the Saône. Some older forts and a portion of the old enceinte are still kept up in the city itself, and two of these forts, Montessuy and Caluire, situated on the peninsula, serve with their annexes to connect the northern extremities of the two lines above mentioned. The main line of defence is as usual the outer fort-ring, the perimeter of which is more than 40 m., and the mean distance from the centre of the city 6½ m. This naturally divides into four sections. In the eastern plain, well in advance of the enceinte, eight principal sites have been fortified, Feyzin, Corbas, St Priest, Genas, Azieu, Meyzieux, Décines and Chaurant. These form a semicircle from the lower to the upper reaches of the Rhone. The northern (or north eastern) section, between the Rhone and the Saône, has forts Neyron and Vancia as its principal defences; these and their subsidiary batteries derive some additional support from the forts Montessuy and Caluire mentioned above. On the north-west side there is a strong group of works disposed like a redan, of which the salient, fort Verdun and annexes, is on the high plateau of Mont d'Or pointing northward, and the faces, represented by forts Frêta and Paillet, are lower down on the spurs of

Defence.

the ridge, facing north-east and north-west respectively. The south-western section comprises three principal groups, Bruisson, Côte-Lorette and Montcorin-Champvillard, the last-named crossing its fire over the Lower Rhone with Fort Feyzin. Lastly a connecting battery was built near Chapoly in 1895 to close the gap between the north-western and south-western sections and to command the westward approaches by the valley of Charbonnières.

Lyons is the headquarters of the XIV. army-corps, the seat of an archbishop who holds the title of primate of the Gauls and also that of archbishop of Vienne, and of a prefect, a court of appeal, a court of assizes, tribunals of commerce and of first instance, and of two boards of trade arbitration (*conseils de prud'hommes*). It is the centre of an *académie* (educational division) and has a university with faculties of law, letters, science and medicine and pharmacy. There are also Catholic faculties (*facultés libres*) of law, theology, science and letters, three *lycées*, training colleges for teachers and numerous minor educational establishments. There are besides many special schools at Lyons, the more important being the school of fine arts which was founded in the 18th century to train competent designers for the textile manufactures, but has also done much for painting and sculpture; an army medical school, schools of drawing, agriculture, music, commerce (*école supérieure de commerce*), weaving, tanning, watch-making and applied chemistry, and the écoles La Martinière for free instruction in science and art as applied to industry. The veterinary school, instituted in 1761, was the first of its kind in Europe; its laboratory for the study of comparative physiology is admirably equipped. Besides the *Académie des Sciences, Belles Lettres et Arts* (founded in 1700), Lyons possesses societies of agriculture, natural history, geography, horticulture, &c.

Industry and trade. Its trade in silk and silk goods has formed the basis of the prosperity of Lyons for several centuries. Derived from Italy, this industry rapidly developed, thanks to the monopoly granted to the city in 1450 by Charles VII. and to the patronage of Francis I., Henry II. and Henry IV. From time to time new kinds of fabrics were invented—silk stuffs woofed with wool or with gold and silver threads, shawls, watered silks, poplins, velvets, satinades, moires, &c. In the beginning of the 19th century J. M. Jacquard introduced his famous loom by which a single workman was enabled to produce elaborate fabrics as easily as the plainest web, and by changing the "cartoons" to make the most different textures on the same looms. In the 17th century the silk manufacture employed at Lyons, 9000 to 12,000 looms. After the revocation of the edict of Nantes the number sank to 3000 or 4000; but after the Reign of Terror was past it rose again about 1801 to 12,000. Towards the middle of the 19th century the weaving branch of the industry began to desert Lyons for the surrounding districts. The city remains the business centre for the trade and carries on dyeing, printing and other accessory processes. Lyons disputes with Milan the position of the leading silk market of Europe. In 1905 the special office (*la Condition des soies*) which determines the weight of the silk examined over 4700 tons of silk. France furnished barely one-tenth of this quantity, two-thirds came from China and Japan, the rest from Italy and the Levant. The traders of Lyons re-export seven-twelfths of these silks, the industries of the town employing the remainder. An almost equal quantity of cotton, wool and waste-silk threads is mixed with the silk. A few thousand hand-looms are still worked in the town, more especially producing the richest materials, 50,000 or 55,000 in the surrounding districts, and some 33,000 machine looms in the suburbs and neighbouring departments. Allied industries such as dyeing, finishing and printing, employ 12,000 workers. Altogether 300,000 workpeople depend upon the silk industry. In 1905 the total value of the manufacture was £15,710,000, the chief items being pure silk textures (plain) £3,336,000; textures of silk mixed with other materials £3,180,000; silk and foulards £1,152,000; muslins £3,800,000, this product having increased from £100,000 in 1894. Speaking roughly the raw material represents half the value, and the value of the labour the remaining half. About 30% of the silk goods of Lyons finds a market in France. Great Britain imported them to the value of over £6,000,000, and the United States to the value of over £1,600,000, notwithstanding the heavy duty. The dyeing industry and the manufacture of chemicals have both developed considerably to meet the requirements of the silk trade. Large quantities of mineral and vegetable colouring matters are produced and there is besides a large output of glue, gelatine, superphosphates and phosphorus, all made from bones and hides, of picric, tartaric, sulphuric and hydrochloric acids, sulphates of iron and copper, and pharmaceutical and other chemical products.

Lyons does a large trade in metals, iron, steel and copper, and utilizes them in the manufacture of iron buildings, framework, bridges, machinery, railway material, scales, metal cables, pins and needles, copper-founding and the making of clocks and bronzes. Gold and silver-working is of importance, especially for embroidery and articles used in religious ceremonies. Other industries are those of printing, the manufacture of glass goods, of tobacco (by the state), the preparation of hides and skins (occupying 20,000 workmen), those connected with the miller's trade, the manufacture of various forms of dried flour-paste (macaroni, vermicelli, &c.), brewing, hat-making, the manufacture of chocolate, and the pork-butcher's industry. Apart from the dealings in silk and silk goods, trade is in cloth, coal and charcoal, metals and metal goods, wine and spirits, cheese and chestnuts. Four miles south-west of Lyons is Oullins (pop. 9859) which has the important works of the Paris-Lyon railway.

Lyons is the seat of important financial companies; of the Crédit Lyonnais, which does business to the amount of £200,000,000 annually in Lyons alone; also of coal and metallurgical companies and gas companies, the former extending their operations as far as Russia, the latter lighting numerous towns in France and foreign countries.

History.—The earliest Gallic occupants of the territory at the confluence of the Rhone and the Saône were the Segusians. In 59 B.C. some Greek refugees from the banks of the Hérault, having obtained permission of the natives to establish themselves beside the Croix-Rousse, called their new town by the Gallic name Lugudunum (*q.v.*) or Lugdunum; and in 43 B.C. Lucius Munatius Plancus brought a Roman colony to Fourvières from Vienne. This settlement soon acquired importance, and was made by Agrippa the starting-point of four great roads. Augustus, besides building aqueducts, temples and a theatre, gave it a senate and made it the seat of an annual assembly of deputies from the sixty cities of Gallia Comata. At the same time the place became the Gallic centre for the worship of Rome and the emperor. Under the emperors the colony of Forum Vetus and the municipium of Lugdunum were united, receiving the *jus senatus*. The town was burnt in A.D. 59 and afterwards rebuilt in a much finer style with money given by Nero; it was also adorned by Trajan, Adrian and Antoninus. The martyrdom of Pothinus and Blandina occurred under Marcus Aurelius (A.D. 177), and some years later a still more savage persecution of the Christians took place under Septimius Severus, in which Irenaeus, according to some authors, perished.

After having been ravaged by the barbarians and abandoned by the empire, Lyons in 478 became capital of the kingdom of the Burgundians. It afterwards fell into the hands of the Franks, and suffered severely from the Saracens, but revived under Charlemagne, and after the death of Charles the Bald became part of the kingdom of Provence. From 1032 it was a fief of the emperor of Germany. Subsequently the authority over the town was a subject of dispute between the archbishops of Lyons and the counts of Forez; but the supremacy of the French kings was established under Philip the Fair in 1312. The citizens were constituted into a commune ruled by freely elected consuls (1320). In the 13th century two ecclesiastical councils were held at Lyons—one in 1245, presided over by Innocent IV., at which the emperor Frederick II. was deposed; the second, the œcumenical, under the presidency of Gregory X., in 1274, at which five hundred bishops met. Pope Clement V. was crowned here in 1305, and his successor, John XXII., elected in 1316. The Protestants obtained possession of the place in 1562; their acts of violence were fiercely avenged in 1572 after the St Bartholomew massacre. Under Henry III. Lyons sided with the League; but it pronounced in favour of Henry IV. The executions of Henri d'Effiat, marquis of Cinq-Mars, and of François de Thou, who had plotted to overthrow Richelieu, took place on the Place des Terreaux in 1642. In 1793 the Royalists and Girondists, powerful in the city, rose against the Convention, but were compelled to yield to the army of the republic under General Kellermann after enduring a siege of seven weeks (October 10). Terrible chastisement ensued: the name of Lyons was changed to that of Ville-affranchie; the demolition of its buildings was set about on a wholesale scale; and vast numbers of the proscribed, whom the scaffold had spared, were butchered with grape shot. The town resumed its old name after the fall of Robespierre, and the terrorists in their turn were drowned in large numbers in the Rhone. Napoleon rebuilt the Place Bellecour, reopened the churches, and made the bridge of Tilsit over the Saône between Bellecour and the cathedral. In 1814 and 1815 Lyons was occupied by the Austrians. In 1831, 1834, 1849, 1870 and 1871 it was the scene of violent industrial or political disturbances. In 1840 and 1856 disastrous floods laid waste portions of the city. International exhibitions were held here in 1872 and 1894, the latter occasion being marked by the assassination of President Carnot.

See S. Charléty, *Histoire de Lyon* (Lyon, 1903); J. Godart, *L'Ouvrier en soie. Monographie du tisseur lyonnais* (Lyon, 1899); A. Vachet, *A travers les rues de Lyon* (Lyon, 1902); A. Steyert, *Nouvelle Histoire de Lyon et des provinces de Lyonnais Forez,*

Beaujolais (3 vols., Lyon, 1895-1899).

LYONS, COUNCILS OF. The first Council of Lyons (the thirteenth general council) met at the summons of Pope Innocent IV. in June and July of 1245, to deliberate on the conflict between Church and emperor, on the assistance to be granted to the Holy Land and the Eastern empire, on measures of protection against the Tatars, and on the suppression of heresy. Among the tasks of the council mentioned in the writs of convocation, the most important, in the eyes of the pope, was that it should lend him effectual aid in his labours to overthrow the emperor Frederick II.; and, with this object in view, he had described the synod as a general council. Since its numbers were not far in excess of 150 bishops and archbishops, and the great majority of these came from France, Italy and Spain; while the schismatic Greeks and the other countries—especially Germany, whose interests were so deeply involved—were but weakly represented; the ambassador of Frederick, Thaddaeus of Suessa, contested its oecumenicity in the assembly itself. The condemnation of the emperor was a foregone conclusion. The articles of indictment described him as the "prince of tyranny, the destroyer of ecclesiastical dogma, the annihilator of the faith, the master of cruelty," and so forth; while the grossest calumnies were treated as approved facts. The objections of the ambassador, that the accused had not been regularly cited, that the pope was plaintiff and judge in one, and that therefore the whole process was anomalous, achieved as little success as his appeal to the future pontiff and to a truly oecumenical council. The representatives of the kings of England and France were equally unfortunate in their claim for a prorogation of the decision. On the 17th of July the verdict was pronounced by Innocent IV., excommunicating Frederick and dethroning him on the grounds of perjury, sacrilege, heresy and felony. All oaths of fealty sworn to him were pronounced null and void, and the German princes were commanded to proceed with the election of a new sovereign. In addition the council enacted decrees against the growing irregularities in the Church, and passed resolutions designed to support the Crusaders and revive the struggle for the Holy Land.

See Mansi, *Collectio conciliorum*, tom. xxiii.; Huillard-Bréholles, *Historia diplomatica Frederici II.*, 6 tom. (Paris, 1852-1861); Hefele, *Conciliengeschichte*, ed. 2, vol. v. (1886), pp. 1105-1126; Fr. W. Schirrmacher, *Kaiser Friederich der Zweite* (4 vols., Göttingen, 1859-1865); H. Schulz, in Herzog-Hauck, *Realencyklopädie*, ed. 3, vol. ix. (1901), p. 122 sqq., s.v. "Innocenz IV."; A. Folz, *Kaiser Friedrich II. u. Papst Innocenz IV.* (Strassburg, 1905).

The second Council of Lyons (the fourteenth general council) met from the 7th of May to the 17th of July 1274, under the presidency of Pope Gregory X., and was designed to resolve three problems: to terminate the Greek schism, to decree a new Crusade, and to counteract the moral corruption among clerics and laity. The council entered on its third task at a very late period, with the result that the requisite time for an adequate deliberation was not available. Nevertheless, on the 1st of November, Gregory was enabled to publish thirty-one constitutions, which may be taken to represent the fruits of the synod and its labours. The most important of the enactments passed is that regulating the papal election. It prescribed that the new election conducted by the college of cardinals should be held in conclave (*q.v.*), and its duration abridged by progressive simplification of the cardinal's diet. The motive for this decision, which has maintained its ground in ecclesiastical law, was given by the circumstances which followed the death of Clement IV. (1268). The pope felt a peculiar interest in the Holy Land, from which he was recalled by his elevation to the pontifical throne. He succeeded in bringing influential interests to work in the cause; but his scheme of a great enterprise backed by the whole force of the West came to nothing, for the day of the Crusades was past. His projected Crusade was interwoven with his endeavours to end the schism; and the political straits of the emperor Michael Palaeologus in Constantinople came to the aid of these aspirations. To ensure his safety against the attacks of King Charles of Sicily, who had pledged himself to assist the ex-emperor Baldwin in his reconquest of the Latin empire, Michael was required to own the supremacy of the pope in the spiritual domain; while Gregory, in return, would restrain the Sicilian monarch from his bellicose policy with regard to the Eastern empire. The ambassadors of the emperor appeared at the council with letters acknowledging the Roman pontiff and the confession of faith previously dispatched from the eternal city, and submitted similarly-worded declarations from the heads of the Byzantine Church. One member of the embassy, the Logothete Georgius Acropolites, was authorized by the emperor to take an oath in his name, renouncing the schism. In short, the subjection of the East to the Roman see was completed in the most binding forms, and the long-desired union seemed at last assured. Gregory himself did not live to discover its illusory character. The Council of Lyons was, moreover, of importance for the German dynastic struggle: for Gregory took the first public step in favour of Count Rudolph of Habsburg, the king-elect, by receiving his deputy and denying an audience to the delegate of the rival claimant, King Alphonso of Castile.

See Mansi, *Collectio conciliorum*, tom. xxiv.; Hefele, *Conciliengeschichte*, vol. vi. ed. 2 (1890), p. 119 sqq. Also C. Mirbt, in Herzog-Hauck, *Realencyklop. f. protestantische Theologie*, vol. vii. (1899), p. 122, *s.v.* "Gregor X."

(C. M.)

LYRA ("The Harp"), in astronomy, a constellation in the northern hemisphere, mentioned by Eudoxus (4th century B.C.) and Aratus (3rd century B.C.). Ptolemy catalogued 10 stars in this constellation; Tycho Brahe 11 and Hevelius 17. α *Lyrae* or Vega, is the second brightest star in the northern hemisphere, and notable for the whiteness of its light, which is about 100 times that of the sun. The name "vega" is a remnant of an Arabic phrase meaning "falling eagle," "Altair," or α *Aquilae*, is the similar remnant of "flying eagle." ε *Lyrae* is a multiple star, separated by the naked eye or by a small telescope into two stars; these are each resolved into two stars by a 3″ telescope, while a more powerful instrument (4″) reveals three smaller stars between the two pairs, β *Lyrae* and *R. Lyrae* are short period variables. There is the famous ring or annular nebula, *M. 57 Lyrae*, in the middle of which is a very faint star, which is readily revealed by photography; and also the meteoric swarm named the *Lyrids*, which appear in April and have their radiant in this constellation (see METEOR).

LYRE (Gr. λύρα), an ancient stringed musical instrument. The recitations of the Greeks were accompanied by it. Yet the lyre was not of Greek origin; no root in the language has been discovered for λύρα, although the special names bestowed upon varieties of the instrument are Hellenic. We have to seek in Asia the birthplace of the genus, and to infer its introduction into Greece through Thrace or Lydia. The historic heroes and improvers of the lyre were of the Aeolian or Ionian colonies, or the

adjacent coast bordering on the Lydian empire, while the mythic masters, Orpheus, Musaeus and Thamyris, were Thracians. Notwithstanding the Hermes tradition of the invention of the lyre in Egypt, the Egyptians seem to have adopted it from Assyria or Babylonia.

To define the lyre, it is necessary clearly to separate it from the allied harp and guitar. In its primal form the lyre differs from the harp, of which the earliest, simplest notion is found in the bow and bowstring. While the guitar (and lute) can be traced back to the typical "nefer" of the fourth Egyptian dynasty, the fretted finger-board of which, permitting the production of different notes by the shortening of the string, is as different in conception from the lyre and harp as the flute with holes to shorten the column of air is from the syrinx or Pandean pipes. The frame of a lyre consists of a hollow body or sound-chest (ἠχεῖον). From this sound-chest are raised two arms (πήχεις), which are sometimes hollow, and are bent both outward and forward. They are connected near the top by a crossbar or yoke (ζυγόν, ζύγωμα, or, from its having once been a reed, κάλαμος). Another crossbar (μάλας, ὑπολύριον), fixed on the sound-chest, forms the bridge which transmits the vibrations of the strings. The deepest note was the farthest from the player; but, as the strings did not differ much in length, more weight may have been gained for the deeper notes by thicker strings, as in the violin and similar modern instruments, or they were turned with slacker tension. The strings were of gut (χορδή, whence chord). They were stretched between the yoke and bridge, or to a tailpiece below the bridge. There were two ways of tuning: one was to fasten the strings to pegs which might be turned (κόλλαβοι, κόλλοπες); the other was to change the place of the string upon the crossbar; probably both expedients were simultaneously employed. It is doubtful whether ἡ χορδοτόνος meant the tuning key or the part of the instrument where the pegs were inserted. The extensions of the arms above the yoke were known as κέρατα, horns.

The number of strings varied at different epochs, and possibly in different localities—four, seven and ten having been favourite numbers. They were used without a finger-board, no Greek description or representation having ever been met with that can be construed as referring to one. Nor was a bow possible, the flat sound-board being an insuperable impediment. The plectrum, however (πλῆκτρον), was in constant use. It was held in the right hand to set the upper strings in vibration (κρέκειν, κρούειν τῷ πλήκτρῳ); at other times it hung from the lyre by a ribbon. The fingers of the left hand touched the lower strings (ψάλλειν).

With Greek authors the lyre has several distinct names; but we are unable to connect these with anything like certainty to the varieties of the instrument. Chelys (χέλυς, "tortoise") may mean the smallest lyre, which, borne by one arm or supported by the knees, offered in the sound-chest a decided resemblance to that familiar animal. That there was a difference between lyre and cithara (κιθάρα) is certain, Plato and other writers separating them. Hermes and Apollo had an altar at Olympia in common because the former had invented the lyre and the latter the cithara. The lyre and chelys on the one hand, and the cithara and phorminx on the other, were similar or nearly identical. Apollo is said to have carried a golden phorminx.

(A. J. H.)

There are three lines of evidence that establish the difference between the lyre and cithara: (1) There are certain vase paintings in which the name λύρα accompanies the drawing of the instrument, as, for instance, in fig. 2 where the tortoise-shell lyre is obviously represented.[1] (2) In all legends accounting for the invention of the lyre, the shell or body of the tortoise is invariably mentioned as forming the back of the instrument, whereas the tortoise has never been connected with the cithara. (3) The lyre is emphatically distinguished as the most suitable instrument for the musical training of young men and maidens and as the instrument of the amateur, whereas the cithara was the instrument of *citharoedus* or *citharista*, professional performers at the Pythian Games, at ceremonies and festivals, the former using his instrument to accompany epic recitations and odes, the latter for purely instrumental music. The costume worn by citharoedus and citharista was exceedingly rich and quite distinct from any other.[2]

We find the lyre represented among scenes of domestic life, in lessons, receptions, at banquets and in mythological scenes; it is found in the hands of women no less than men, and the costume of the performer is invariably that of an ordinary citizen. Lyres were of many sizes and varied in outline according to period and nationality.

We therefore possess irrefutable evidence of identification in both cases, all of which tallies exactly. Examination of the construction of the instruments thus identified reveals the fact that both possessed characteristics which have persisted throughout the middle ages to the present day in various instruments evolved from these two archetypes. The principal feature of both lyre and cithara was the peculiar method of construction adopted in the sound-chest, which may be said to have been almost independent of the outline. In the lyre the sound-chest consisted of a vaulted back, in imitation of the tortoise, over which was directly glued a flat sound-board of wood or parchment. In the cithara (*q.v.*) the sound-chest was shallower, and the back and front were invariably connected by sides or ribs. These two methods of constructing the sound-chests of stringed instruments were typical, and to one or the other may be referred every stringed instrument with a neck which can be traced during the middle ages in miniatures, early printed books, on monuments and other works of art.
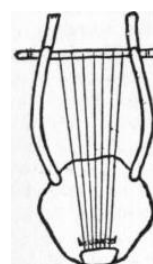
(K. S.)

Fig. 1.—Chelys or Lyre from a vase in the British Museum, where also are fragments of such an instrument, the back of which is of shell.

Gerhard, *Auserl. griech. Vasenbilder.*

Fig. 2.—Tortoise-shell Lyre from a Greek vase in Munich.
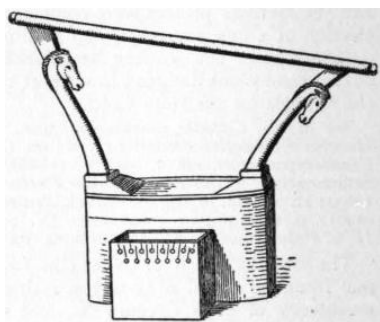

Fig. 3.—Egyptian Cithara now at Berlin.

Passing by the story of the discovery of the lyre from a vibrating tortoise-shell by Hermes, we will glance at the real lyres of Egypt and Semitic Asia. The Egyptian lyre is unmistakably Semitic. The oldest representation that has been discovered is in one of the tombs of Beni Hassan, the date of the painting being in the XIIth Dynasty, that is, shortly before the invasion of "the shepherd kings" (the Hyksos). In this painting, which both Rosellini and Lepsius have reproduced, an undoubted Semite carries a seven or eight-stringed lyre, or rather cithara in transition, similar to the *rotta* of the middle ages. The instrument has a four-cornered body and an irregular four-cornered frame above it, and the player carries it horizontally from his breast, just as a modern Nubian would his kissar. He plays as he walks, using both hands, a plectrum being in the right. Practical knowledge of these ancient instruments may be gained through two remarkable specimens preserved in the museums of Berlin (fig. 3) and Leiden (see CITHARA). During the rule of the Hyksos the lyre became naturalized in Egypt, and in the 18th dynasty it is frequently depicted, and with finer grace of form. In the 19th and 20th dynasties the lyre is sometimes still more slender, or is quite unsymmetrical and very strong, the horns surmounted by heads of animals as in the Berlin one, which has horses' heads at those extremities. Prokesch copied one in the ruins of Wadi Halfa, splendid in blue and gold, with a serpent wound round it. The Egyptians always strung their lyres fan-shaped, like the modern Nubian kissar. Their paintings show three to eight or nine strings, but the painters' accuracy may not be unimpeachable; the Berlin instrument had fifteen. The three-stringed lyre typified the three seasons of the Egyptian year—the water, the green and the harvest; the seven, the planetary system from the moon to Saturn. The Greeks had the same notion of the harmony of the spheres.

There is no evidence as to what the stringing of the Greek lyre was in the heroic age. Plutarch says that Olympus and Terpander used but three strings to accompany their recitation. As the four strings led to seven and eight by doubling the tetrachord, so the trichord is connected with the hexachord or six-stringed lyre depicted on so many archaic Greek vases. We

cannot insist on the accuracy of this representation, the vase painters being little mindful of the complete expression of details; yet we may suppose their tendency would be rather to imitate than to invent a number. It was their constant practice to represent the strings as being damped by the fingers of the left hand of the player, after having been struck by the plectrum which he held in the right hand. Before the Greek civilization had assumed its historic form, there was likely to be great freedom and independence of different localities in the matter of lyre stringing, which is corroborated by the antique use of the chromatic (half-tone) and enharmonic (quarter-tone) tunings, pointing to an early exuberance, and perhaps also to an Asiatic bias towards refinements of intonation, from which came the χρόαι, the hues of tuning, old Greek modifications of tetrachords entirely disused in the classic period. The common scale of Olympus
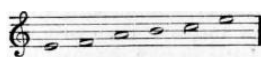
remained, a double trichord which had served as the scaffolding for the enharmonic varieties.

We may regard the Olympus scale, however, as consisting of two tetrachords, eliding one interval in each, for the tetrachord, or series of four notes, was very early adopted as the fundamental principle of Greek music, and its origin in the lyre itself appears sure. The basis of the tetrachord is the employment of the thumb and first three fingers of the left hand to twang as many strings, the little finger not being used on account of natural weakness. As a succession of three whole tones would form the disagreeable and untunable interval of a tritonus, two whole tones and a half-tone were tuned, fixing the tetrachord in the consonant interval of the perfect fourth. This succession of four notes being in the grasp of the hand was called συλλαβή, just as in language a group of letters incapable of further reduction is called syllable. In the combination of two syllables or tetrachords the modern diatonic scales resemble the Greek so-called disjunct scale, but the Greeks knew nothing of our categorical distinctions of major and minor. We might call the octave Greek scale minor, according to our descending minor form, were not the keynote in the middle the thumb note of the deeper tetrachord. The upper tetrachord, whether starting from the keynote (conjunct) or from the note above (disjunct), was of exactly the same form as the lower, the position of the semitones being identical. The semitone was a limma (λεῖμμα), rather less than the semitone of our modern equal temperament, the Greeks tuning both the whole tones in the tetrachord by the same ratio of 8:9, which made the major third a dissonance, or rather would have done so had they combined them in what we call harmony. In melodious sequence the Greek tetrachord is decidedly more agreeable to the ear than the corresponding series of our equal temperament. And although our scales are derived from combined tetrachords, in any system of tuning that we employ, be it just, mean-tone, or equal, they are less logical than the conjunct or disjunct systems accepted by the Greeks. But modern harmony is not compatible with them, and could not have arisen on the Greek melodic lines.

The conjunct scale of seven notes
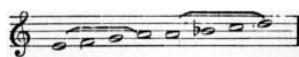
attributed to Terpander, was long the norm for stringing and tuning the lyre. When the disjunct scale
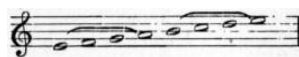
the octave scale attributed to Pythagoras, was admitted, to preserve the time-honoured seven strings one note had to be omitted; it was therefore customary to omit the C, which in Greek practice was a dissonance. The Greek names for the strings of seven and eight stringed lyres, the first note being highest in pitch and nearest the player, were as follows: *Nete, Paranete, Paramese*; *Mese, Lichanos, Parhypate, Hypate*; or *Nete, Paranete, Trite, Paramese*; *Mese, Lichanos, Parhypate, Hypate*—the last four from Mese to Hypate being the finger tetrachord, the others touched with the plectrum. The highest string in pitch was called the last, νεάτη; the lowest in pitch was called the highest, ὑπάτη, because it was, in theory at least, the longest string. The keynote and thumb string was μέση, middle; the next lower was λίχανος, the first finger or lick-finger string; τρίτη, the third, being in the plectrum division, was also known as ὀξεῖα, sharp, perhaps from the dissonant quality to which we have referred as the cause of its omission. The plectrum and finger tetrachords together were διαπασῶν, through all; in the disjunct scale, an octave.

In transcribing the Greek notes into our notation, the absolute pitch cannot be represented; the relative positions of the semitones are alone determined. We have already quoted the scale of Pythagoras, the Dorian or true Greek succession:—
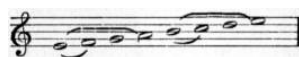
Shifting the semitone one degree upwards in each tetrachord, we have the Phrygian
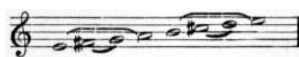
Another degree gives the Lydian

which would be our major scale of E were not the keynote A. The names imply an Asiatic origin. We need not here pursue further the much-debated question of Greek scales and their derivation; it will suffice to remark that the outside notes of the tetrachords were fixed in their tuning as perfect fourths—the inner strings being, as stated, in diatonic sequence, or when chromatic two half-tones were tuned, when enharmonic two quarter-tones, leaving respectively the wide intervals of a minor and major third, and both impure, to complete the tetrachord.

<div align="right">(A. J. H.)</div>

See the article by Théodore Reinach in Daremberg and Saglio, *Antiquités grecques et romaines*; Wilhelm Johnsen, *Die Lyra, ein Beitrag zur griechischen Kunstgeschichte* (Berlin, 1876); Hortense Panum, "Harfe und Lyra in Nord Europa," *Intern. Mus. Ges.*, Sbd. vii. 1, pp. 1-40 (Leipzig, 1905); A. J. Hipkins, "Dorian and Phrygian, reconsidered from a non-harmonic point of view," in *Intern. Mus. Ges.* (Leipzig, 1903), iv. 3.

1   See Ed. Gerhard, *Auserlesene griech. Vasenbilder*, part iii. (Berlin, 1847), pl. 236 and p. 157.

2   See Aristotle, *Polit.* v. 6. 5.

LYRE-BIRD, the name by which one of the most remarkable birds Of Australia is commonly known, the *Menura superba* or *M. novae-hollandiae* of ornithologists. It was first observed in 1798 in New South Wales, and though called by its finders a "pheasant"—from its long tail—the more learned of the colony seem to have regarded it as a bird-of-Paradise.[1] A specimen having reached England in 1799, it was described by General Davies as forming a new genus of birds, in the Linnean Society's *Transactions* (vi. p. 207, pl. xxii.), no attempt, however, being made to fix its systematic place. In 1802 L. P. Vieillot figured and described it in a supplement to his *Oiseaux Dorés* as a bird-of-Paradise (ii. pp. 30 seq., pls. 14-16), from drawings by Sydenham Edwards, sent him by Parkinson, the manager of the Leverian Museum. The first to describe any portion of its anatomy was T. C. Eyton, who in 1841 (*Ann. Nat. History*, vii. pp. 49-53) perceived that it was a Passerine bird and that it presented some points of affinity to the South American genus *Pteroptochus*. In 1867 Huxley stated that he was disposed to divide his very natural assemblage the *Coracomorphae* (essentially identical with Eyton's *Insessores*) into two groups, "one containing *Menura*, and the other all the other genera which have yet been examined" (*Proc. Zool. Soc.*, 1867, p. 472)—a still further step in advance.[2] In 1875 A. Newton put forth the opinion in his article on birds, in the 9th edition of this *Encyclopaedia*, that *Menura* had an ally in another Australian form, *Atrichia* (see Scrub-Bird), which he had found to present peculiarities hitherto unsuspected, and he regarded them as standing by themselves, though each constituting a distinct family. This opinion was partially adopted in the following year by A. H. Garrod, who (*Proc. Zool. Society*, 1876, p. 518) formally placed these two genera together in his group of Abnormal Acromyodian *Oscines* under the name of *Menurinae*; ornithologists now generally recognize at once the alliance and distinctness of the families Menuridae and Atrichiidae, and place them together to form the group *Suboscines* of the Diacromyodian *Passeres*.

Since the appearance in 1865 of J. Gould's *Handbook to the Birds of Australia*, little important information has been published concerning the habits of this form, and the account therein given must be drawn upon for what here follows. Of all birds, says that author, the *Menura* is the most shy and hard to procure. He has been among the rocky and thick "brushes"—its usual haunts—hearing its loud and liquid call-notes for days together without getting sight of one. Those who wish to see it must advance only while it is singing or scratching up the earth and leaves; and to watch its actions they must keep perfectly still. The best way of procuring an example seems to be by hunting it with dogs, when it will spring upon a branch to the height of 10 ft. and afford an easy shot ere it has time to ascend farther or escape as it does by leaps. Natives are said to hunt it by fixing on their heads the erected tail of a cock-bird, which alone is allowed to be seen above the brushwood. The greater part of its time is said to be passed upon the ground, and seldom are more than a pair to be found in company. One of the habits of the cock is to form small round hillocks, which he constantly visits during the day, mounting upon them and displaying his tail by erecting it over his head, drooping his wings, scratching and pecking at the soil, and uttering various cries—some his own natural notes, others an imitation of those of other animals. The tail, his most characteristic feature, only attains perfection in the bird's third or fourth year, and then not until the month of June, remaining until October, when the feathers are shed to be renewed the following season. The food consists of insects, especially beetles and myriapods, as well as snails. The nest is placed near to or on the ground, at the base of a rock or foot of a tree, and is closely woven of fine but strong roots or other fibres, and lined with feathers, around all which is heaped a mass, in shape of an oven, of sticks, grass, moss and leaves, so as to project over and shelter the interior structure, while an opening in the side affords entrance and exit. Only one egg is laid, and this of rather large size in proportion to the bird, of a purplish-grey colour, suffused and blotched with dark purplish-brown.
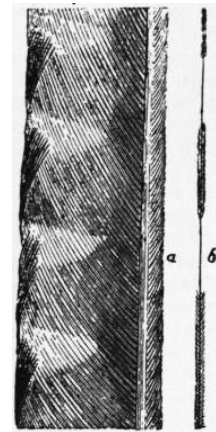

Fig. 1.

Incubation is believed to begin in July or August, and the young is hatched about a month later. It is at first covered with dark down, and appears to remain for some weeks in the nest. It is greatly to be hoped that so remarkable a form as the lyre-bird, the nearly sole survivor apparently of a very ancient race of beings, will not be allowed to become extinct—its almost certain fate so far as can be judged—without many more observations of its manners being made. Several examples of *Menura* have been brought alive to Europe, and some have long survived in captivity.
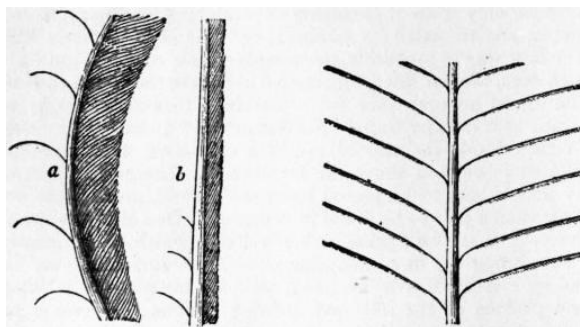

Fig. 2.   Fig. 3.

Three species of *Menura* have been indicated—the old *M. superba*, the lyre-bird proper, which inhabits New South Wales, the southern part of Queensland, and perhaps some parts of Victoria; *M. victoriae*, separated from the former by Gould (*Proc. Zool. Soc.*, 1862, p. 23), and said to take its place near Melbourne; and *M. alberti*, first described by C. L. Bonaparte (*Consp. Avium*, i. 215) on Gould's authority, and, though discovered on the Richmond river in New South Wales, having apparently a more northern range than the other two. All those have the apparent bulk of a hen pheasant, but are really much smaller, and their general plumage is of a sooty brown, relieved by rufous on the chin, throat, some of the wing-feathers and the tail-coverts. The wings, consisting of twenty-one remiges, are rather short and rounded; the legs[3] and feet very strong, with long, nearly straight claws. In the immature and female the tail is somewhat long, though affording no very remarkable character, except the possession of sixteen rectrices; but in the fully-plumaged male of *M. superba* and *M. victoriae* it is developed in the extraordinary fashion that gives the bird its common English name. The two exterior feathers (fig. 1, *a*, *b*) have the outer web very narrow, the inner very broad, and they curve at first outwards, then somewhat inwards, and near the tip outwards again, bending round forwards so as to present a lyre-like form. But this is not all; their broad inner web, which is of a lively chestnut colour, is apparently notched at regular intervals by spaces that, according to the angle at which they are viewed, seem either black or transparent; and this effect is, on examination, found to be due to the barbs at those spaces being destitute of

barbules. The middle pair of feathers (fig. 2, *a, b*) is nearly as abnormal. These have no outer web, and the inner web very narrow; near their base they cross each other, then diverge, bending round forwards near their tip. The remaining twelve feathers (fig. 3) except near the base are very thinly furnished with barbs, about ¼ in. apart, and those they possess, on their greater part, though long and flowing, bear no barbules, and hence have a hair-like appearance. The shafts of all are exceedingly strong. In the male of *M. alberti* the tail is not only not lyriform, but the exterior rectrices are shorter than the rest.

<div align="right">(A. N.)</div>

1   Collins, *Account of New South Wales*, ii. 87-92 (London, 1802).

2   Owing to the imperfection of the specimen at his disposal, Huxley's brief description of the bones of the head in *Menura* is not absolutely correct. A full description of them, with elaborate figures, is given by Parker in the same Society's *Transactions* (ix. 306-309, pl. lvi. figs. 1-5).

3   The metatarsals are very remarkable in form, as already noticed by Eyton (*loc. cit.*), and their tendons strongly ossified.

LYRICAL POETRY, a general term for all poetry which is, or can be supposed to be, susceptible of being sung to the accompaniment of a musical instrument. In the earliest times it may be said that all poetry was of its essence lyrical. The primeval oracles were chanted in verse, and the Orphic and Bacchic Mysteries, which were celebrated at Eleusis and elsewhere, combined, it is certain, metre with music. Homer and Hesiod are each of them represented with a lyre, yet if any poetry can be described as non-lyrical, it is surely the archaic hexameter of the *Iliad* and the *Erga*. These poems were styled epic, in direct contradistinction to the lyric of Pindar and Bacchylides. But inexactly, since it is plain that they were recited, with a plain accompaniment on a stringed instrument. However, the distinction between epical and lyrical, between τὰ ἔπη, what was said, and τὰ μέλη, what was sung, is accepted, and neither Homer nor Hesiod is among the lyrists. This distinction, however, is often without a difference, as for example, in the case of the so-called *Hymns* of Homer, epical in form but wholly lyrical in character. Hegel, who has gone minutely into this question in his *Esthetik*, contends that when poetry is objective it is epical, and when it is subjective it is lyrical. This is to ignore the metrical form of the poem, and to deal with its character only. It would constrain us to regard Wordsworth's *Excursion* as a lyric, and Tennyson's *Revenge* (where the subject is treated exactly as one of the Homeridae would have treated an Ionian myth) as an epic. This is impossible, and recalls us to the importance of taking the form into consideration. But, with this warning, the definition of Hegel is valuable. It is, as he insists, the personal thought, or passion, or inspiration, which gives its character to lyrical poetry.

The lyric has the function of revealing, in terms of pure art, the secrets of the inner life, its hopes, its fantastic joys, its sorrows, its delirium. It is easier to exclude the dramatic species from lyric than to banish the epic. There are large sections of drama which it is inconceivable should be set to music, or sung, or even given in recitative. The tragedies of Racine, for example, are composed of the purest poetry, but they are essentially non-lyrical, although lyrical portions are here and there attached to them. The intensity of feeling and the melody of verse in *Othello* does not make that work an example of lyrical poetry, and this is even more acutely true of *Le Misanthrope*, which is, nevertheless, a poem. The tendency of modern drama is to divide itself further and further from lyric, but in early ages the two kinds were indissoluble. Tragedy was goat-song, and the earliest specimens of it were mainly composed of choruses. As Prof. G. G. Murray says, in the *Suppliants* of Aeschylus, the characters "are singing for two-thirds of the play," accompanied by tumultuous music. This primitive feature has gradually been worn away; the chorus grew less and less prominent, and disappeared; the very verse-ornament of drama tends to vanish, and we have plays essentially so poetical as those of Ibsen and Maeterlinck written from end to end in bare prose.

To return again to Greece, there was an early distinction, soon accentuated, between the poetry chanted by a choir of singers, and the song which expressed the sentiments of a single poet. The latter, the μέλος or song proper, had reached a height of technical perfection in "the Isles of Greece, where burning Sappho loved and sung," as early as the 7th century B.C. That poetess, and her contemporary Alcaeus, divide the laurels of the pure Greek song of Dorian inspiration. By their side, and later, flourished the great poets who set words to music for choirs, Alcman, Arion, Stesichorus, Simonides and Ibycus, who lead us at the close of the 5th century to Bacchylides and Pindar, in whom the magnificent tradition of the dithyrambic odes reached its highest splendour of development. The practice of Pindar and Sappho, we may say, has directed the course of lyrical poetry ever since, and will, unquestionably, continue to do so. They discovered how, with the maximum of art, to pour forth strains of personal magic and music, whether in a public or a private way. The ecstasy, the uplifted magnificence, of lyrical poetry could go no higher than it did in the unmatched harmonies of these old Greek poets, but it could fill a much wider field and be expressed with vastly greater variety. It did so in their own age. The gnomic verses of Theognis were certainly sung; so were the satires of Archilochus and the romantic reveries of Mimnermus.

At the Renaissance, when the traditions of ancient life were taken up eagerly, and hastily comprehended, it was thought proper to divide poetry into a diversity of classes. The earliest English critic who enters into a discussion of the laws of prosody, William Webbe, lays it down, in 1586, that in verse "the most usual kinds are four, the heroic, elegiac, iambic and lyric." Similar confusion of terms was common among the critics of the 15th and 16th centuries, and led to considerable error. It is plain that a border ballad is heroic, and may yet be lyrical; here the word "heroic" stands for "epic." It is plain that whether a poem is lyrical or not had nothing to do with the question whether it is composed in an iambic measure. Finally, it is undoubted that the early Greek "elegies" were sung to an accompaniment on the flute, whether they were warlike, like those of Tyrtaeus, or philosophical and amatory like those of Theognis. But (see ELEGY) the present significance of "elegy," and this has been the case ever since late classical times, is funereal; in modern parlance an elegy is a dirge. Whether the great Alexandrian dirges, like those of Bion and of Moschus, on which our elegiacal tradition is founded, were actually sung to an accompaniment or not may be doubted; they seem too long, too elaborate, and too ornate for that. But, at any rate, they were composed on the convention that they would be sung, and it is conceivable that music might have been wedded to the most complex of these Alexandrian elegies. Accordingly, although *Lycidas* and *Adonais* are not habitually "set to music," there is no reason why they should not be so set, and their rounded and limited although extensive form links them with the song, not with the epic. There are many odes of Swinburne's for which it would be more difficult to write music than for his *Ave atque Vale*. In fact, in spite of its solemn and lugubrious regularity, the formal elegy or dirge is no more nor less than an ode, and is therefore entirely lyrical.

More difficulty is met with in the case of the sonnet, for although no piece of verse, when it is inspired by subjective passion, fits more closely with Hegel's definition of what lyrical poetry should be, yet the rhythmical complication of the sonnet, and its rigorous uniformity, seem particularly ill-fitted to interpretation on a lyre. When F. M. degli Azzi put the book of Genesis (1700) into sonnets, and Isaac de Benserade the *Metamorphoses* of Ovid (1676) into rondeaux, these eccentric and laborious versifiers produced what was epical rather than lyrical poetry, if poetry it was at all. But the sonnet as Shakespeare, Wordsworth and even Petrarch used it was a cry from the heart, a subjective confession, and although there is perhaps no evidence that a sonnet was ever set to music with success, yet there is no reason why that might not be done without destroying its sonnet-character.

Jouffroy was perhaps the first aesthetician to see quite clearly that lyrical poetry is, really, nothing more than another name

for poetry itself, that it includes all the personal and enthusiastic part of what lives and breathes in the art of verse, so that the divisions of pedantic criticism are of no real avail to us in its consideration. We recognize a narrative or epical poetry; we recognize drama; in both of these, when the individual inspiration is strong, there is much that trembles on the verge of the lyrical. But outside what is pure epic and pure drama, all, or almost all, is lyrical. We say almost all, because the difficulty arises of knowing where to place descriptive and didactic poetry. The *Seasons* of Thomson, for instance, a poem of high merit and lasting importance in the history of literature—where is that to be placed? What is to be said of the *Essay on Man*? In primitive times, the former would have been classed under epic, the second would have been composed in the supple iambic trimeter which so closely resembled daily speech, and would not have been sharply distinguished from prose. Perhaps this classification would still serve, were it not for the element of versification, which makes a sharp line of demarcation between poetic art and prose. This complexity of form, rhythmical and stanzaic, takes much of the place which was taken in antiquity by such music as Terpander is supposed to have supplied. In a perfect lyric by a modern writer the instrument is the metrical form, to which the words have to adapt themselves. There is perhaps no writer who has ever lived in whose work this phenomenon may be more fruitfully studied than it may be in the songs and lyrics of Shelley. The temper of such pieces as "Arethusa" and "The Cloud" is indicated by a form hardly more ambitious than a guitar; Hellas is full of passages which suggest the harp; in his songs Shelley touches the lute or viol de gamba, while in the great odes to the "West Wind" and to "Liberty" we listen to a verse-form which reminds us by its volume of the organ itself. On the whole subject of the nature of lyric poetry no commentary can be more useful to the student than an examination of the lyrics of Shelley in relation to those of the songwriters of ancient Greece.

See Hegel, *Die Phänomenologie des Geistes* (1807); T. S. Jouffroy, *Cours d'esthétique* (1843); W. Christ, *Metrik der Griechen und Römer*, 2te. Aufl. (1879).

(E. G.)

LYSANDER (Gr. Λύσανδρος), son of Aristocritus, Spartan admiral and diplomatist. Aelian (*Var. Hist.* xii. 43) and Phylarchus (*ap.* Athen. vi. 271 e) say that he was a *mothax*, *i.e.* the son of a helot mother (see HELOTS), but this tradition is at least doubtful; according to Plutarch he was a Heraclid, though not of either royal family. We do not know how he rose to eminence: he first appears as admiral of the Spartan navy in 407 B.C. The story of his influence with Cyrus the Younger, his naval victory off Notium, his quarrel with his successor Callicratidas in 406, his appointment as ἐπιστολεύς in 405, his decisive victory at Aegospotami, and his share in the siege and capitulation of Athens belong to the history of the Peloponnesian War (*q.v.*). By 404 he was the most powerful man in the Greek world and set about completing the task of building up a Spartan empire in which he should be supreme in fact if not in name. Everywhere democracies were replaced by oligarchies directed by bodies of ten men (decarchies, δεκαρχίαι) under the control of Spartan governors (harmosts, ἁρμοσταί). But Lysander's boundless influence and ambition, and the superhuman honours paid him, roused the jealousy of the kings and the ephors, and, on being accused by the Persian satrap Pharnabazus, he was recalled to Sparta. Soon afterwards he was sent to Athens with an army to aid the oligarchs, but Pausanias, one of the kings, followed him and brought about a restoration of democracy. On the death of Agis II., Lysander secured the succession of Agesilaus (*q.v.*), whom he hoped to find amenable to his influence. But in this he was disappointed. Though chosen to accompany the king to Asia as one of his thirty advisers (σύμβουλοι), he was kept inactive and his influence was broken by studied affronts, and finally he was sent at his own request as envoy to the Hellespont. He soon returned to Sparta to mature plans for overthrowing the hereditary kingship and substituting an elective monarchy open to all Heraclids, or even, according to another version, to all Spartiates. But his alleged attempts to bribe the oracles were fruitless, and his schemes were cut short by the outbreak of war with Thebes in 395. Lysander invaded Boeotia from the west, receiving the submission of Orchomenus and sacking Lebadea, but the enemy intercepted his despatch to Pausanias, who had meanwhile entered Boeotia from the south, containing plans for a joint attack upon Haliartus. The town was at once strongly garrisoned, and when Lysander marched against it he was defeated and slain. He was buried in the territory of Panopeus, the nearest Phocian city. An able commander and an adroit diplomatist, Lysander was fired by the ambition to make Sparta supreme in Greece and himself in Sparta. To this end he shrank from no treachery or cruelty; yet, like Agesilaus, he was totally free from the characteristic Spartan vice of avarice, and died, as he had lived, a poor man.

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See the biographies by Plutarch and Nepos; Xen. *Hellenica*, i. 5-iii. 5; Diod. Sic. xiii. 70 sqq., 104 sqq., xiv. 3, 10, 13, 81; Lysias xii. 60 sqq.; Justin v. 5-7; Polyaenus i. 45, vii. 19; Pausanias iii., ix. 32, 5-10, x. 9, 7-11; C. A. Gehlert, *Vita Lysandri* (Bautzen, 1874); W. Vischer, *Alkibiades und Lysandros* (Basel, 1845); O. H. J. Nitzsch, *De Lysandro* (Bonn, 1847); and the Greek histories in general.

(M. N. T.)

LYSANIAS, tetrarch of Abilene (see ABILA), according to Luke iii. 1, in the time of John the Baptist. The only Lysanias mentioned in profane history as exercising authority in this district was executed in 36 B.C. by M. Antonius (Mark Antony). This Lysanias was the son of Ptolemy Mennaeus, the ruler of an independent state, of which Abilene formed only a small portion. According to Josephus (*Ant.* xix. 5, 1) the emperor Claudius in A.D. 42 confirmed Agrippa I. in the possession of "Abila of Lysanias" already bestowed upon him by Caligula, elsewhere described as "Abila, which had formed the tetrarchy of Lysanias." It is argued that this cannot refer to the Lysanias executed by M. Antonius, since his paternal inheritance, even allowing for some curtailment by Pompey, must have been of far greater extent. It is therefore assumed by some authorities that the Lysanias in Luke (A.D. 28-29) is a younger Lysanias, tetrarch of Abilene only, one of the districts into which the original kingdom was split up after the death of Lysanias I. This younger Lysanias may have been a son of the latter, and identical with, or the father of, the Claudian Lysanias. On the other hand, Josephus knows nothing of a younger Lysanias, and it is suggested by others that he really does refer to Lysanias I. The explanation given by M. Krenkel (*Josephus und Lucas*, Leipzig, 1894, p. 97) is that Josephus does not mean to imply that Abila was the only possession of Lysanias, and that he calls it the tetrarchy or kingdom of Lysanias because it was the last remnant of the domain of Lysanias which remained under direct Roman administration until the time of Agrippa. The expression was borrowed from Josephus by Luke, who wrongly imagined that Lysanias I. had ruled almost up to the time of the bestowal of his tetrarchy upon Agrippa, and therefore to the days of John the Baptist. Two inscriptions are adduced as evidence for the existence of a younger Lysanias—Böckh, *C.I.G.* 4521 and 4523. The former is inconclusive, and in the latter the reading Ανσ[ανιου] is entirely conjectural; the name might equally well be Lysimachus or Lysias.

See E. Schürer, *Geschichte des jüdischen Volkes* (3rd ed., 1901), i. p. 712; and (especially on the inscriptional evidence) E. Renan, "Mémoire sur la dynastie des Lysanias d'Abilène" in *Mémoires de l'institut impérial de France* (xxvi., 1870); also P. W. Schmiedel in the *Encyclopaedia Biblica*, s.v.

LYSIAS, Attic orator, was born, according to Dionysius of Halicarnassus and the author of the life ascribed to Plutarch, in 459 B.C. This date was evidently obtained by reckoning back from the foundation of Thurii (444 B.C.), since there was a tradition that Lysias had gone thither at the age of fifteen. Modern critics would place his birth later,—between 444 and 436 B.C.,—because, in Plato's *Republic*, of which the scene is laid about 430 B.C., Cephalus, the father of Lysias, is among the *dramatis personae*, and the emigration of Lysias to Thurii was said to have followed his father's death. The latter statement, however, rests only on the Plutarchic life; nor can Plato's dialogue be safely urged as a minutely accurate authority. The higher date assigned by the ancient writers agrees better with the tradition that Lysias reached, or passed, the age of eighty.[1] Cephalus, his father, was a native of Syracuse, and on the invitation of Pericles had settled at Athens. The opening scene of Plato's *Republic* is laid at the house of his eldest son, Polemarchus, in Peiraeus. The tone of the picture warrants the inference that the Sicilian family were well known to Plato, and that their houses must often have been hospitable to such gatherings.

At Thurii, the colony newly planted on the Tarentine Gulf (see Pericles), the boy may have seen Herodotus, now a man in middle life, and a friendship may have grown up between them. There, too, Lysias is said to have commenced his studies in rhetoric—doubtless under a master of the Sicilian school—possibly, as tradition said, under Tisias, the pupil of Corax, whose name is associated with the first attempt to formulate rhetoric as an art. In 413 B.C. the Athenian armament in Sicily was annihilated. The desire to link famous names is illustrated by the ancient ascription to Lysias of a rhetorical exercise purporting to be a speech in which the captive general Nicias appealed for mercy to the Sicilians. The terrible blow to Athens quickened the energies of an anti-Athenian faction at Thurii. Lysias and his elder brother Polemarchus, with three hundred other persons, were "accused of Atticizing." They were driven from Thurii and settled at Athens (412 B.C.).

Lysias and Polemarchus were rich men, having inherited property from their father; and Lysias claims that, though merely resident aliens, they discharged public services with a liberality which shamed many of those who enjoyed the franchise (*In Eratosth.* 20). The fact that they owned house property shows that they were classed as ἰσοτελεῖς, *i.e.* foreigners who paid only the same tax as citizens, being exempt from the special tax (μετοίκιον) on resident aliens. Polemarchus occupied a house in Athens itself, Lysias another in the Peiraeus, near which was their shield manufactory, employing a hundred and twenty skilled slaves. In 404 the Thirty Tyrants were established at Athens under the protection of a Spartan garrison. One of their earliest measures was an attack upon the resident aliens, who were represented as disaffected to the new government. Lysias and Polemarchus were on a list of ten singled out to be the first victims. Polemarchus was arrested, and compelled to drink hemlock. Lysias had a narrow escape, with the help of a large bribe. He slipped by a back-door out of the house in which he was a prisoner, and took boat to Megara. It appears that he had rendered valuable services to the exiles during the reign of the tyrants, and in 403 Thrasybulus proposed that these services should be recognized by the bestowal of the citizenship. The Boulē, however, had not yet been reconstituted, and hence the measure could not be introduced to the ecclesia by the requisite "preliminary resolution" (προβούλευμα). On this ground it was successfully opposed.

During his later years Lysias—now probably a comparatively poor man owing to the rapacity of the tyrants and his own generosity to the Athenian exiles—appears as a hardworking member of a new profession—that of writing speeches to be delivered in the law-courts. The thirty-four extant are but a small fraction. From 403 to about 380 B.C. his industry must have been incessant. The notices of his personal life in these years are scanty. In 403 he came forward as the accuser of Eratosthenes, one of the Thirty Tyrants. This was his only direct contact with Athenian politics. The story that he wrote a defence for Socrates, which the latter declined to use, probably arose from a confusion. Several years after the death of Socrates the sophist Polycrates composed a declamation against him, to which Lysias replied. A more authentic tradition represents Lysias as having spoken his own *Olympiacus* at the Olympic festival of 388 B.C., to which Dionysius I. of Syracuse had sent a magnificent embassy. Tents embroidered with gold were pitched within the sacred enclosure; and the wealth of Dionysius was vividly shown by the number of chariots which he had entered. Lysias lifted up his voice to denounce Dionysius as, next to Artaxerxes, the worst enemy of Hellas, and to impress upon the assembled Greeks that one of their foremost duties was to deliver Sicily from a hateful oppression. The latest work of Lysias which we can date (a fragment of a speech *For Pherenicus*) belongs to 381 or 380 B.C. He probably died in or soon after 380 B.C.

Lysias was a man of kindly and genial nature, warm in friendship, loyal to country, with a keen perception of character. and a fine though strictly controlled sense of humour. The literary tact which is so remarkable in the extant speeches is that of a singularly flexible intelligence, always obedient to an instinct of gracefulness. He owes his distinctive place to the power of concealing his art. It was obviously desirable that a speech written for delivery by a client should be suitable to his age, station and circumstances. Lysias was the first to make this adaptation really artistic. His skill can be best appreciated if we turn from the easy flow of his graceful language to the majestic emphasis of Antiphon, or to the self-revealing art of Isaeus. Translated into terms of ancient criticism, he became the model of the "plain style" (ἰσχνὸς χαρακτήρ, ἰσχνὴ, λιτὴ, ἀφελὴς λέξις: *genus tenue* or *subtile*). Greek and then Roman critics distinguished three styles of rhetorical composition—the "grand" (or "elaborate"), the "plain" and the "middle," the "plain" being nearest to the language of daily life. Greek rhetoric began in the "grand" style; then Lysias set an exquisite pattern of the "plain"; and Demosthenes might be considered as having effected an almost ideal compromise.

The vocabulary of Lysias is pure and simple. Most of the rhetorical "figures" are sparingly used—except such as consist in the parallelism or opposition of clauses. The taste of the day—not yet emancipated from the influence of the Sicilian rhetoric—probably demanded a large use of antithesis. Lysias excels in vivid description; he has also a happy knack of marking the speaker's character by light touches. The structure of his sentences varies a good deal according to the dignity of the subject. He has equal command over the "periodic" style (κατεστραμμένη λέξις) and the non-periodic or "continuous" (εἰρομένη, διαλελυμένη). His disposition of his subject-matter is always simple. The speech has usually four parts—introduction (προοίμιον), narrative of facts (διήγησις), proofs (πίστεις), which may be either external, as from witnesses, or internal, derived from argument on the facts, and, lastly, conclusion (ἐπίλογος). It is in the introduction and the narrative that Lysias is seen at his best. In his greatest extant speech—that *Against Eratosthenes*—and also in the fragmentary *Olympiacus*, he has pathos and fire; but these were not characteristic qualities of his work. In Cicero's judgment (*De Orat.* iii. 7, 28) Demosthenes was peculiarly distinguished by force (*vis*), Aeschines by resonance (*sonitus*), Hypereides by acuteness (*acumen*), Isocrates by sweetness (*suavitas*); the distinction which he assigns to Lysias is *subtilitas*, an Attic refinement—which, as he elsewhere says (*Brutus*, 16, 64) is often joined to an admirable vigour (*lacerti*). Nor was it oratory alone to which Lysias rendered service; his work had an important effect on all subsequent Greek prose, by showing how perfect elegance could be joined to plainness. Here, in his artistic use of familiar idiom, he might fairly be called the Euripides of Attic prose. And his style has an additional charm for modern readers, because it is employed in describing scenes from the everyday life of Athens.[2]

Thirty-four speeches (three fragmentary) have come down under the name of Lysias; one hundred and twenty-seven more, now lost, are known from smaller fragments or from titles. In the Augustan age four hundred and twenty-five works bore his name, of which more than two hundred were allowed as genuine by the critics. Our thirty-four works may be classified as follows:—

A. Epideictic.—1. *Olympiacus*, xxxiii. 388 B.C.; 2. *Epitaphius*, ii. (purporting to have been spoken during the Corinthian War; certainly spurious), perhaps composed about 380-340 B.C. ("soon after 387," Blass).

B. Deliberative.—Plea for the Constitution, xxxiv., 403 B.C.

C. Forensic, in Public Causes.—I. *Relating to Offences directly against the State (*γραφαὶ δημοσίων ἀδικημάτων*); such as treason, malversation in office, embezzlement of public moneys.* 1. For Polystratus, xx., 407 B.C.; 2. Defence on a Charge of Taking Bribes, xxi., 402 B.C.; 3. Against Ergocles, xxviii., 389 B.C.; 4. Against Epicrates, xxvii., 389 B.C.; 5. Against Nicomachus, xxx., 399 B.C.; 6. Against the Corndealers, xxii., 386 B.C. (?) II. *Cause relating to Unconstitutional Procedure* (γραφὴ αρανόμων). On the Property of the Brother of Nicias, xviii., 395 B.C. III. *Causes relating to Claims for Money withheld from the State* (ἀπογραφαί). 1. For the Soldier, ix. (probably not by Lysias, but by an imitator, writing for a real cause), 394 B.C. (?); 2. On the Property of Aristophanes, xix., 387 B.C.; 3. Against Philocrates, xxix., 389 B.C. IV. *Causes relating to a Scrutiny* (δοκιμασία); *especially the Scrutiny, by the Senate, of Officials Designate.* 1. Against Evandrus, xxvi., 382 B.C.; 2. For Mantitheus, xvi., 392 B.C.; 3. Against Philon, xxxi., between 404 and 395 B.C.; 4. Defence on a Charge of Seeking to Abolish the Democracy, xxv., 401 B.C.; 5. For the Invalid, xxiv., 402 B.C. (?) V. *Causes relating to Military Offences* (γραφαὶ λιποταξίου, ἀστρατείας). 1. Against Alcibiades, I. and II. (xiv., xv.), 395 B.C. VI. *Causes relating to Murder or Intent to Murder* (γραφαὶ φόνου, τραύματος ἐκ προνοίας). 1. Against Eratosthenes, xii., 403 B.C.; 2. Against Agoratus, xiii., 399 B.C.; 3. On the Murder of Eratosthenes, i. (date uncertain); 4. Against Simon, iii., 393 B.C.; 5. On Wounding with Intent, iv. (date uncertain). VII. *Causes relating to Impiety* (γραφαὶ ἀσεβείας). 1. Against Andocides, vi. (certainly spurious, but perhaps contemporary); 2. For Callias, v. (date uncertain); 3. On the Sacred Olive, vii., not before 395 B.C.

D. Forensic, in Private Causes.—I. *Action for Libel* (δίκη κακηγορίας). Against Theomnestus, x., 384-383 B.C. (the so-called second speech, xi., is merely an epitome of the first). II. *Action by a Ward against a Guardian* (δίκη ἐπιτροπῆς). Against Diogeiton, xxxii., 400 B.C. III. *Trial of a Claim to Property* (διαδικασία). On the property of Eraton, xvii., 397 B.C. IV. *Answer to a Special Plea* (πρὸς παραγραφήν). Against Pancleon, xxiii. (date uncertain).

E. Miscellaneous.—1. To his Companions, a Complaint of Slanders, viii. (certainly spurious); 2. The ἐρωτικός in Plato's *Phaedrus*, pp. 230 E-234. This has generally been regarded as Plato's own work; but the certainty of this conclusion will be doubted by those who observe (1) the elaborate preparations made in the dialogue for a recital of the ἐρωτικός which shall be *verbally exact*, and (2) the closeness of the criticism made upon it. If the satirist were merely analysing his own composition, such criticism would have little point. Lysias is the earliest writer who is known to have composed ἐρωτικοί; it is as representing both rhetoric and a false ἔρως that he is the object of attack in the *Phaedrus*.

F. Fragments.—Three hundred and fifty-five of these are collected by Sauppe, *Oratores Attici*, ii. 170-216. Two hundred and fifty-two of them represent one hundred and twenty-seven speeches of known title; and of six the fragments are comparatively large. Of these, the fragmentary speech *For Pherenicus* belongs to 381 or 380 B.C., and is thus the latest known work of Lysias.[3]

In literary and historical interest, the first place among the extant speeches of Lysias belongs to that *Against Eratosthenes* (403 B.C.), one of the Thirty Tyrants, whom Lysias arraigns as the murderer of his brother Polemarchus. The speech is an eloquent and vivid picture of the reign of terror which the Thirty established at Athens; the concluding appeal, to both parties among the citizens, is specially powerful. Next in importance is the speech *Against Agoratus* (399 B.C.), one of our chief authorities for the internal history of Athens during the months which immediately followed the defeat at Aegospotami. The *Olympiacus* (388 B.C.) is a brilliant fragment, expressing the spirit of the festival at Olympia, and exhorting Greeks to unite against their common foes. The *Plea for the Constitution* (403 B.C.) is interesting for the manner in which it argues that the wellbeing of Athens—now stripped of empire—is bound up with the maintenance of democratic principles. The speech *For Mantitheus* (392 B.C.) is a graceful and animated portrait of a young Athenian ἱππεύς, making a spirited defence of his honour against the charge of disloyalty. The defence *For the Invalid* is a humorous character-sketch. The speech *Against Pancleon* illustrates the intimate relations between Athens and Plataea, while it gives us some picturesque glimpses of Athenian town life. The defence of the person who had been charged with destroying a *moria*, or sacred olive, places us amidst the country life of Attica. And the speech *Against Theomnestus* deserves attention for its curious evidence of the way in which the ordinary vocabulary of Athens had changed between 600 and 400 B.C.

All MSS. of Lysias yet collated have been derived, as H. Sauppe first showed, from the Codex Palatinus X. (Heidelberg). The next most valuable MS. is the Laurentianus C (15th century), which I. Bekker chiefly followed. Speaking generally, we may say that these two MSS. are the only two which carry much weight where the text is seriously corrupt. In *Oratt.* i.-ix. Bekker occasionally consulted eleven other MSS., most of which contain only the above nine speeches: viz., Marciani F, G, I, K (Venice); Laurentiani D, E (Florence); Vaticani M, N; Parisini U, V; Urbinas O.

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(R. C. J.; X.)

1   [W. Christ, *Gesch. der griech. Litt.*, gives the date of birth as about 450.]

2   See further Jebb, *The Attic Orators from Antiphon to Isaeus*, i. 142-316.

3   [Some remains of the speech against Theozotides have been found in the Hibeh papyri; see W. H. D. Rouse's *The Year's Work in Classical Studies* (1907)].

LYSIMACHUS (*c.* 355-281 B.C.), Macedonian general, son of Agathocles, was a citizen of Pella in Macedonia. During Alexander's Persian campaigns he was one of his immediate bodyguard and distinguished himself in India. After Alexander's death he was appointed to the government of Thrace and the Chersonese. For a long time he was chiefly occupied with fighting against the Odrysian king Seuthes. In 315 he joined Cassander, Ptolemy and Seleucus against Antigonus, who, however, diverted his attention by stirring up Thracian and Scythian tribes against him. In 309, he founded Lysimachia in a commanding situation on the neck connecting the Chersonese with the mainland. He followed the example of Antigonus in taking the title of king. In 302 when the second alliance between Cassander, Ptolemy and Seleucus was made, Lysimachus, reinforced by troops from Cassander, entered Asia Minor, where he met with little resistance. On the approach of Antigonus he retired into winter quarters near Heraclea, marrying its widowed queen Amastris, a Persian princess. Seleucus joined him in 301, and at the battle of Ipsus Antigonus was slain. His dominions were divided among the victors, Lysimachus receiving the greater part of Asia Minor. Feeling that Seleucus was becoming dangerously great, he now allied himself with Ptolemy, marrying his daughter Arsinoë. Amastris, who had divorced herself from him, returned to Heraclea. When Antigonus's son Demetrius renewed hostilities (297), during his absence in Greece, Lysimachus seized his towns in Asia Minor, but in 294 concluded a peace whereby Demetrius was recognized as ruler of Macedonia. He tried to carry his power beyond the Danube, but was defeated and taken prisoner by the Getae, who, however, set him free on amicable terms. Demetrius subsequently threatened Thrace, but had to retire in consequence of a rising in Boeotia, and an attack from Pyrrhus of Epirus. In 288

Lysimachus and Pyrrhus in turn invaded Macedonia, and drove Demetrius out of the country. Pyrrhus was at first allowed to remain in possession of Macedonia with the title of king, but in 285 he was expelled by Lysimachus. Domestic troubles embittered the last years of Lysimachus's life. Amastris had been murdered by her two sons; Lysimachus treacherously put them to death. On his return Arsinoë asked the gift of Heraclea, and he granted her request, though he had promised to free the city. In 284 Arsinoë, desirous of gaining the succession for her sons in preference to Agathocles (the eldest son of Lysimachus), intrigued against him with the help of her brother Ptolemy Ceraunus; they accused him of conspiring with Seleucus to seize the throne, and he was put to death. This atrocious deed of Lysimachus aroused great indignation. Many of the cities of Asia revolted, and his most trusted friends deserted him. The widow of Agathocles fled to Seleucus, who at once invaded the territory of Lysimachus in Asia. Lysimachus crossed the Hellespont, and in 281 a decisive battle took place at the plain of Corus (Corupedion) in Lydia. Lysimachus was killed; after some days his body, watched by a faithful dog, was found on the field, and given up to his son Alexander, by whom it was interred at Lysimachia.

See Arrian, *Anab.* v. 13, vi. 28; Justin xv. 3, 4, xvii. 1; Quintus Curtius v. 3, x. 30; Diod. Sic. xviii. 3; Polybius v. 67; Plutarch, *Demetrius*, 31. 52, *Pyrrhus*, 12; Appian, *Syriaca*, 62; Thirlwall, *History of Greece*, vol. viii. (1847); J. P. Mahaffy, *Story of Alexander's Empire*; Droysen, *Hellenismus* (2nd ed., 1877); A. Holm, *Griechische Geschichte*, vol. iv. (1894); B. Niese, *Gesch. d. griech. u. maked. Staaten*, vols. i. and ii. (1893, 1899); J. Beloch, *Griech. Gesch.* vol. iii. (1904); Hünerwadel, *Forschungen zur Gesch. des Königs Lysimachus* (1900); Possenti, *Il Re Lisimaco di Tracia* (1901); Ghione, *Note sul regno di Lisimaco* (*Atti d. real. Accad. di Torino*, xxxix.); and MACEDONIAN EMPIRE.

(E. R. B.)

LYSIPPUS, Greek sculptor, was head of the school of Argos and Sicyon in the time of Philip and Alexander of Macedon. His works are said to have numbered 1500, some of them colossal. Some accounts make him the continuer of the school of Polyclitus; some represent him as self-taught. The matter in which he especially innovated was the proportions of the male human body; he made the head smaller than his predecessors, the body more slender and hard, so as to give the impression of greater height. He also took great pains with hair and other details. Pliny (*N.H.* 34, 61) and other writers mention many of his statues. Among the gods he seems to have produced new and striking types of Zeus (probably of the Otricoli class), of Poseidon (compare the Poseidon of the Lateran, standing with raised foot), of the Sun-god and others; many of these were colossal figures in bronze. Among heroes he was specially attracted by the mighty physique of Hercules. The Hercules Farnese of Naples, though signed by Glycon of Athens, and a later and exaggerated transcript, owes something, including the motive of rest after labour, to Lysippus. Lysippus made many statues of Alexander the Great, and so satisfied his patron, no doubt by idealizing him, that he became the court sculptor of the king, from whom and from whose generals he received many commissions. The extant portraits of Alexander vary greatly, and it is impossible to determine which among them go back to Lysippus. The remarkable head from Alexandria (Plate II. fig. 56, in GREEK ART) has as good a claim as any.

As head of the great athletic school of Peloponnese Lysippus naturally sculptured many athletes; a figure by him of a man scraping himself with a strigil was a great favourite of the Romans in the time of Tiberius (Pliny, *N.H.* 34, 61); and this has been usually regarded as the original copied in the Apoxyomenus of the Vatican (GREEK ART, Plate VI. fig. 79). If so, the copyist has modernized his copy, for some features of the Apoxyomenus belong to the Hellenistic age. With more certainty we may see a copy of an athlete by Lysippus in the statue of Agias found at Delphi (GREEK ART, Plate V. fig. 74), which is proved by inscriptions to be a replica in marble of a bronze statue set up by Lysippus in Thessaly. And when the Agias and the Apoxyomenus are set side by side their differences are so striking that it is difficult to attribute them to the same author, though they may belong to the same school.

(P. G.)

LYSIS OF TARENTUM (d. *c.* 390 B.C.), Greek philosopher. His life is obscure, but it is generally accepted, that in the persecution of the Pythagoreans at Crotona and Metapontum he escaped and went to Thebes, where he came under the influence of Philolaus. The friend and companion of Pythagoras, he has been credited with many of the works usually attributed to Pythagoras himself. Diogenes Laertius viii. 6 gives him three, and Mullach even assigns to him the *Golden Verses*. But it is generally held that these verses are a collection of lines by many authors rather than the work of one man.

LYSISTRATUS, a Greek sculptor of the 4th century B.C., brother of Lysippus of Sicyon. We are told by Pliny (*Nat. Hist.* 35, 153) that he followed a strongly realistic line, being the first sculptor to take impressions of human faces in plaster.

LYTE, HENRY FRANCIS (1793-1847), Anglican divine and hymn-writer, was born near Kelso on the 1st of June 1793, and was educated at Enniskillen school and at Trinity College, Dublin. He took orders in 1815, and for some time held a curacy near Wexford. Owing to infirm health he came to England, and after several changes settled, in 1823, in the parish of Brixham. In 1844 his health finally gave way; and he died at Nice on the 20th of November 1847.

Lyte's first work was *Tales in Verse illustrative of Several of the Petitions in the Lord's Prayer* (1826), which was written at Lymington and was commended by Wilson in the *Noctes Ambrosianae*. He next published (1833) a volume of *Poems, chiefly Religious*, and in 1834 a little collection of psalms and hymns entitled *The Spirit of the Psalms*. After his death, a volume of *Remains* with a memoir was published, and the poems contained in this, with those in *Poems, chiefly Religious*, were afterwards issued in one volume (1868). His best known hymns are "Abide with me! fast falls the eventide"; "Jesus, I my cross have taken"; "Praise, my soul, the King of Heaven"; and "Pleasant are Thy courts above."

LYTHAM, an urban district and watering-place in the Blackpool parliamentary division of Lancashire, England, on the north shore of the estuary of the Ribble, 13½ m. W. of Preston by a joint line of the London & North Western and Lancashire & Yorkshire railways. Pop. (1901) 7185. It has a pier, a pleasant promenade and drive along the shore, and other appointments of a seaside resort, but it is less wholly devoted to holiday visitors than Blackpool, which lies 8 m. N.W. A Benedictine cell was founded here at the close of the 12th century by the lord of the manor, Richard Fitz-Roger.

LYTTELTON, GEORGE LYTTELTON, 1ST BARON (1709-1773), English statesman and man of letters, born at Hagley, Worcestershire, was a descendant of the great jurist Sir Thomas Littleton (*q.v.*). He was the eldest son of Sir Thomas Lyttelton, 4th bart. (d. 1751), who at the revolution of 1688 and during the following reign was one of the ablest Whig debaters of the House of Commons.[1] Lyttelton was educated at Eton and Oxford, and in 1728 set out on the grand tour, spending considerable periods at Paris and Rome. On his return to England he sat in parliament for Okehampton, Devonshire, beginning public life in the same year with Pitt. From 1744 to 1754 he held the office of a lord commissioner of the treasury. In 1755 he succeeded Legge as chancellor of the exchequer, but in 1756 he quitted office, being raised to the peerage as Baron Lyttelton, of Frankley, in the county of Worcester. In the political crisis of 1765, before the formation of the Rockingham administration, it was suggested that he might be placed at the head of the treasury, but he declined to take part in any such scheme. The closing years of his life were devoted chiefly to literary pursuits. He died on the 22nd of August 1773.

Lyttelton's earliest publication (1735), *Letters from a Persian in England to his Friend at Ispahan*, appeared anonymously. Much greater celebrity was achieved by his *Observations on the Conversion and Apostleship of St Paul*, also anonymous, published in 1747. It takes the form of a letter to Gilbert West, and is designed to show that St Paul's conversion is of itself a sufficient demonstration of the divine character of Christianity. Dr Johnson regarded the work as one "to which infidelity has never been able to fabricate a specious answer." Lord Lyttelton's *Dialogues of the Dead*, a creditable performance, though hardly rivalling either Lucian or Landor, appeared in 1760. His *History of Henry II.* (1767-1771), the fruit of twenty years' labour, is not now cited as an authority, but is painstaking and fair. Lyttelton was also a writer of verse; his *Monody* on his wife's death has been praised by Gray for its elegiac tenderness, and his *Prologue* to the *Coriolanus* of his friend Thomson shows genuine feeling. He was also the author of the well-known stanza in the *Castle of Indolence*, in which the poet himself is described. A complete collection of the *Works* of Lord Lyttelton was published by his nephew, G. E. Ayscough in 1774.

His son THOMAS (1744-1779), who succeeded as 2nd baron, played some part in the political life of his time, but his loose and prodigal habits were notorious, and he is known, in distinction to his father "the good lord," as the wicked Lord Lyttelton. He left no lawful issue, and the barony became extinct; but it was revived in 1794 in the person of his uncle WILLIAM HENRY, 1st baron of the new creation (1724-1808), who was governor of S. Carolina and later of Jamaica, and ambassador to Portugal. The new barony went after him to his two sons. The 3rd baron (1782-1837) was succeeded by his son GEORGE WILLIAM LYTTELTON, 4th baron (1817-1876), who was a fine scholar, and brother-in-law of W. E. Gladstone, having married Miss Mary Glynne. He did important work in educational and poor law reform. He had eight sons, of whom the eldest, CHARLES GEORGE (b. 1842), became 5th baron, and in 1889 succeeded, by the death of the 3rd duke of Buckingham and Chandos, to the viscounty of Cobham, in which title the barony of Lyttelton is now merged. Other distinguished sons were Arthur Temple Lyttelton (d. 1903), warden of Selwyn College, Cambridge, and bishop-suffragan of Southampton; Edward Lyttelton (b. 1855), headmaster of Haileybury (1890-1905) and then of Eton; and Alfred Lyttelton (b. 1857), secretary of state for the colonies (1903-1906). It was a family of well-known cricketers, Alfred being in his day the best wicket-keeper in England as well as a fine tennis player.

For the 1st baron see Sir R. Phillimore's *Memoirs and Correspondence of Lord Lyttelton*, 1734-1773 (2 vols., 1845).

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1   Sir Thomas (or Thomas de) Littleton, the jurist, had three sons, William, Richard and Thomas. From the first, William, was descended Sir Thomas Lyttelton, 1st bart. of Frankley (1596-1650), whose sons were Sir Henry, 2nd bart. (d. 1693), and Sir Charles, 3rd bart. (1629-1716), governor of Jamaica. The latter's son was Sir Thomas, 4th bart., above mentioned, who was also the father of Charles Lyttelton (1714-1768), bishop of Carlisle, and president of the Society of Antiquaries. The male descendants of the second, Richard, died out with Sir Edward Littleton, bart., of Pillaton, Staffordshire, in 1812, but the latter's grandnephew, Edward John Walhouse (1791-1863) of Hatherton, took the estates by will and also the name of Littleton, and was created 1st Baron Hatherton in 1835; he was chief secretary for Ireland (1833-1834). From Thomas, the third son, was descended, in one line, Edward, Lord Littleton, of Munslow (1589-1645), recorder of London, chief justice of the common pleas, and eventually lord keeper; and in another line, the baronets of Stoke St Milborough, Shropshire, of whom the best known and last was Sir Thomas Littleton, 3rd bart. (1647-1710), speaker of the House of Commons (1698-1700), and treasurer of the navy.

LYTTELTON, a borough of New Zealand, the port of Christchurch (*q.v.*) on the E. coast of South Island, on an inlet on the north-western side of Banks Peninsula. Pop. (1906) 3941. It is surrounded by abrupt hills rising to 1600 ft., through which a railway communicates with Christchurch (7 m. N.W.) by a tunnel 1¾ m. long. Great breakwaters protect the harbour, which has an area of 110 acres, with a low-tide depth of 20 to 27 ft. There is a graving dock accessible for vessels of 6000 tons. The produce of the rich agricultural district of Canterbury is exported, frozen or preserved. Lyttelton, formerly called Port Cooper and Port Victoria, was the original settlement in this district (1850).

LYTTON, EDWARD GEORGE EARLE LYTTON, BULWER-LYTTON, 1ST BARON (1803-1873), English novelist and politician, the youngest son of General William Earle Bulwer of Heydon Hall and Wood Dalling, Norfolk, was born

in London on the 25th of May 1803. He had two brothers, William (1790-1877) and Henry (1801-1872), afterwards Lord Dalling (*q.v.*). Bulwer's father died when the boy was four years old. His mother, Elizabeth Barbara, daughter of Richard Warburton Lytton of Knebworth, Hertfordshire, after her husband's death settled in London. Bulwer, who was delicate and neurotic, gave evidence of precocious talent and was sent to various boarding schools, where he was always discontented, until in the establishment of a Mr Wallington at Ealing he found in his master a sympathetic and admiring listener. Mr Wallington induced him to publish, at the age of fifteen, an immature volume entitled *Ishmael and other Poems*. About this time Bulwer fell in love, and became extremely morbid under enforced separation from the young lady, who was induced by her father to marry another man. She died about the time that Bulwer went to Cambridge, and he declared that her loss affected all his after-life. In 1822 he entered Trinity College, Cambridge, but removed shortly afterwards to Trinity Hall, and in 1825 won the Chancellor's medal for English verse with a poem on "Sculpture." In the following year he took his B.A. degree and printed for private circulation a small volume of poems, *Weeds and Wild Flowers*, in which the influence of Byron was easily traceable. In 1827 he published *O'Neill, or the Rebel*, a romance, in heroic couplets, of patriotic struggle in Ireland, and in 1831 a metrical satire, *The Siamese Twins*. These juvenilia he afterwards ignored.

Meanwhile he had begun to take his place in society, being already known as a dandy of considerable pretensions, who had acted as second in a duel and experienced the fashionable round of flirtation and intrigue. He purchased a commission in the army, only to sell it again without undergoing any service, and in August 1827 married, in opposition to his mother's wishes, Rosina Doyle Wheeler (1802-1882), an Irish beauty, niece and adopted daughter of General Sir John Doyle. She was a brilliant but passionate girl, and upon his marriage with her, Bulwer's mother withdrew the allowance she had hitherto made him. He had £200 a year from his father, and less than £100 a year with his wife, and found it necessary to set to work in earnest. In the year of his marriage he published *Falkland*, a novel which was only a moderate success, but in 1828 he attracted general attention with *Pelham*, a novel for which he had gathered material during a visit to Paris in 1825. This story, with its intimate study of the dandyism of the age, was immediately popular, and gossip was busy in identifying the characters of the romance with the leading men of the time. In the same year he published *The Disowned*, following it up with *Devereux* (1829), *Paul Clifford* (1830), *Eugene Aram* (1832) and *Godolphin* (1833). All these novels were designed with a didactic purpose, somewhat upon the German model. To embody the leading features of a period, to show how a criminal may be reformed by the development of his own character, to explain the secrets of failure and success in life, these were the avowed objects of his art, and there were not wanting critics ready to call in question his sincerity and his morality. Magazine controversy followed, in which Bulwer was induced to take a part, and about the same time he began to make a mark in politics. He became a follower of Bentham, and in 1831 was elected member for St Ives in Huntingdon. During this period of feverish activity his relations with his wife grew less and less satisfactory. At first she had cause to complain that he neglected her in the pursuit of literary reputation; later on his disregard became rather active than passive. After a series of distressing differences they decided to live apart, and were legally separated in 1836. Three years later his wife published a novel called *Cheveley, or the Man of Honour*, in which Bulwer was bitterly caricatured, and in June 1858, when her husband was standing as parliamentary candidate for Hertfordshire, she appeared at the hustings and indignantly denounced him. She was consequently placed under restraint as insane, but liberated a few weeks later. For years she continued her attacks upon her husband's character, and outlived him by nine years, dying at Upper Sydenham in March 1882. There is little doubt that her passionate imagination gravely exaggerated the tale of her wrongs, though Bulwer was certainly no model for husbands. It was a case of two undisciplined natures in domestic bondage, and the consequences of their union were as inevitable as they were unfortunate.

Bulwer, meanwhile, was full of activity, both literary and political. After representing St Ives, he was returned for Lincoln in 1832, and sat in parliament for that city for nine years. He spoke in favour of the Reform Bill, and took the leading part in securing the reduction, after vainly essaying the repeal, of the newspaper stamp duties. His pamphlet, issued when the Whigs were dismissed from office in 1834, and entitled "A Letter to a Late Cabinet Minister on the Crisis," was immensely influential, and Lord Melbourne offered him a lordship of the admiralty, which he declined as likely to interfere with his activity as an author. At this time, indeed, his pen was indefatigable. *Godolphin* was followed by *The Pilgrims of the Rhine* (1834), a graceful fantasy, too German in sentiment to be quite successful in England, and then in *The Last Days of Pompeii* (1834) and Rienzi (1835) he reached the height of his popularity. He took great pains with these stories, and despite their lurid colouring and mannered over-emphasis, they undoubtedly indicate the highwater mark of his talent. Their reception was enthusiastic, and *Ernest Maltravers* (1837) and *Alice, or the Mysteries* (1838) were hardly less successful. At the same time he had been plunging into journalism. In 1831 he undertook the editorship of the *New Monthly*, which, however, he resigned in the following year, but in 1841, the year in which he published *Night and Morning*, he started the *Monthly Chronicle*, a semi-scientific magazine, for which he wrote *Zicci*, an unfinished first draft afterwards expanded into *Zanoni* (1842). As though this multifarious fecundity were not sufficient, he had also been busy in the field of dramatic literature. In 1838 he produced *The Lady of Lyons*, a play which Macready made a great success at Covent Garden: in 1839 *Richelieu* and *The Sea Captain*, and in 1840 *Money*. All, except *The Sea Captain*, were successful, and this solitary failure he revived in 1869 under the title of *The Rightful Heir*. Of the others it may be said that, though they abound in examples of strained sentiment and false taste, they have nevertheless a certain theatrical *flair*, which has enabled them to survive a whole library of stage literature of greater sincerity and truer feeling. *The Lady of Lyons* and *Money* have long held the stage, and to the last-named, at least, some of the most talented of modern comedians have given new life and probability.

In 1838 Bulwer, then at the height of his popularity, was created a baronet, and on succeeding to the Knebworth estate in 1843 added Lytton to his surname, under the terms of his mother's will. From 1841 to 1852 he had no seat in parliament, and spent much of his time in continental travel. His literary activity waned somewhat, but was still remarkably alert for a man who had already done so much. In 1843 he issued *The Last of the Barons*, which many critics have considered the most historically sound and generally effective of all his romances; in 1847 *Lucretia, or the Children of the Night*, and in 1848 *Harold, the last of the Saxon Kings*. In the intervals between these heavier productions he had thrown off a volume of poems in 1842, another of translations from Schiller in 1844, and a satire called *The New Timon* in 1846, in which Tennyson, who had just received a Civil List pension, was bitterly lampooned as "school miss Alfred," with other unedifying amenities; Tennyson retorted with some verses in which he addressed Bulwer-Lytton as "you band-box." These poetic excursions were followed by his most ambitious work in metre, a romantic epic entitled *King Arthur*, of which he expected much, and he was greatly disappointed by its apathetic reception. Having experienced some rather acid criticism, questioning the morality of his novels, he next essayed a form of fiction which he was determined should leave no loophole to suspicion, and in *The Caxtons* (1849), published at first anonymously, gave further proof of his versatility and resource. *My Novel* (1853) and *What will he do with it?* were designed to prolong the same strain.

In 1852 he entered the political field anew, and in the conservative interest. He had differed from the policy of Lord John Russell over the corn laws, and now separated finally from the liberals. He stood for Hertfordshire and was elected, holding the seat till 1866, when he was raised to the peerage as Baron Lytton of Knebworth. His eloquence gave him the ear of the House of Commons, and he often spoke with influence and authority. In 1858 he was appointed secretary for the colonies. In the House of Lords he was comparatively inactive. His last novels were *A Strange Story* (1862), a mystical romance with spiritualistic tendencies; *The Coming Race* (1871), *The Parisians* (1873)—both unacknowledged at the time of his death; and *Kenelm Chillingly*, which was in course of publication in *Blackwood's Magazine* when Lytton died at Torquay on the 18th of January 1873. The last three of his stories were classed by his son, the 2nd Lord Lytton, as a trilogy, animated by a common purpose, to exhibit the influence of modern ideas upon character and conduct.

Bulwer-Lytton's attitude towards life was theatrical, the language of his sentiments was artificial and over-decorated, and the tone of his work was often so flamboyant as to give an impression of false taste and judgment. Nevertheless, he built up each of his stories upon a deliberate and careful framework: he was assiduous according to his lights in historical research; and conscientious in the details of workmanship. As the fashion of his day has become obsolete the immediate appeal of his work has diminished. It will always, however, retain its interest, not only for the merits of certain individual novels, but as a

mirror of the prevailing intellectual movement of the first half of the 19th century.

See T. H. S. Escott, *Edward Bulwer, 1st Baron Lytton of Knebworth* (1910).

(A. Wa.)

LYTTON, EDWARD ROBERT BULWER-LYTTON, 1st Earl of (1831-1891), English diplomatist and poet, was the only son of the 1st Baron Lytton. He was born in Hertford Street, Mayfair, on the 8th of November 1831. Robert Lytton and his sister were brought up as children principally by a Miss Green. In 1840 the boy was sent to a school at Twickenham, in 1842 to another at Brighton, and in 1845 to Harrow. From his earliest childhood Lytton read voraciously and wrote copiously, quickly developing a genuine and intense love of literature and a remarkable facility of expression. In 1849 he left Harrow and studied for a year at Bonn with an English tutor, and on his return with another tutor in England. In 1850 he entered the diplomatic service as unpaid *attaché* to his uncle, Sir Henry Bulwer, who was then minister at Washington. His advance in the diplomatic service was continuous, his successive appointments being: as second secretary—1852, Florence; 1854, Paris; 1857, The Hague; 1859, Vienna; as first secretary or secretary of legation—1863, Copenhagen; 1864, Athens; 1865, Lisbon; 1868, Madrid; 1868, Vienna; 1873, Paris; as minister—1875, Lisbon. In 1887 he was appointed to succeed Lord Lyons as ambassador at Paris, and held that office until his death in 1891. This rapid promotion from one European court to another indicates the esteem in which Lytton was held by successive foreign secretaries. In 1864, immediately before taking up his appointment at Athens, he married Edith, daughter of Edward Villiers, brother of the earl of Clarendon, and in 1873, upon the death of his father, he succeeded to the peerage and the estate of Knebworth in Hertfordshire.

Early in 1875 Lord Lytton declined an offer of appointment as governor of Madras, and in November of that year he was nominated governor-general of India by Disraeli. The moment was critical in the history of India. In Central Asia the advance of Russia had continued so steadily and so rapidly that Shere Ali, the amir of Afghanistan, had determined to seek safety as the vassal of the tsar. Lytton went out to India with express instructions from the British government to recover the friendship of the amir if possible, and if not so to arrange matters on the north-west frontier as to be able to be indifferent to his hostility. For eighteen months Lytton and his council made every effort to conciliate the friendship of the amir, but when a Russian agent was established at Kabul, while the mission of Sir Neville Chamberlain was forcibly denied entrance into the amir's dominions, no choice was left between acknowledging the right of a subsidized ally of Great Britain to place himself within Russian control and depriving him of the office which he owed to British patronage and assistance. The inevitable war began in November 1878, and by the close of that year the forces prepared by Lytton for that purpose had achieved their task with extraordinary accuracy and economy. Shere Ali fled from Kabul, and shortly afterwards died, and once more it fell to the Indian government to make provision for the future of Afghanistan. By the treaty of Gandamak in May 1879 Yakub Khan, a son of Shere Ali, was recognized as amir, the main conditions agreed upon being that the districts of Kuram, Pishin and Sibi should be "assigned" to British administration, and the Khyber and other passes be under British control; that there should be a permanent British Resident at Kabul, and that the amir should be subsidized in an amount to be afterwards determined upon. The endeavour of the Indian government was to leave the internal administration of Afghanistan as little affected as possible, but considerable risk was run in trusting so much, and especially the safety of a British envoy, to the power and the goodwill of Yakub Khan. Sir Louis Cavagnari, the British envoy entered Kabul at the end of July, and was, with his staff, massacred in the rising which took place on the 3rd of September. The war of 1879-80 immediately began, with the occupation of Kandahar by Stewart and the advance upon Kabul by Roberts, and the military operations which followed were not concluded when Lytton resigned his office in April 1880.

A complete account of Lytton's viceroyalty, and a lucid exposition of the principles of his government and the main outlines of his policy, may be found in *Lord Lytton's Indian Administration*, by his daughter, Lady Betty Balfour (London, 1899). The frontier policy which he adopted, after the method of a friendly and united Afghanistan under Yakub Khan had been tried and had failed, was that the Afghan kingdom should be destroyed. The province of Kandahar was to be occupied by Great Britain, and administered by a vassal chief, Shere Ali Khan, who was appointed "Wali" with a solemn guarantee of British support (unconditionally withdrawn by the government succeeding Lytton's). The other points of the Indian frontier were to be made as secure as possible, and the provinces of Kabul and Herat were to be left absolutely to their own devices. In consequence of what had been said of Lytton by the leaders of the parliamentary opposition in England, it was impossible for him to retain his office under a government formed by them, and he accordingly resigned at the same time as the Beaconsfield ministry. This part of his policy was thereupon revoked. Abdur Rahman, proving himself the strongest of the claimants to the throne left vacant by Yakub Khan's deposition, became amir as the subsidized ally of the Indian government.

The two most considerable events of Lytton's viceroyalty, besides the Afghan wars, were the assumption by Queen Victoria of the title of empress of India on the 1st of January 1877, and the famine which prevailed in various parts of India in 1876-78. He satisfied himself that periodical famines must be expected in Indian history, and that constant preparation during years of comparative prosperity was the only condition whereby their destructiveness could be modified. Accordingly he obtained the appointment of the famine commission of 1878, to inquire, upon lines laid down by him, into available means of mitigation. Their report, made in 1880, is the foundation of the later system of irrigation, development of communications, and "famine insurance." The equalization and reduction of the salt duty were effected, and the abolition of the cotton duty commenced, during Lytton's term of office, and the system of Indian finance profoundly modified by decentralization and the regulation of provincial responsibility, in all which matters Lytton enthusiastically supported Sir John Strachey, the financial member of his council.

Upon Lytton's resignation in 1880 an earldom was conferred upon him in recognition of his services as viceroy. He lived at Knebworth until 1887, in which year he was appointed to succeed Lord Lyons as ambassador at Paris. He died at Paris on the 24th of November 1891, of a clot of blood in the heart, when apparently recovering from a serious illness. He was succeeded by his son (b. 1876) as 2nd earl.

Lytton is probably better known as a poet—under the pen-name of "Owen Meredith"—than as a statesman. The list of his published works is as follows: *Clytemnestra, and other Poems*, 1855; *The Wanderer*, 1858; *Lucile*, 1860; *Serbski Pesme, or National Songs of Servia*, 1861, *Tannhäuser* (in collaboration with Mr Julian Fane), 1861; *Chronicles and Characters*, 1867; *Orval, or The Fool of Time*, 1868; *Fables in Song* (2 vols.), 1874; *Glenaveril, or The Metamorphoses*, 1885; *After Paradise, or the Legends of Exile, and other Poems*, 1887; *Marah*, 1892; *King Poppy*, 1892. The two last-mentioned volumes were published posthumously. A few previously unpublished pieces are included in a volume of *Selections* published, with an introduction by Lady Betty Balfour, in 1894. His metrical style was easy and copious, but not precise. It often gives the impression of having been produced with facility, because the flow of his thought carried him along, and of not having undergone prolonged or minute polish. It was frequently suggestive of the work of other poets, especially in his earlier productions. The friend who wrote the inscription for the monument to be erected to him at St Paul's described him as "a poet of many styles, each the expression of his habitual thoughts." *Lucile*, a novel in verse, presents a romantic style and considerable wit; and *Glenaveril*, which also contains many passages of great beauty and much poetic thought, has much of the same narrative character. Besides his volumes of poetry, Lytton published in 1883 two volumes of a biography of his father. The second of these contains the beginning of the elder Lytton's unfinished novel, *Greville*, and his life is brought down only to the year 1832, when he was twenty-six years of age, so that the completion of the book upon the same scale would have required at least four more

volumes. The executrix of Lytton's mother chose to consider that the publication was injurious to that lady's memory, and issued a volume purporting to contain Bulwer-Lytton's letters to his wife. This Lytton suppressed by injunction, thereby procuring a fresh exposition of the law that the copyright in letters remains in the writer or his representatives, though the property in them belongs to the recipient. Lytton's appointment to the Parisian embassy caused the biography of his father to be finally laid aside.

The *Personal and Literary Letters of Robert, 1st Earl of Lytton*, have been edited by Lady Betty Balfour (1906).

(H. S*.)

M The thirteenth letter of the Phoenician and Greek alphabets, the twelfth of the Latin, and the thirteenth of the languages of western Europe. Written originally from right to left, it took the form ꟽ which survives in its earliest representations in Greek. The greater length of the first limb of *m* is characteristic of the earliest forms. From this form, written from left to right, the Latin abbreviation M′ for the praenomen Manius is supposed to have developed, the apostrophe representing the fifth stroke of the original letter. In the early Greek alphabets the four-stroke M with legs of equal length represents not *m* but *s*; *m* when written with four strokes is ꟿ. The five-stroke forms, however, are confined practically to Crete, Melos and Cumae; from the last named the Romans received it along with the rest of their alphabet. The Phoenician name of the symbol was *mem*, the Greek name μῦ is formed on the analogy of the name for *n*. M represents the bilabial nasal sound, which was generally voiced. It is commonly a stable sound, but many languages, *e.g.* Greek, Germanic and Celtic, change it when final into -*n*, its dental correlative. It appears more frequently as an initial sound in Greek and Latin than in the other languages of the same stock, because in these *s* before *m* (as also before *l* and *n*) disappeared at the beginning of words. The sounds *m* and *b* are closely related, the only difference being that, in pronouncing *m*, the nasal passage is not closed, thus allowing the sound to be prolonged, while *b* is an instantaneous or explosive sound. In various languages *b* is inserted between **m** and a following consonant, as in the Gr. μεσημβρία "mid-day," or the English "number," Fr. *nombre* from Lat. *numerus*. The sound *m* can in unaccented syllables form a syllable by itself without an audible vowel, *e.g.* the English word *fathom* comes from an Anglo-Saxon *faþm*, where the *m* was so used. (For more details as to this phonetic principle, which has important results in the history of language, see under N.)

(P. Gɪ.)

MAAS, JOSEPH (1847-1886), English tenor singer, was born at Dartford, and became a chorister in Rochester Cathedral. He went to study singing in Milan in 1869; in February 1871 he made his first success by taking Sims Reeves's place at a concert in London. In 1878 he became principal tenor in Carl Rosa's company, his beautiful voice and finished style more than compensating for his poor acting. He died in London on the 16th of January 1886.

MAASIN, a town on the S.W. coast of the island of Leyte, Philippine Islands, at the mouth of the Maasin River. Pop. (1903), 21,638. Maasin is an important port for hemp and copra. The well-built town occupies a narrow coastal plain. The river valleys in the vicinity produce cotton, pepper, tobacco, rice, Indian corn and fruit. Native cloths and pottery are manufactured. Maasin is the only place on the west coast of Leyte where a court of justice is held. The language is Visayan.

MAASSLUIS, a river port of Holland, in the province of South Holland, on the New Waterway, 10 m. by rail W. of Rotterdam. Pop. (1903), 8011. It rose into importance as a fishing harbour towards the end of the 16th century, and its prosperity rapidly increased after the opening of the New Waterway (the Maas ship canal) from Rotterdam to the sea. The fort erected here in 1572 by Philip of Marnix, lord of St Aldegonde, was captured by the Spanish in 1573.

MAASTRICHT, or Mᴀᴇsᴛʀɪᴄʜᴛ, a frontier town and the capital of the province of Limburg, Holland, on the left bank of the Maas at the influx of the river Geer, 19 m. by rail N.N.E. of Liége in Belgium. Pop. (1904), 36,146. A small portion of the town, known as Wyk, lies on the right bank. A stone bridge connecting the two replaced a wooden structure as early as 1280, and was rebuilt in 1683. Formerly a strong fortress, Maastricht is still a considerable garrison town, but its ramparts were dismantled in 1871-1878. The town-hall, built by Pieter Post and completed in 1683, contains some interesting pictures and tapestry. The old town-hall (Oud Stadhuis), a Gothic building of the 15th century, is now used as a museum of antiquities. The church of St Servatius is said to have been founded by Bishop Monulphus in the 6th century, thus being the oldest church in Holland; according to one account it was rebuilt and enlarged as early as the time of Charlemagne. The crypt with the tomb of the patron saint dates from the original building. The varied character of its late Romanesque and later Gothic architecture bears evidence of the frequency with which the church has been restored and altered. Over the porch is the fine emperor's hall, and the church has a marble statue of Charlemagne. The church of Our Lady, a late Romanesque building, has two ancient crypts and a 13th-century choir of exceptional beauty, but the nave suffered severely from a restoration in 1764. The present Gothic building of St Martin (in Wyk) was erected in 1859; the original church is said by tradition to have occupied the

site of an old heathen temple. The Protestant St Janskerk, a Gothic building of the 13th and 15th centuries, with a fine tower, was formerly the baptistery of the cathedral. The various hospitals, the poor-house, the orphanage and most of the other charitable foundations are Roman Catholic institutions. Maastricht contains the provincial archives, a library and geological collections. Though mainly indebted for its commercial prosperity to its position on the river, the town did not begin to reap the full advantages of its situation till the opening of the railways between 1853 and 1865. At first a trade was carried on in wine, colonial wares, alcoholic liquors and salt; there are now manufactures of earthenware, glass and crystal, arms, paper, woollens, tools, lead, copper and zinc work, as well as breweries, and tobacco and cigar factories, and a trade in corn and butter.

A short distance south of Maastricht are the great sandstone quarries of Pietersberg, which were worked from the time of the Romans to near the end of the 19th century; the result is one of the most extraordinary subterranean labyrinths in the world, estimated to cover an area 15 m. by 9 m. In the time of the Spanish wars these underground passages served to hide the peasants and their cattle.

Maastricht was originally the *trajectus superior* (upper ford) of the Romans, and was the seat of a bishop from 382 to 721. Having formed part of the Frankish realm, it was ruled after 1204 jointly by the dukes of Brabant and the prince-bishops of Liége. In 1579 it was besieged by the Spaniards under the duke of Parma, being captured and plundered after a heroic resistance. It was taken by the French in 1673, 1748 and 1794.

MABILLON, JOHN (1632-1707), Benedictine monk of the Congregation of St Maur (see Maurists), was the son of a peasant near Reims. In 1653 he became a monk in the abbey of St Remi at Reims. In 1664 he was placed at St Germain-des-Prés in Paris, the great literary workshop of the Maurists, where he lived and worked for twenty years, at first under d'Achery, with whom he edited the nine folio volumes of Acta of the Benedictine Saints. In Mabillon's Prefaces (reprinted separately) these lives were for the first time made to illustrate the ecclesiastical and civil history of the early middle ages. Mabillon's masterpiece was the *De re diplomatica* (1681; and a supplement, 1704) in which were first laid down the principles for determining the authenticity and date of medieval charters and manuscripts. It practically created the science of Latin palaeography, and is still the standard work on the subject. In 1685-1686 Mabillon visited the libraries of Italy, to purchase MSS. and books for the King's Library. On his return to Paris he was called upon to defend against de Rancé, the abbot of La Trappe, the legitimacy for monks of the kind of studies to which the Maurists devoted themselves: this called forth Mabillon's *Traité des études monastiques* and his *Réflexions sur la réponse de M. l'abbé de la Trappe* (1691-1692), works embodying the ideas and programme of the Maurists for ecclesiastical studies. Mabillon produced in all some twenty folio volumes and as many of lesser size, nearly all works of monumental erudition (the chief are named in the article Maurists). A very competent judge declared that, "he knew well the 7th, 8th, 9th, 10th and 11th centuries, but nothing earlier or later." Mabillon never allowed his studies to interfere with his life as a monk; he was noted for his regular attendance at the choral recitation of the office and the other duties of the monastic life, and for his deep personal religion, as well as for a special charm of character. He died on the 26th of December 1707, in the midst of the production of the colossal Benedictine Annals.

The chief authority for his life is the *Abrégé de la vie de D. J. M.* (also in Latin), by his disciple and friend Ruinart (1709). See also, for a full summary of his works, Tassin, *Hist. littéraire de la congr. de St Maur* (1770), pp. 205-269. Of modern biographies the best are those of de Broglie (2 vols., 1888) and Bäumer (1892)—the former to be especially recommended. A brief sketch by E. C. Butler may be found in the *Downside Review* (1893).

(E. C. B.)

MABINOGION (plural of Welsh *mabinogi*, from *mabinog*, a bard's apprentice), the title given to the collection of eleven Welsh prose tales (from the Red Book of Hergest) published (1838) by Lady Charlotte Guest, but applied in the Red Book to four only. (See Celt: *Welsh Literature*.)

MABUSE, JAN (d. 1532), the name adopted (from his birthplace, Maubeuge) by the Flemish painter Jenni Gosart, or Jennyn van Hennegouwe (Hainault), as he called himself when he matriculated in the gild of St Luke, at Antwerp, in 1503. We know nothing of his early life, but his works tell us that he stood in his first period under the influence of artists to whom plastic models were familiar; and this leads to the belief that he spent his youth on the French border rather than on the banks of the Scheldt. Without the subtlety or power of Van der Weyden, he had this much in common with the great master of Tournai and Brussels, that his compositions were usually framed in architectural backgrounds. But whilst Mabuse thus early betrays his dependence on the masters of the French frontier, he also confesses admiration for the great painters who first gave lustre to Antwerp; and in the large altar-pieces of Castle Howard and Scawby he combines in a quaint and not unskilful medley the sentiment of Memling, the bright and decided contrasts of pigment peculiar to coloured reliefs, the cornered and packed drapery familiar to Van der Weyden, and the bold but Socratic cast of face remarkable in the works of Quentin Matsys. At Scawby he illustrates the legend of the count of Toulouse, who parted with his worldly goods to assume the frock of a hermit. At Castle Howard he represents the Adoration of the Kings, and throws together some thirty figures on an architectural background, varied in detail, massive in shape and fanciful in ornament. He surprises us by pompous costume and flaring contrasts of tone. His figures, like pieces on a chess-board, are often rigid and conventional. The landscape which shows through the colonnades is adorned with towers and steeples in the minute fashion of Van der Weyden. After a residence of a few years at Antwerp, Mabuse took service with Philip, bastard of Philip the Good, at that time lord of Somerdyk and admiral of Zeeland. One of his pictures had already become celebrated—a Descent from the Cross (50 figures), on the high altar of the monastery of St Michael of Tongerloo. Philip of Burgundy ordered Mabuse to execute a replica for the church of Middelburg; and the value which was then set on the picture is apparent from the fact that Dürer came expressly to Middelburg (1521) to see it. In 1568 the altar-piece perished by fire. In 1508 Mabuse accompanied Philip of Burgundy on his Italian mission; and by this accident an important revolution was effected in the art of the Netherlands. Mabuse appears to have chiefly studied in Italy the cold and polished works of the Leonardesques. He not only brought home a new style, but he also introduced the fashion of travelling to Italy; and from that time till the age of Rubens and Van Dyck it was considered

proper that all Flemish painters should visit the peninsula. The Flemings grafted Italian mannerisms on their own stock; and the cross turned out so unfortunately that for a century Flemish art lost all trace of originality.

In the summer of 1509 Philip returned to the Netherlands, and, retiring to his seat of Suytburg in Zeeland, surrendered himself to the pleasures of planning decorations for his castle and ordering pictures of Mabuse and Jacob of Barbari. Being in constant communication with the court of Margaret of Austria at Malines, he gave the artists in his employ fair chances of promotion. Barbari was made court painter to the regent, whilst Mabuse received less important commissions. Records prove that Mabuse painted a portrait of Leonora of Portugal, and other small pieces, for Charles V. in 1516. But his only signed pictures of this period are the Neptune and Amphitrite of 1516 at Berlin, and the Madonna, with a portrait of Jean Carondelet of 1517, at the Louvre, in both of which we clearly discern that Vasari only spoke by hearsay of the progress made by Mabuse in "the true method of producing pictures full of nude figures and poesies." It is difficult to find anything more coarse or misshapen than the Amphitrite, unless we except the grotesque and ungainly drayman who figures for Neptune. In later forms of the same subject—the Adam and Eve at Hampton Court, or its feebler replica at Berlin—we observe more nudity, combined with realism of the commonest type. Happily, Mabuse was capable of higher efforts. His St Luke painting the portrait of the Virgin in Sanct Veit at Prague, a variety of the same subject in the Belvedere at Vienna, the Madonna of the Baring collection in London, or the numerous repetitions of Christ and the scoffers (Ghent and Antwerp), all prove that travel had left many of Mabuse's fundamental peculiarities unaltered. His figures still retain the character of stone; his architecture is as rich and varied, his tones are as strong as ever. But bright contrasts of gaudy tints are replaced by soberer greys; and a cold haze, the *sfumato* of the Milanese, pervades the surfaces. It is but seldom that these features fail to obtrude. When they least show, the master displays a brilliant palette combined with smooth surface and incisive outlines. In this form the Madonnas of Munich and Vienna (1527), the likeness of a girl weighing gold pieces (Berlin), and the portraits of the children of the king of Denmark at Hampton Court, are fair specimens of his skill. As early as 1523, when Christian II. of Denmark came to Belgium, he asked Mabuse to paint the likenesses of his dwarfs. In 1528 he requested the artist to furnish to Jean de Hare the design for his queen Isabella's tomb in the abbey of St Pierre near Ghent. It was no doubt at this time that Mabuse completed the portraits of John, Dorothy and Christine, children of Christian II., which came into the collection of Henry VIII. No doubt, also, these portraits are identical with those of three children at Hampton Court, which were long known and often copied as likenesses of Prince Arthur, Prince Henry and Princess Margaret of England. One of the copies at Wilton, inscribed with the forged name of "Hans Holbein, ye father," and the false date of 1495, has often been cited as a proof that Mabuse came to England in the reign of Henry VII.; but the statement rests on no foundation whatever. At the period when these portraits were executed Mabuse lived at Middelburg. But he dwelt at intervals elsewhere. When Philip of Burgundy became bishop of Utrecht, and settled at Duerstede, near Wyck, in 1517, he was accompanied by Mabuse, who helped to decorate the new palace of his master. At Philip's death, in 1524, Mabuse designed and erected his tomb in the church of Wyck. He finally retired to Middelburg, where he took service with Philip's brother, Adolph, lord of Veeren. Van Mander's biography accuses Mabuse of habitual drunkenness; yet it describes the splendid appearance of the artist as, dressed in gold brocade, he accompanied Lucas of Leyden on a pleasure trip to Ghent, Malines and Antwerp in 1527. The works of Mabuse are those of a hardworking and patient artist; the number of his still extant pictures practically demonstrates that he was not a debauchee. The marriage of his daughter with the painter Henry Van der Heyden of Louvain proves that he had a home, and did not live habitually in taverns, as Van Mander suggests. His death at Antwerp, on the 1st of October 1532, is recorded in the portrait engraved by Jerome Cock.

<div align="right">(J. A. C.)</div>

MACABEBE, a town of the province of Pampanga, island of Luzon, Philippine Islands, on the Pampanga Grande river, about 10 m. above its mouth and about 25 m. N.W. of Manila. Pop. (1903), after the annexation of San Miguel, 21,481. The language is Pampango. Many of the male inhabitants serve in the U.S. Army as scouts. Macabebe's principal industries are the cultivation of rice and sugar cane, the distilling of nipa alcohol, and the weaving of hemp and cotton fabrics.

MACABRE, a term applied to a certain type of artistic or literary composition, characterized by a grim and ghastly humour, with an insistence on the details and trappings of death. Such a quality, deliberately adopted, is hardly to be found in ancient Greek and Latin writers, though there are traces of it in Apuleius and the author of the *Satyricon*. The outstanding instances in English literature are John Webster and Cyril Tourneur, with E. A. Poe and R. L. Stevenson. The word has gained its significance from its use in French, *la danse macabre*, for that allegorical representation, in painting, sculpture and tapestry, of the ever-present and universal power of death, known in English as the "Dance of Death," and in German as *Totentanz*. The typical form which the allegory takes is that of a series of pictures, sculptured or painted, in which Death appears, either as a dancing skeleton or as a shrunken corpse wrapped in grave-clothes to persons representing every age and condition of life, and leads them all in a dance to the grave. Of the numerous examples painted or sculptured on the walls of cloisters or churchyards through medieval Europe few remain except in woodcuts and engravings. Thus the famous series at Basel, originally at the Klingenthal, a nunnery in Little Basel, dated from the beginning of the 14th century. In the middle of the 15th century this was moved to the churchyard of the Predigerkloster at Basel, and was restored, probably by Hans Kluber, in 1568; the fall of the wall in 1805 reduced it to fragments, and only drawings of it remain. A Dance of Death in its simplest form still survives in the Marienkirche at Lübeck in a 15th-century painting on the walls of a chapel. Here there are twenty-four figures in couples, between each is a dancing Death linking the groups by outstretched hands, the whole ring being led by a Death playing on a pipe. At Dresden there is a sculptured life-size series in the old Neustädter Kirchhoff, removed here from the palace of Duke George in 1701 after a fire. At Rouen in the *aitre* (atrium) or cloister of St Maclou there also remains a sculptured *danse macabre*. There was a celebrated fresco of the subject in the cloister of Old St Paul's in London, and another in the now destroyed Hungerford Chapel at Salisbury, of which a single woodcut, "Death and the Gallant," alone remains. Of the many engraved reproductions, the most celebrated is the series drawn by Holbein. Here the long ring of connected dancing couples is necessarily abandoned, and the Dance of Death becomes rather a series of *imagines mortis*.

Concerning the origin of this allegory in painting and sculpture there has been much dispute. It certainly seems to be as early as the 14th century, and has often been attributed to the overpowering consciousness of the presence of death due to the Black Death and the miseries of the Hundred Years' War. It has also been attributed to a form of the Morality, a dramatic dialogue between Death and his victims in every station of life, ending in a dance off the stage (see Du Cange, *Gloss.*, *s.v.* "Machabaeorum chora"). The origin of the peculiar form the allegory has taken has also been found, somewhat needlessly and remotely, in the dancing skeletons on late Roman sarcophagi and mural paintings at Cumae or Pompeii, and a false connexion has been traced with the "Triumph of Death," attributed to Orcagna, in the Campo Santo at Pisa.

The etymology of the word *macabre* is itself most obscure. According to Gaston Paris (*Romania*, xxiv., 131; 1895) it first occurs in the form *macabre* in Jean le Févre's *Respit de la mort* (1376), "Je lis de Macabré la danse," and he takes this accented form to be the true one, and traces it in the name of the first painter of the subject. The more usual explanation is based on the Latin name, *Machabaeorum chora*. The seven tortured brothers, with their mother and Eleazar (2 Macc. vi., vii.) were prominent figures on this hypothesis in the supposed dramatic dialogues. Other connexions have been suggested, as for example with St Macarius, or Macaire, the hermit, who, according to Vasari, is to be identified with the figure pointing to the decaying corpses in the Pisan "Triumph of Death," or with an Arabic word *magbarah*, "cemetery."

See Peignot, *Recherches sur les danses des morts* (1826); Douce, *Dissertation on the Dance of Death* (1833); Massmann, *Litteratur der Totentänze* (1840); J. Charlier de Gerson, *La Danse macabre des Stes Innocents de Paris* (1874); Seelmann, *Die Totentänze des Mittelalters* (1893).

McADAM, JOHN LOUDON (1756-1836), Scottish inventor, who gave his name to the system of road-making known as "macadamizing," was born at Ayr, Scotland, on the 21st of September 1756, being descended on his father's side from the clan of the McGregors. While at school he constructed a model road-section. In 1770 he went to New York, entering the counting-house of a merchant uncle. He returned to Scotland with a considerable fortune in 1783, and purchased an estate at Sauhrie, Ayrshire. Among other public offices he held that of road trustee. The highways of Great Britain were at this time in a very bad condition, and McAdam at once began to consider how to effect reforms. At his own expense he began at Sauhrie, despite much opposition, a series of experiments in road-making. In 1798 he removed to Falmouth, where he had received a government appointment, and continued his experiments there. His general conclusion was that roads should be constructed of broken stone (see Roads). In 1815, having been appointed surveyor-general of the Bristol roads, he was able to put his theories into practice. In 1819 he published a *Practical Essay on the Scientific Repair and Preservation of Roads*, followed, in 1820, by the *Present State of Road-making*. As the result of a parliamentary inquiry in 1823 into the whole question of road-making, his views were adopted by the public authorities, and in 1827 he was appointed general surveyor of roads. In pursuing his investigations he had travelled over thirty thousand miles of road and expended over £5000. Parliament recouped him for his expenses and gave him a handsome gratuity, but he declined a proffered knighthood. He died at Moffat, Dumfriesshire, on the 26th of November 1836.

MACAIRE, a French *chanson de geste*. *Macaire* (12th century) and *La reine Sibille* (14th century) are two versions of the story of the false accusation brought against the queen of Charlemagne, called Blanchefleur in *Macaire* and Sibille in the later poem. *Macaire* is only preserved in the Franco-Venetian *geste* of Charlemagne (Bibl. St Mark MS. fr. xiii.). *La Reine Sibille* only exists in fragments, but the tale is given in the chronicle of Alberic Trium Fontium and in a prose version. *Macaire* is the product of the fusion of two legends: that of the unjustly repudiated wife and that of the dog who detects the murderer of his master. For the former motive see Geneviève of Brabant. The second is found in Plutarch, *Script. moral.*, ed. Didot ii. (1186), where a dog, like Aubri's hound, stayed three days without food by the body of its master, and subsequently attacked the murderers, thus leading to their discovery. The duel between Macaire and the dog is paralleled by an interpolation by Giraldus Cambrensis in a MS. of the *Hexameron* of Saint Ambrose. Aubri's hound received the name of the "dog of Montargis," because a representation of the story was painted on a chimney-piece in the château of Montargis in the 15th century. The tale was early divorced from Carolingian tradition, and Jean de la Taille, in his *Discours notable des duels* (Paris, 1607), places the incident under Charles V.

See *Macaire* (Paris, 1866), ed. Guessard in the series of *Anc. poètes de la France*; P. Paris in *Hist. litt. de la France*, vol. xxiii. (1873); L. Gautier, *Épopées françaises*, vol. iii. (2nd ed., 1880); G. Paris, *Hist. poét. de Charlemagne* (1865); M. J. G. Isola, *Storie nerbonesi*, vol. i. (Bologna, 1877); F. Wolf, *Über die beiden ... Volksbücher von der K. Sibille u. Huon de Bordeaux* (Vienna, 1857) and *Über die neuesten Leistungen der Franzosen* (Vienna, 1833). *The Dog of Montargis*; or, *The Forest of Bondy*, imitated from the play of G. de Pixérécourt, was played at Covent Garden (Sept. 30, 1814).

"Robert Macaire" was the name given to the modern villain in the *Auberge des Adrets* (1823), a melodrama in which Frédérick Lemaître made his reputation. The type was sensibly modified in *Robert Macaire* (1834), a sequel written by Lemaître in collaboration with Benjamin Antier, and well-known on the English stage as *Macaire*. R. L. Stevenson and W. E. Henley used the same type in their play *Macaire*.

McALESTER, a city and the county-seat of Pittsburg county, Oklahoma, about 110 m. E.S.E. of Guthrie. Pop. (1900), 3479; (1907) 8144 (1681 negroes and 105 Indians); (1910) 12,954. McAlester is served by the Chicago, Rock Island & Pacific and the Missouri, Kansas & Texas railways and is an important railway junction; it is connected with the neighbouring mining district by an electric line. There are undeveloped iron deposits and rich coal-mines in the surrounding country, and coke-making is the principal manufacturing industry of the city. There is a fine Scottish Rite Masons' consistory and temple in McAlester. The city owns its waterworks. The vicinity was first settled in 1885. The city of South McAlester was incorporated in 1899, and in 1906 it annexed the town of McAlester and adopted its name.

MACALPINE (or Maccabeus), **JOHN** (d. 1557), Protestant theologian, was born in Scotland about the beginning of the 16th century, and graduated at some Scottish university. From 1532 to 1534 he was prior of the Dominican convent of Perth; but having in the latter year been summoned with Alexander Ales (*q.v.*) and others to answer for heresy before the bishop of

Ross, he fled to England, where he was granted letters of denization on the 7th of April 1537, and married Agnes Macheson, a fellow-exile for religion; her sister Elizabeth became the wife of Miles Coverdale. The reaction of 1539 made England a doubtful refuge, and on the 25th of November 1540 Macalpine matriculated at the university of Wittenberg. He had already graduated B.A. at Cologne, and in 1542 proceeded to his doctorate at Wittenberg. In that year, being now known as Maccabeus, he accepted Christian III.'s offer of the chair of theology at the university of Copenhagen, which had been endowed out of the spoils of the Church. Melanchthon spoke well of Macalpine, and with Peter Plade (Palladius), who had also studied at Wittenberg, Macalpine took a prominent part in building up the Lutheran Church of Denmark. A joint exposure by Plade and Macalpine of Osiander's errors was published in 1552 and reprinted at Leipzig and Copenhagen in 1768; and Macalpine was one of the four translators of Luther's German Bible into Danish. He also encouraged Sir David Lindsay, who visited him in 1548, to publish his *Monarchie*, and persuaded Christian III. to intercede with Queen Mary Tudor on behalf of Coverdale and invite him to Denmark. Macalpine died at Copenhagen on the 6th of December 1557.

See *Dict. Nat. Biog.* and authorities there cited; *Corpus reformatorum*, iii. (1066), iv. 771, 793; Foerstemann, *Album academiae vitebergensis* (1841), p. 186, and *Liber decanorum* (1838), p. 32; Rockwell, *Die Doppelehe des Landgrafen Philipp* (1904), pp. 114-116; *Letters and Papers of Henry VIII.* (1537), i. 1103 (12); (1542), pp. 46,218.

(A. F. P.)

MACAO (A-Ma-ngao, "Harbour of the goddess A-Ma"; Port. *Macau*), a Portuguese settlement on the coast of China, in 22° N., 132° E. Pop. (1896), Chinese, 74,568; Portuguese, 3898; other nationalities, 161—total, 78,627. It consists of a tongue of land 2½ m. in length and less than 1 m. in breadth, running S.S.W. from the island of Hiang Shang (Port. *Ançam*) on the western side of the estuary of the Canton River. Bold and rocky hills about 300 ft. high occupy both extremities of the peninsula, the picturesque city, with its flat-roofed houses painted blue, green and red, lying in the undulating ground between. The forts are effective additions to the general view, but do not add much to the strength of the place. Along the east side of the peninsula runs the Praya Grande, or Great Quay, the chief promenade in Macao, on which stand the governor's palace, the administrative offices, the consulates and the leading commercial establishments. The church of St Paul (1594-1602), the seat of the Jesuit college in the 17th century, was destroyed by fire in 1835. The Hospital da Misericordia (1569) was rebuilt in 1640. The Camoens grotto, where the exiled poet found leisure to celebrate the achievements of his ungrateful country, lies in a secluded spot to the north of the town, which has been partly left in its native wildness strewn with huge granite boulders and partly transformed into a fine botanical garden. During the south-west (summer) monsoon great quantities (67 in.) of rain fall, especially in July and August. The mean temperature is 74.3° F.; in July, the hottest month, the temperature is 84.2°; in February, the coldest, it is 59°. On the whole the climate is moist. Hurricanes are frequent. Of the Portuguese inhabitants more than three-fourths are natives of Macao—a race very inferior in point of physique to their European ancestors. Macao is connected with Hong-Kong by a daily steamer. Being open to the south-west sea breezes, it is a favourite place of resort from the oppressive heat of Hong-Kong. It is ruled by a governor, and, along with Timor (East Indies), constitutes a bishopric, to which belong also the Portuguese Christians in Malacca and Singapore. Though most of the land is under garden cultivation, the mass of the people is dependent more or less directly on mercantile pursuits; for, while the exclusive policy both of Chinese and Portuguese which prevented Macao becoming a free port till 1845-1846 allowed what was once the great emporium of European commerce in eastern Asia to be outstripped by its younger and more liberal rivals, the local, though not the foreign, trade of the place is still of very considerable extent. Since the middle of the 19th century, indeed, much of it has run in the most questionable channels; the nefarious coolie traffic gradually increased in extent and in cruelty from about 1848 till it was prohibited in 1874, and much of the actual trade is more or less of the nature of smuggling. The commodities otherwise mostly dealt in are opium, tea, rice, oil, raw cotton, fish and silk. The total value of exports and imports was in 1876-1877 upwards of £1,536,000. In 1880 it had increased to £2,259,250, and in 1898 to £3,771,615. Commercial intercourse is most intimate with Hong-Kong, Canton, Batavia and Goa. The preparation and packing of tea is the principal industry in the town. In fishing a large number of boats and men are employed.

In 1557 the Portuguese were permitted to erect factories on the peninsula, and in 1573 the Chinese built across the isthmus the wall which still cuts off the barbarian from the rest of the island. Jesuit missionaries established themselves on the spot; and in 1580 Gregory XIII. constituted a bishopric of Macao. A senate was organized in 1583, and in 1628 Jeronimo de Silveira became first royal governor of Macao. Still the Portuguese remained largely under the control of the Chinese, who had never surrendered their territorial rights and maintained their authority by means of mandarins—these insisting that even European criminals should be placed in their hands. Ferreira do Amaral, the Portuguese governor, put an end to this state of things in 1849, and left the Chinese officials no more authority in the peninsula than the representatives of other foreign nations; and, though his antagonists procured his assassination (Aug. 22), his successors succeeded in carrying out his policy.

Although Macao is de facto a colonial possession of Portugal, the Chinese government persistently refused to recognize the claim of the Portuguese to territorial rights, alleging that they were merely lessees or tenants at will, and until 1849 the Portuguese paid to the Chinese an annual rent of £71 per annum. This diplomatic difficulty prevented the conclusion of a commercial treaty between China and Portugal for a long time, but an arrangement for a treaty was come to in 1887 on the following basis: (1) China confirmed perpetual occupation and government of Macao and its dependencies by Portugal; (2) Portugal engaged never to alienate Macao and its dependencies without the consent of China; (3) Portugal engaged to co-operate in opium revenue work at Macao in the same way as Great Britain at Hong-Kong. The formal treaty was signed in the same year, and arrangements were made whereby the Chinese imperial customs were able to collect duties on vessels trading with Macao in the same way as they had already arranged for their collection at the British colony of Hong-Kong. For a short time in 1802, and again in 1808, Macao was occupied by the English as a precaution against seizure by the French.

MACAQUE, a name of French origin denoting the monkeys of the mainly Asiatic genus *Macacus*, of which one species, the Barbary ape, inhabits North Africa and the rock of Gibraltar. Displaying great variability in the length of the tail, which is reduced to a mere tubercle in the Barbary ape, alone representing the subgenus *Inuus*, macaques are heavily-built monkeys, with longer muzzles than their compatriots the langurs (see PRIMATES), and large naked callosities on the buttocks. They range all over India and Ceylon, thence northward to Tibet, and eastwards to China, Japan, Formosa, Borneo, Sumatra and Java; while by some naturalists the black ape of Celebes (*Cynopithecus niger*) is included in the same genus. Mention of some of the more important species, typifying distinct sub-generic groups, is made in the article PRIMATES. Like most other monkeys, macaques go about in large troops, each headed by an old male. They feed on seeds, fruits, insects, lizards, &c.; and while some of the species are largely terrestrial, the Barbary ape is wholly so. Docile and easily tamed when young, old males of many of the species become exceedingly morose and savage in captivity.

(R. L.*)

MACARONI (from dialectic Ital. *maccare*, to bruise or crush), a preparation of a glutinous wheat originally peculiar to Italy, where it is an article of food of national importance. The same substance in different forms is also known as *vermicelli*, *pasta* or Italian pastes, *spaghetti*, *taglioni*, *fanti*, &c. These substances are prepared from the hard, semi-translucent varieties of wheat which are largely cultivated in the south of Europe, Algeria and other warm regions, and distinguished by the Italians as *grano duro* or *grano da semolino*. These wheats are much richer in gluten and other nitrogenous compounds than the soft or tender wheats of more northern regions, and their preparations are more easily preserved. The various preparations are met with as fine thin threads (vermicelli), thin sticks and pipes (spaghetti, macaroni), small lozenges, stars, disks, ellipses, &c. (pastes). These various forms are prepared in a uniform manner from a granular product of hard wheat, which, under the name of semolina or middlings, is a commercial article. The semolina is thoroughly mixed with boiling water and incorporated in a kneading machine, such as is used in bakeries, into a stiff paste or dough. It is then further kneaded by passing frequently between rollers or under edge runners, till a homogeneous mass has been produced which is placed in a strong steam-jacketed cylinder, the lower end of which is closed with a thick disk pierced with openings corresponding with the diameter or section of the article to be made. Into this cylinder an accurately fitting plunger or piston is introduced and subjected to very great pressure, which causes the stiff dough to squeeze out through the openings in the disk in continuous threads, sticks or pipes, as the case may be. Vermicelli is cut off in short bundles and laid on trays to dry, while macaroni is dried by hanging it in longer lengths over wooden rods in stoves or heated apartments through which currents of air are driven. It is only genuine macaroni, rich in gluten, which can be dried in this manner; spurious fabrications will not bear their own weight, and must, therefore, be laid out flat to be dried. In making pastes the cylinder is closed with a disk pierced with holes having the sectional form of the pastes, and a set of knives revolving close against the external surface of the disk cut off the paste in thin sections as it exudes from each opening. True macaroni can be distinguished by observing the flattened mark of the rod over which it has been dried within the bend of the tubes; it has a soft yellowish colour, is rough in texture, elastic and hard, and breaks with a smooth glassy fracture. In boiling it swells up to double its original size without becoming pasty or adhesive. It can be kept any length of time without alteration or deterioration; and it is on that account, in many circumstances, a most convenient as well as a highly nutritious and healthful article of food.

MACARONICS, a species of burlesque poetry, in which words from a modern vernacular, with Latin endings, are introduced into Latin verse, so as to produce a ridiculous effect. Sometimes Greek is used instead of Latin. Tisi degli Odassi issued a *Carmen macaronicum de Patavinis* in 1490. The real founder of the practice, however, was Teofilo Folengo (1491-1544), whose mock-heroic *Liber Macaronices* appeared in 1517. Folengo (*q.v.*) was a Benedictine monk, who escaped from his monastery and wandered through Italy, living a dissolute life, and supporting himself by his absurd verses, which he described as an attempt to produce in literature something like macaroni, a gross, rude and rustic mixture of flour, cheese and butter. He wrote under the pseudonym of Merlinus Coccaius, and his poem is an elaborate burlesque epic, in twenty-five books, or *macaronea*; it is an extraordinary medley of chivalrous feats, ridiculous and squalid adventures, and satirical allegory. Its effect upon the mind of Rabelais was so extraordinary that no examination of *Pantagruel* can be complete without a reference to it (cf. *Gargantua*, i. 19). It was immediately imitated in Italy by a number of minor poets; and in France a writer whose real name was Antoine de la Sablé, but who called himself Antonius de Arena (d. 1544), published at Avignon in 1573 a *Meygra entrepriza*, which was a burlesque account of Charles V.'s disastrous campaign in Provence. Folengo in Italy and Arena in France are considered as the macaronic classics. In the 17th century, Joannes Caecilius Frey (1580-1631) published a *Recitus veritabilis*, on a skirmish between the vine-growers of Rueil and the bowmen of Paris. Great popularity was achieved later still by an anonymous macaronic, entitled *Funestissimus trepassus Micheli Morini*, who died by falling off the branch of an elm-tree:—

> De branche in brancham degringolat, et faciens pouf
> Ex ormo cadit, et clunes obvertit Olympo.

Molière employed macaronic verse in the ceremonial scene with the doctors in *Le Malade imaginaire*. Works in macaronic prose are rarer. An *Anti-Clopinus* by Antony Hotman may be mentioned and the amusing *Epistolae obscurorum virorum* (1515). Macaronic prose was not unknown as an artifice of serious oratory, and abounds (*e.g.*) in the sermons of Michel Menot (1440-1518), who says of the prodigal son, *Emit sibi pulcheras caligas d'écarlate, bien tirées*.

The use of true macaronics has never been frequent in Great Britain, where the only prominent example of it is the *Polemo-Middinia* ascribed to William Drummond of Hawthornden. This short epic was probably composed early in the 17th century, but was not published until 1684. The *Polemo-Middinia* follows the example set by Arena, and describes with burlesque solemnity a quarrel between two villages on the Firth of Forth. Drummond shows great ingenuity in the tacking on of Latin terminations to his Lowland Scots vernacular:—

> Lifeguardamque sibi saevas vocat improba lassas,
> Maggaeam, magis doctam milkare cowaeas,
> Et doctam sweepare flooras, et sternere beddas,
> Quaeque novit spinnare, et longas ducere threedas.

There is a certain macaronic character about many poems of Skelton and Dunbar, as well as the famous *Barnabae itinerarium* (1638) of Richard Brathwait (1588-1673), but these cannot be considered legitimate specimens of the type as laid down by Folengo.

See Ch. Nodier, *Du Langage factice appelé macaronique* (1834); Genthe, *Histoire de la poésie macaronique* (1831).

(E. G.)

MACARSCA (Serbo-Croatian, *Makarska*), the chief town of an administrative district in Dalmatia, Austria; situated

opposite to the island of Brazza, about 32 m. S.E. of Spalato. Pop. (1900), of town 1805; of commune, 11,016, chiefly Serbo-Croatian. Macarsca is a port of call for the Austrian Lloyd steamers, and has a brisk trade in wine, grain and fruit. Under the name of *Mocrum*, Macarsca was a thriving Roman city, and a bishopric until 639, when it was destroyed by the Avars. In the 10th century it is mentioned by Constantine Porphyrogenitus as a city of the pagan Narentines. Its bishopric was revived in 1320, but the bishops resided at Almissa. In 1481 the city was purchased from the duke of Herzegovina by Venice; in 1499 it was conquered by the Turks; and in 1646, after a successful revolt, it again welcomed the sovereignty of Venice. The see of Macarsca was merged in that of Spalato in 1830.

MACARTNEY, GEORGE MACARTNEY, Earl (1737-1806), was descended from an old Scottish family, the Macartneys of Auchinleck, who had settled in 1649 at Lissanoure, Antrim, Ireland, where he was born on the 14th of May 1737. After graduating at Trinity College, Dublin, in 1759, he became a student of the Temple, London. Through Stephen Fox, elder brother of C. J. Fox, he was taken up by Lord Holland. Appointed envoy extraordinary to Russia in 1764, he succeeded in negotiating an alliance between England and that country. After occupying a seat in the English parliament, he was in 1769 returned for Antrim in the Irish parliament, in order to discharge the duties of chief secretary for Ireland. On resigning this office he was knighted. In 1775 he became governor of the Caribbee Islands (being created an Irish baron in 1776), and in 1780 governor of Madras, but he declined the governor-generalship of India, and returned to England in 1786. After being created Earl Macartney in the Irish peerage (1792), he was appointed the first envoy of Britain to China. On his return from a confidential mission to Italy (1795) he was raised to the English peerage as a baron in 1796, and in the end of the same year was appointed governor of the newly acquired territory of the Cape of Good Hope, where he remained till ill health compelled him to resign in November 1798. He died at Chiswick, Middlesex, on the 31st of May 1806, the title becoming extinct, and his property, after the death of his widow (daughter of the 3rd earl of Bute), going to his niece, whose son took the name.

An account of Macartney's embassy to China, by Sir George Staunton, was published in 1797, and has been frequently reprinted. The *Life and Writings of Lord Macartney*, by Sir John Barrow, appeared in 1807. See Mrs Helen Macartney Robbins's biography, *The First English Ambassador to China* (1908), based on previously unpublished materials in possession of the family.

MACASSAR (Makassar, Mangkasar), the capital of a district of the same name in the island of Celebes, Dutch East Indies, and the chief town of the Dutch government of Celebes. Pop. 17,925 (940 Europeans, 2618 Chinese, 168 Arabs). It stands on the west coast of the southern peninsula of the island, near the southern extremity of the Macassar Strait, which separates Celebes from Borneo. Macassar consists of the Dutch town and port, known as Vlaardingen, and the Malay town which lies inland. Macassar's trade amounts to about £1,250,000 annually, and consists mainly of coffee, trepang, copra, gums, spices and valuable timber.

For the Macassar people and for the Strait, see Celebes. "Macassar oil" is a trade name, not geographical: see Antimacassar.

MACAULAY, THOMAS BABINGTON MACAULAY, Baron (1800-1859), English historian, essayist and politician, was born at Rothley Temple, Leicestershire, on the 25th of October 1800. His father, Zachary Macaulay (1768-1838), had been governor of Sierra Leone, and was in 1800 secretary to the chartered company which had founded that colony; an ardent philanthropist, he did much to secure the abolition of the slave trade, and he edited the abolitionist organ, the *Christian Observer*, for many years. Happy in his home, the son at a very early age gave proof of a determined bent towards literature. Before he was eight years of age he had written a *Compendium of Universal History*, which gave a tolerably connected view of the leading events from the creation to 1800, and a romance in the style of Scott, in three cantos, called *The Battle of Cheviot*. A little later he composed a long poem on the history of Olaus Magnus, and a vast pile of blank verse entitled *Fingal, a Poem in Twelve Books*. After being at a private school, in October 1818 young Macaulay went to Trinity College, Cambridge, where he afterwards became a fellow. He gained in 1824 a college prize for an essay on the character of William III. He also won a prize for Latin declamation and a Craven scholarship, and wrote the prize poems of 1819 and 1821.

In 1826 Macaulay was called to the bar and joined the northern circuit. But he soon gave up even the pretence of reading law, and spent many more hours under the gallery of the house of commons than in the court. His first attempt at a public speech, made at an anti-slavery meeting in 1824, was described by the *Edinburgh Review* as "a display of eloquence of rare and matured excellence." His first considerable appearance in print was in No. 1 of Knight's *Quarterly Magazine*, a periodical which enjoyed a short but brilliant existence, and which was largely supported by Eton and Cambridge. In August 1825 began Macaulay's connexion with the periodical which was to prove the field of his literary reputation. The *Edinburgh Review* was at this time at the height of its power, not only as an organ of the growing opinion which leant towards reform, but as a literary tribunal from which there was no appeal. His essay on Milton (Aug. 1825), so crude that the author afterwards said that "it contained scarcely a paragraph such as his matured judgment approved," created for him at once a literary reputation which suffered no diminution to the last, a reputation which he established and confirmed, but which it would have been hardly possible to make more conspicuous. The publisher John Murray declared that it would be worth the copyright of *Childe Harold* to have Macaulay on the staff of the *Quarterly Review*, and Robert Hall, the orator, writhing with pain, and well-nigh worn out with disease, was discovered lying on the floor employed in learning by aid of grammar and dictionary enough Italian to enable him to verify the parallel between Milton and Dante.

This sudden blaze of popularity, kindled by a single essay, is partly to be explained by the dearth of literary criticism in England at that epoch. For, though a higher note had already been sounded by Hazlitt and Coleridge, it had not yet taken hold of the public mind, which was still satisfied with the feeble appreciations of the *Retrospective Review*, or the dashing and damnatory improvisation of Wilson in *Blackwood* or Jeffrey in the *Edinburgh*. Still, allowance being made for the barbarous partisanship of the established critical tribunals of the period, it seems surprising that a social success so signal should have been the consequence of a single article. The explanation is that the writer of the article on Milton was, unlike most authors, also a brilliant conversationalist. There has never been a period when an amusing talker has not been in great demand at

London tables; but when Macaulay made his debut witty conversation was studied and cultivated as it has ceased to be in the more busy age which has succeeded. At the university Macaulay had been recognized as pre-eminent for inexhaustible talk and genial companionship among a circle of such brilliant young men as Charles Austin, Romilly, Praed and Villiers. He now displayed these gifts on a wider theatre. Launched on the best that London had to give in the way of society, Macaulay accepted and enjoyed with all the zest of youth and a vigorous nature the opportunities opened for him. He was courted and admired by the most distinguished personages of the day. He was admitted at Holland House, where Lady Holland listened to him with deference, and scolded him with a circumspection which was in itself a compliment. Samuel Rogers spoke of him with friendliness and to him with affection. He was treated with almost fatherly kindness by "Conversation" Sharp.

Thus distinguished, and justifiably conscious of his great powers, Macaulay began to aspire to a political career. But the shadow of pecuniary trouble early began to fall upon his path. When he went to college his father believed himself to be worth £100,000. But commercial disaster overtook the house of Babington & Macaulay, and the son now saw himself compelled to work for his livelihood. His Trinity fellowship of £300 a year became of great consequence to him, but it expired in 1831; he could make at most £200 a year by writing; and a commissionership of bankruptcy, which was given him by Lord Lyndhurst in 1828, and which brought him in about £400 a year, was swept away, without compensation, by the ministry which came into power in 1830. Macaulay was reduced to such straits that he had to sell his Cambridge gold medal.

In February 1830 the doors of the House of Commons were opened to him through what was then called a "pocket borough." Lord Lansdowne, who had been struck by two articles on James Mill and the Utilitarians, which appeared in the *Edinburgh Review* in 1829, offered the author the seat at Calne. The offer was accompanied by the express assurance that the patron had no wish to interfere with Macaulay's freedom of voting. He thus entered parliament at one of the most exciting moments of English domestic history, when the compact phalanx of reactionary administration which for nearly fifty years had commanded a crushing majority in the Commons was on the point of being broken by the growing strength of the party of reform. Macaulay made his maiden speech on the 5th of April 1830, on the second reading of the Bill for the Removal of Jewish Disabilities. In July the king died and parliament was dissolved; the revolution took place in Paris. Macaulay, who was again returned for Calne, visited Paris, eagerly enjoying a first taste of foreign travel. On the 1st of March 1831 the Reform Bill was introduced, and on the second night of the debate Macaulay made the first of his reform speeches. It was, like all his speeches, a success. Sir Robert Peel said of it that "portions were as beautiful as anything I have ever heard or read."

Encouraged by this first success, Macaulay now threw himself with ardour into the life of the House of Commons, while at the same time he continued to enjoy to the full the social opportunities which his literary and political celebrity had placed within his reach. He dined out almost nightly, and spent many of his Sundays at the suburban villas of the Whig leaders, while he continued to supply the *Edinburgh Review* with articles. On the triumph of Earl Grey's cabinet, and the passing of the Reform Act in June 1832, Macaulay, whose eloquence had signalized every stage of the conflict, became one of the commissioners of the board of control, and applied himself to the study of Indian affairs. Giving his days to India and his nights to the House of Commons, he could only devote a few hours to literary composition by rising at five when the business of the house had allowed of his getting to bed in time on the previous evening. Between September 1831 and December 1833 he furnished the *Review* with eight important articles, besides writing his ballad on the Armada.

In the first Reform Parliament, January 1833, Macaulay took his seat as one of the two members for Leeds, which up to that date had been unrepresented in the House of Commons. He replied to O'Connell in the debate on the address, meeting the great agitator face to face, with high, but not intemperate, defiance. In July he defended the Government of India Bill in a speech of great power, and he was instrumental in getting the bill through committee without unnecessary friction. When the abolition of slavery came before the house as a practical question, Macaulay had the prospect of having to surrender office or to vote for a modified abolition, viz. twelve years' apprenticeship, which was proposed by the ministry, but condemned by the abolitionists. He was prepared to make the sacrifice of place rather than be unfaithful to the cause to which his father had devoted his life. He placed his resignation in Lord Althorp's hands, and spoke against the ministerial proposal. But the sense of the house was so strongly expressed as unfavourable that, finding they would be beaten if they persisted, the ministry gave way, and reduced apprenticeship to seven years, a compromise which the abolition party accepted; and Macaulay remained at the board of control.

While he was thus growing in reputation, and advancing his public credit, the fortunes of the family were sinking, and it became evident that his sisters would have no provision except such as their brother might be enabled to make for them. Macaulay had but two sources of income, both of them precarious—office and his pen. As to office, the Whigs could not have expected at that time to retain power for a whole generation; and, even while they did so, Macaulay's resolution that he would always give an independent vote made it possible that he might at any moment find himself in disagreement with his colleagues, and have to quit his place. As to literature, he wrote to Lord Lansdowne (1833), "it has been hitherto merely my relaxation; I have never considered it as the means of support. I have chosen my own topics, taken my own time, and dictated my own terms. The thought of becoming a bookseller's hack, of spurring a jaded fancy to reluctant exertion, of filling sheets with trash merely that sheets may be filled, of bearing from publishers and editors what Dryden bore from Tonson and what Mackintosh bore from Lardner, is horrible to me." Macaulay was thus prepared to accept the offer of a seat in the supreme council of India, created by the new India Act. The salary of the office was fixed at £10,000, out of which he calculated to be able to save £30,000 in five years. His sister Hannah accepted his proposal to accompany him, and in February 1834 the brother and sister sailed for Calcutta.

Macaulay's appointment to India occurred at the critical moment when the government of the company was being superseded by government by the Crown. His knowledge of India was, when he landed, but superficial. But at this juncture there was more need of statesmanship directed by general liberal principles than of a practical knowledge of the details of Indian administration. Macaulay's presence in the council was of great value; his minutes are models of good judgment and practical sagacity. The part he took in India has been described as "the application of sound liberal principles to a government which had till then been jealous, close and repressive." He vindicated the liberty of the press; he maintained the equality of Europeans and natives before the law; and as president of the committee of public instruction he inaugurated the system of national education.

A clause in the India Act 1833 occasioned the appointment of a commission to inquire into the jurisprudence of the Eastern dependency. Macaulay was appointed president of that commission. The draft of a penal code which he submitted became, after a revision of many years, and by the labour of many experienced lawyers, the Indian criminal code. Of this code Sir James Stephen said that "it reproduces in a concise and even beautiful form the spirit of the law of England, in a compass which by comparison with the original may be regarded as almost absurdly small. The Indian penal code is to the English criminal law what a manufactured article ready for use is to the materials out of which it is made. It is to the French code pénal, and to the German code of 1871, what a finished picture is to a sketch. It is simpler and better expressed than Livingston's code for Louisiana; and its practical success has been complete."

Macaulay's enlightened views and measures drew down on him, however, the abuse and ill-will of Anglo-Indian society. Fortunately for himself he was enabled to maintain a tranquil indifference to political detraction by withdrawing his thoughts into a sphere remote from the opposition and enmity by which he was surrounded. Even amid the excitement of his early parliamentary successes literature had balanced politics in his thoughts and interests. Now in his exile he began to feel more strongly each year the attraction of European letters and European history. He wrote to his friend Ellis: "I have gone back to Greek literature with a passion astonishing to myself. I have never felt anything like it. I was enraptured with Italian during the six months which I gave up to it; and I was little less pleased with Spanish. But when I went back to the Greek I felt as if I had never known before what intellectual enjoyment was." In thirteen months he read through, some of them twice, a large part of the Greek and Latin classics. The fascination of these studies produced their inevitable effect upon his view of political

life. He began to wonder what strange infatuation leads men who can do something better to squander their intellect, their health and energy, on such subjects as those which most statesmen are engaged in pursuing. He was already, he says, "more than half determined to abandon politics and give myself wholly to letters, to undertake some great historical work, which may be at once the business and the amusement of my life, and to leave the pleasures of pestiferous rooms, sleepless nights, and diseased stomachs to Roebuck and to Praed."

In 1838 Macaulay and his sister Hannah, who had married Charles Trevelyan in 1834, returned to England. He at once entered parliament as member for Edinburgh. In 1839 he became secretary at war, with a seat in the cabinet in Lord Melbourne's ministry. His acceptance of office diverted him for a time from prosecuting the plan he had already formed of a great historical work. But in less than two years the Melbourne ministry fell. In 1842 appeared his *Lays of Ancient Rome*, and in the next year he collected and published his *Essays*. He returned to office in 1846, in Lord John Russell's administration, as paymaster-general. His duties were very light, and the contact with official life and the obligations of parliamentary attendance were even of benefit to him while he was engaged upon his *History*. In the sessions of 1846-1847 he spoke only five times, and at the general election of July 1847 he lost his seat for Edinburgh. The balance of Macaulay's faculties had now passed to the side of literature. At an earlier date he had relished crowds and the excitement of ever new faces; as years went forward, and absorption in the work of composition took off the edge of his spirits, he recoiled from publicity. He began to regard the prospect of business as worry, and had no longer the nerve to brace himself to the social efforts required of one who represents a large constituency.

Macaulay retired into private life, not only without regret, but with a sense of relief. He gradually withdrew from general society, feeling the bore of big dinners and country-house visits, but he still enjoyed close and constant intercourse with a circle of the most eminent men that London then contained. At that time social breakfasts were in vogue. Macaulay himself preferred this to any other form of entertainment. Of these brilliant reunions nothing has been preserved beyond the names of the men who formed them—Rogers, Hallam, Sydney Smith, Lord Carlisle, Lord Stanhope, Nassau Senior, Charles Greville, Milman, Panizzi, G. C. Lewis, Van de Weyer. His biographer thus describes Macaulay's appearance and bearing in conversation: "Sitting bolt upright, his hands resting on the arms of his chair, or folded over the handle of his walking-stick, knitting his eyebrows if the subject was one which had to be thought out as he went along, or brightening from the forehead downwards when a burst of humour was coming, his massive features and honest glance suited well with the manly sagacious sentiments which he set forth in his sonorous voice and in his racy and intelligible language. To get at his meaning people had never the need to think twice, and they certainly had seldom the time."

But, great as was his enjoyment of literary society and books, they only formed his recreation. In these years he was working with unflagging industry at the composition of his *History*. His composition was slow, his corrections both of matter and style endless; he spared no pains to ascertain the facts. He sacrificed to the prosecution of his task a political career, House of Commons fame, the allurements of society. The first two volumes of the *History of England* appeared in December 1848. The success was in every way complete beyond expectation. The sale of edition after edition, both in England and the United States, was enormous.

In 1852, when his party returned to office, he refused a seat in the cabinet, but he could not bring himself to decline the compliment of a voluntary amende which the city of Edinburgh paid him in returning him at the head of the poll at the general election in July of that year. He had hardly accepted the summons to return to parliamentary life before fatal weakness betrayed itself in deranged action of the heart; from this time forward till his death his strength continued steadily to sink. The process carried with it dejection of spirits as its inevitable attendant. The thought oppressed him that the great work to which he had devoted himself would remain a fragment. Once again, in June 1853, he spoke in parliament, and with effect, against the exclusion of the master of the rolls from the House of Commons, and at a later date in defence of competition for the Indian civil service. But he was aware that it was a grievous waste of his small stock of force, and that he made these efforts at the cost of more valuable work.

In November 1855 vols. iii. and iv. of the *History* appeared and obtained a vast circulation. Within a generation of its first appearance upwards of 140,000 copies of the *History* were printed and sold in the United Kingdom alone; and in the United States the sales were on a correspondingly large scale. The *History* was translated into German, Polish, Danish, Swedish, Hungarian, Russian, Bohemian, Italian, French, Dutch and Spanish. Flattering marks of respect were heaped upon the author by foreign academies. His pecuniary profits were (for that time) on a scale commensurate with the reputation of the book: the cheque he received for £20,000 has become a landmark in literary history.

In May 1856 he quitted the Albany, in which he had passed fifteen happy years, and went to live at Holly Lodge, Campden Hill, then, before it was enlarged, a tiny bachelor's dwelling, but with a lawn whose unbroken slope of verdure gave it the air of a considerable country house. In the following year (1857) he was raised to the peerage by the title of Baron Macaulay of Rothley. "It was," says Lady Trevelyan, "one of the few things that everybody approved; he enjoyed it himself, as he did everything, simply and cordially." It was a novelty in English life to see eminence which was neither that of territorial opulence nor of political or military services recognized and rewarded by elevation to the peerage.

But Macaulay's health, which had begun to give way in 1852, was every year visibly failing. In May 1858 he went to Cambridge for the purpose of being sworn in as high steward of the borough, to which office he had been elected on the death of Earl Fitzwilliam. When his health was given at a public breakfast in the town-hall he was obliged to excuse himself from speaking. In the upper house he never spoke. Absorbed in the prosecution of his historical work, he had grown indifferent to the party politics of his own day. Gradually he had to acquiesce in the conviction that, though his intellectual powers remained unimpaired, his physical energies would not carry him through the reign of Anne; and, though he brought down the narrative to the death of William III., the last half-volume wants the finish and completeness of the earlier portions. The winter of 1859 told on him, and he died on the 28th of December. On the 9th of January 1860 he was buried in Westminster Abbey, in Poets' Corner, near the statue of Addison.

Lord Macaulay never married. A man of warm domestic affections, he found their satisfaction in the attachment and close sympathy of his sister Hannah, the wife of Sir Charles Trevelyan. Her children were to him as his own. Macaulay was a steadfast friend, and no act inconsistent with the strictest honour and integrity was ever imputed to him. When a poor man, and when salary was of consequence to him, he twice resigned office rather than make compliances for which he would not have been severely blamed. In 1847, when his seat in parliament was at stake, he would not be persuaded to humour, to temporize, even to conciliate. He had a keen relish for the good things of life, and desired fortune as the means of obtaining them; but there was nothing mercenary or selfish in his nature. When he had raised himself to opulence, he gave away with an open hand, not seldom rashly. His very last act was to write a letter to a poor curate enclosing a cheque for £25. The purity of his morals was not associated with any tendency to cant.

The lives of men of letters are often records of sorrow or suffering. The life of Macaulay was eminently happy. Till the closing years (1857-1859), he enjoyed life with the full zest of healthy faculty, happy in social intercourse, happy in the solitude of his study, and equally divided between the two. For the last fifteen years of his life he lived for literature. His writings were remunerative to him far beyond the ordinary measure, yet he never wrote for money. He lived in his historical researches; his whole heart and interest were unreservedly given to the men and the times of whom he read and wrote. His command of literature was imperial. Beginning with a good classical foundation, be made himself familiar with the imaginative, and then with the historical, remains of Greece and Rome. He went on to add the literature of his own country, of France, of Italy, of Spain. He learnt Dutch enough for the purposes of his history. He read German, but for the literature of the northern nations he had no taste, and of the erudite labours of the Germans he had little knowledge and formed an inadequate estimate. The range of his survey of human things had other limitations more considerable still. All philosophical speculation was alien to his

mind; nor did he seem aware of the degree in which such speculation had influenced the progress of humanity. A large—the largest—part of ecclesiastical history lay outside his historical view. Of art he confessed himself ignorant, and even refused a request to furnish a critique on Swift's poetry to the *Edinburgh Review*. Lessing's *Laocoon*, or Goethe's criticism on Hamlet, "filled" him "with wonder and despair."

Of the marvellous discoveries of science which were succeeding each other day by day he took no note; his pages contain no reference to them. It has been told already how he recoiled from the mathematical studies of his university. These deductions made, the circuit of his knowledge still remains very wide—as extensive perhaps as any human brain is competent to embrace. His literary outfit was as complete as has ever been possessed by any English writer; and, if it wants the illumination of philosophy, it has an equivalent resource in a practical acquaintance with affairs, with administration, with the interior of cabinets, and the humour of popular assemblies. Nor was the knowledge merely stored in his memory; it was always at his command. Whatever his subject, he pours over it his stream of illustration, drawn from the records of all ages and countries. His *Essays* are not merely instructive as history; they are, like Milton's blank verse, freighted with the spoils of all the ages. As an historian Macaulay has not escaped the charge of partisanship. He was a Whig; and in writing the history of the rise and triumph of Whig principles in the latter half of the 17th century he identified himself with the cause. But the charge of partiality, as urged against Macaulay, means more than that he wrote the history of the Whig revolution from the point of view of those who made it. When he is describing the merits of friends and the faults of enemies his pen knows no moderation. He has a constant tendency to glaring colours, to strong effects, and will always be striking violent blows. He is not merely exuberant but excessive. There is an overweening confidence about his tone; he expresses himself in trenchant phrases, which are like challenges to an opponent to stand up and deny them. His propositions have no qualifications. Uninstructed readers like this assurance, as they like a physician who has no doubt about their case. But a sense of distrust grows upon the more circumspect reader as he follows page after page of Macaulay's categorical affirmations about matters which our own experience of life teaches us to be of a contingent nature. We inevitably think of a saying attributed to Lord Melbourne: "I wish I were as cocksure of any one thing as Macaulay is of everything." Macaulay's was the mind of the advocate, not of the philosopher; it was the mind of Bossuet, which admits no doubts or reserves itself and tolerates none in others, and as such was disqualified from that equitable balancing of evidence which is the primary function of the historian.

Macaulay, the historian no less than the politician, is, however, always on the side of justice, fairness for the weak against the strong, the oppressed against the oppressor. But though a Liberal in practical politics, he had not the reformer's temperament. The world as it is was good enough for him. The glories of wealth, rank, honours, literary fame, the elements of vulgar happiness, made up his ideal of life. A successful man himself, every personage and every cause is judged by its success. "The brilliant Macaulay," says Emerson, "who expresses the tone of the English governing classes of the day, explicitly teaches that 'good' means good to eat, good to wear, material commodity." Macaulay is in accord with the average sentiment of orthodox and stereotyped humanity on the relative values of the objects and motives of human endeavour. And this commonplace materialism is one of the secrets of his popularity, and one of the qualities which guarantee that that popularity will be enduring.

(M. P.)

Macaulay's whole works were collected in 1866 by his sister, Lady Trevelyan, in 8 vols. The first four volumes are occupied by the *History*; the next three contain the *Essays*, and the *Lives* which he contributed to the *Encyclopaedia Britannica*. In vol. viii. are collected his *Speeches*, the *Lays of Ancient Rome*, and some miscellaneous pieces. The "life" by Dean Milman, printed in vol. viii. of the edition of 1858-1862, is prefixed to the "People's Edition" (4 vols., 1863-1864). Messrs. Longmans, Green & Co. published a complete edition, the "Albany," in 12 vols., in 1898. There are numerous editions of the *Critical and Historical Essays*, separately and collectively; they were edited in 1903 by F. C. Montagu.

The *Life and Letters of Lord Macaulay* (2 vols., 1876), by his nephew, Sir George Otto Trevelyan, is one of the best biographies in the English language. The life (1882) in the "English Men of Letters" series was written by J. Cotter Morison. Far further criticism, see Hepworth Dixon, in his *Life of Penn* (1841); John Paget, *The New Examen: Inquiry into Macaulay's History* (1861) and *Paradoxes and Puzzles* (1874); Walter Bagehot, in the *National Review* (Jan. 1856), reprinted in his *Literary Studies* (1879); James Spedding, *Evenings with a Reviewer* (1881), discussing his essay on Bacon; Sir L. Stephen, *Hours in a Library*, vol. ii. (1892); Lord Morley, *Critical Miscellanies* (1877), vol. ii.; Lord Avebury, *Essays and Addresses* (1903); Thum, *Anmerkungen zu Macaulay's History of England* (Heilbronn, 1882). A bibliography of German criticism of Macaulay is given in G. Körting's *Grd. der engl. Literatur* (4th ed., Münster, 1905).

MACAW, or, as formerly spelt, Maccaw, the name given to some fifteen or more species of large, long-tailed birds of the parrot-family, natives of the neotropical region, and forming a very well-known and easily recognized genus *Ara*, and to the four species of Brazilian Hyacinthine macaws of the genera *Anodorhynchus* and *Cyanopsittacus*. Most of the macaws are remarkable for their gaudy plumage, which exhibits the brightest scarlet, yellow, blue and green in varying proportion and often in violent contrast, while a white visage often adds a very peculiar and expressive character.[1] With one exception the known species of *Ara* inhabit the mainland of America from Paraguay to Mexico, being especially abundant in Bolivia, where no fewer than seven of them (or nearly one half) have been found (*Proc. Zool. Soc.*, 1879, p. 634). The single extra-continental species, *A. tricolor,* is one of the most brilliantly coloured, and is peculiar to Cuba, where, according to Gundlach (*Ornitologia Cubana*, p. 126), its numbers are rapidly decreasing so that there is every chance of its becoming extinct.[2]

Of the best known species of the group, the blue-and-yellow macaw, *A. ararauna*, has an extensive range in South America from Guiana in the east to Colombia in the west, and southwards to Paraguay. Of large size, it is to be seen in almost every zoological garden, and it is very frequently kept alive in private houses, for its temper is pretty good, and it will become strongly attached to those who tend it. Its richly coloured plumage, sufficiently indicated by its common English name, supplies feathers eagerly sought by salmon-fishers for the making of artificial flies. The red-and-blue macaw, *A. macao*, is even larger and more gorgeously clothed, for, besides the colours expressed in its ordinary appellation, yellow and green enter into its adornment. It inhabits Central as well as South America as far as Bolivia, and is also a common bird in captivity, though perhaps less often seen than the foregoing. The red-and-yellow species, *A. chloroptera*, ranging from Panama to Brazil, is smaller, or at least has a shorter tail, and is not quite so usually met with in menageries. The red-and-green, *A. militaris*, smaller again than the last, is not unfrequent in confinement, and presents the colours of the name it bears. This has the most northerly extension of habitat, occurring in Mexico and thence southwards to Bolivia. In *A. manilata* and *A. nobilis* the prevailing colour is green and blue. The Hyacinthine macaws *A. hyacinthinus, A. leari, A. glaucus* and *Cyanopsittacus spixi* are almost entirely blue.

The macaws live well in captivity, either chained to a perch or kept in large aviaries in which their strong flight is noticeable. The note of these birds is harsh and screaming. The sexes are alike; the lustreless white eggs are laid in hollow trees, usually two at a time. The birds are gregarious but apparently monogamous.

(A. N.)

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1   This serves to separate the macaws from the long-tailed parakeets of the New World (*Conurus*), to which they are very nearly allied.

2   There is some reason to think that Jamaica may have formerly possessed a macaw (though no example is known to exist), and if so it

was most likely a peculiar species. Sloane (*Voyage*, ii. 297), after describing what he calls the "great maccaw" (*A. ararauna*), which he had seen in captivity in that island, mentions the "small maccaw" as being very common in the woods there, and P. H. Gosse (*Birds of Jamaica*, p. 260) gives, on the authority of Robinson, a local naturalist of the last century, the description of a bird which cannot be reconciled with any species now known, though it must have evidently been allied to the Cuban *A. tricolor*.

MACBETH, king of Scotland (d. 1058), was the son of Findlaech, *mormaer* or hereditary ruler of Moreb (Moray and Ross), who had been murdered by his nephews in 1020. He probably became mormaer on the death of Malcolm, one of the murderers, in 1029, and he may have been one of the chiefs (the Maclbaethe of the *Saxon Chronicle*) who submitted to Canute in 1031. Marianus records that in 1040 Duncan, the grandson and successor of Malcolm king of Scotland, was slain by Macbeth. Duncan had shortly before suffered a severe defeat at the hands of Thorfinn, the Norwegian earl of Orkney and Caithness, and it was perhaps this event which tempted Macbeth to seize the throne. As far as is known he had no claim to the crown except through his wife Gruach, who appears to have been a member of the royal family. Macbeth was apparently a generous benefactor to the Church, and is said to have made a pilgrimage to Rome in 1050. According to S. Berchan his reign was a time of prosperity for Scotland. The records of the period, however, are extremely meagre, and much obscurity prevails, especially as to his relations with the powerful earl Thorfinn. More than one attempt was made by members of the Scottish royal family to recover the throne; in 1045 by Crinan, the lay abbot of Dunkeld, son-in-law of Malcolm II., and in 1054 by Duncan's son Malcolm with the assistance of Siward the powerful earl of Northumbria, himself a connexion of the ousted dynasty. Three years later in 1057 Malcolm and Siward again invaded Scotland and the campaign ended with the defeat and death of Macbeth, who was slain at Lumphanan. Macbeth is, of course, chiefly famous as the central figure of Shakespeare's great tragedy.

See W. F. Skene, *Chronicles of the Picts and Scots* (1867) and *Celtic Scotland* (1876); Sir John Rhys, *Celtic Britain* (1904).

MACCABEES, the name (in the plural) of a distinguished Jewish family dominant in Jerusalem in the 2nd century B.C. According to 1 Macc. ii. 4, the name Maccabaeus (Gr. Μακκαβῖος-? Heb. מקבי) was originally the distinctive surname of Judas, third son of the Jewish priest Mattathias, who struck the first blow for religious liberty during the persecution under Antiochus IV. (Epiphanes). Subsequently, however, it obtained a wider significance, having been applied first to the kinsmen of Judas, then to his adherents, and ultimately to all champions of religion in the Greek period. Thus the mother of the seven brethren, whose martyrdom is related in 2 Macc. vi., vii., is called by early Christian writers "the mother of the Maccabees." The name is used still more loosely in the titles of the so-called Third, Fourth and Fifth Books of Maccabees. It is now customary to apply it only to the sons and descendants of Mattathias. As, however, according to Josephus (*Ant.* xii. 6. 1), this brave priest's great-great-grandfather was called Ḥasmon (*i.e.* "rich" = magnate; cf. Ps. lxviii. 31 [32]), the family is more correctly designated by the name of Hasmonaeans or Asmoneans (*q.v.*). This name Jewish authors naturally prefer to that of Maccabees; they also style 1 and 2 Macc. "Books of the Hasmonaeans."

If Maccabee (*maqqābi*) is the original form of the name, the most probable derivation is from the Aramaic *maqqābā* (Heb. מקבת, Judg. iv. 21, &c.) = "hammer." The surname "hammerer" might have been applied to Judas either as a distinctive title pure and simple or symbolically as in the parallel case of Edward I., "Scotorum *malleus*." Even if *māqqāba* does denote the ordinary workman's hammer, and not the great smith's hammer which would more fitly symbolize the impetuosity of Judas, this is not a fatal objection. The doubled *k* of the Greek form is decisive against (1) the theory that the name Maccabee was made up of the initials of the opening words of Exod. xv. ii; (2) the derivation from מכבי = "extinguisher" (cf. Isa. xliii. 17), based by Curtiss (*The Name Machabee*, Leipzig, 1876) on the Latin spelling Machabaeus = Μακκαβῖος, which Jerome probably adopted in accordance with the usage of the times.

The Maccabaean revolt was caused by the attempt of Antiochus IV. (Epiphanes), king of Syria (175-164 B. C.), to force Hellenism upon Judaea (see SELEUCID DYNASTY; HELLENISM). Ever since the campaigns of Alexander the Great, Greek habits and ideas had been widely adopted in Palestine. Over the higher classes especially Hellenism had cast its spell. This called forth the organized opposition of the Ḥasīdīm (= "the pious"), who constituted themselves champions of the Law. Joshua, who headed the Hellenistic faction, graecized his name into Jason, contrived to have the high-priesthood taken from his brother Onias III., and conferred upon himself, and set up a gymnasium hard by the Temple. After three years' tenure of office Jason was supplanted by the Benjamite Menelaus, who disowned Judaism entirely. Antiochus punished an outburst of strife between the rivals by plundering the Temple and slaying many of the inhabitants (170 B. C.). Two years later Jerusalem was devastated by his general Apollonius, and a Syrian garrison occupied the citadel (Akra). The Jews were ordered under pain of death to substitute for their own observances the Pagan rites prescribed for the empire generally. In December 168 sacrifice was offered to Zeus upon an idol altar ("the abomination of desolation," Dan. x. 27) erected over the great altar of burnt-offering. But Antiochus had miscalculated, and by his extreme measures unwittingly saved Judaism from its internal foes. Many hellenizers rallied round those who were minded to die rather than abjure their religion. The issue of an important edict ordaining the erection of heathen altars in every township of Palestine, and the appointment of officers to deal with recusants, brought matters to a crisis. At Modin, Mattathias, an aged priest, not only refused to offer the first sacrifice, but slew an apostate Jew who was about to step into the breach. He also killed the king's commissioner and pulled down the altar. Having thus given the signal for rebellion, he then with his five sons took to the mountains. In view of the ruthless slaughter of a thousand sabbatarians in the wilderness, Mattathias and his friends decided to resist attack even on the sabbath. Many, including the Ḥasīdīm, thereupon flocked to his standard, and set themselves to revive Jewish rites and to uproot Paganism from the land. In 166 Mattathias died, after charging his sons to give their lives for their ancestral faith, and nominating Judas Maccabaeus as their leader in the holy campaign.

The military genius of Judas made this the most stirring chapter in Israelitish history. In quick succession he overthrew the Syrian generals Apollonius, Seron and Gorgias, and after the regent Lysias had shared the same fate at his hands he restored the Temple worship (165). These exploits dismayed his opponents and kindled the enthusiasm of his friends. When, however, Lysias returned in force to renew the contest, Judas had to fall back upon the Temple mount, and escaped defeat only because the Syrian leader was obliged to hasten back to Antioch in order to prevent a rival from seizing the regency. Under these circumstances Lysias unexpectedly guaranteed to the Jews their religious freedom (162). But though they had thus gained their end, the struggle did not cease; it merely assumed a new phase. The Ḥasīdīm indeed were satisfied, and declined to fight longer, but the Maccabees determined not to desist until their nation was politically as well as religiously free. In 161 Judas defeated Nicanor at Adasa, but within a few weeks thereafter, in a heroic struggle against superior numbers under Bacchides at Elasa, he was himself cut off. Even this, however, did not prove fatal to the cause which Judas had espoused. If in his brother Jonathan it did not possess so brilliant a soldier, it had in him an astute diplomatist who knew how to exploit the

internal troubles of Syria. In the contest between Demetrius I. and Alexander Balas for the throne, Jonathan supported the latter, who in 153 nominated him high priest, and conferred on him the order of "King's Friend," besides other honours. After the accession of Demetrius II. (145) Jonathan contrived to win his favour, and helped him to crush a rebellion in Antioch on condition that the Syrian garrisons should be withdrawn from Judaea. When, however, Demetrius failed to keep his word, Jonathan transferred his allegiance to Antiochus VI., whom Tryphon had crowned as king. After subjugating the territory between Jerusalem and Damascus, he routed the generals of Demetrius on the plain of Hazor. But as the Maccabees had now in the name of the Syrians cleared the Syrians out of Palestine, Tryphon's jealousy was aroused, and he resolved to be rid of Jonathan, who, with all his cunning, walked into a trap at Ptolemais, was made prisoner and ultimately slain (143). The leadership now devolved upon Simon, the last survivor of the sons of Mattathias. He soon got the better of Tryphon, who vainly tried to reach Jerusalem. Allying himself to Demetrius, Simon succeeded in negotiating a treaty whereby the political independence of Judaea was at length secured. The garrison in the Akra having been starved into submission, Simon triumphantly entered that fortress in May 142. In the following year he was by popular decree invested with absolute powers, being appointed leader, high priest and ethnarch. As these offices were declared hereditary in his family, he became the founder of the Hasmonaean dynasty. The first year of his reign (Seleucid year 170 = 143-142 B.C.) was made the beginning of a new era, and the issue of a Jewish coinage betokened the independence of his sovereignty. Under Simon's administration the country enjoyed signal prosperity. Its internal resources were assiduously developed; trade, agriculture, civic justice and religion were fostered; while at no epoch in its post-exilic history did Israel enjoy an equal measure of social happiness (I Macc. xiv. 4 seq.). Simon's beneficent activities came, however, to a sudden and tragic end. In 135 he and two of his sons were murdered by Ptolemy, his son-in-law, who had an eye to the supreme power. But Simon's third son, John Hyrcanus, warned in time, succeeded in asserting his rights as hereditary head of the state. All the sons of Mattathias had now died for the sake of "The Law"; and the result of their work, so valorously prosecuted for over thirty years, was a new-born enthusiasm in Israel for the ancestral faith. The Maccabaean struggle thus gave fresh life to the Jewish nation.

After the death of Antiochus VII. Sidetes in 128 left him a free hand, Hyrcanus (135-105) soon carved out for himself a large and prosperous kingdom, which, however, was rent by internal discord owing to the antagonism developed between the rival parties of the Pharisees and Sadducees. Hyrcanus was succeeded by his son Aristobulus, whose reign of but one year was followed by that of his brother, the warlike Alexander Jannaeus (104-78). The new king's Sadducean proclivities rendered him odious to the populace, which rose in revolt, but only to bring upon itself a savage revenge. The accession of his widow Salome Alexandra (78-69) witnessed a complete reversal of the policy pursued by Jannaeus, for she chose to rule in accordance with the ideals of the Pharisees. Her elder son, Hyrcanus II., a pliable weakling, was appointed high priest; her younger son, the energetic Aristobulus, who chafed at his exclusion from office, seized some twenty strongholds and with an army bore down upon Jerusalem. At this crisis Alexandra died, and Hyrcanus agreed to retire in favour of his masterful brother. A new and disturbing element now entered into Jewish politics in the person of the Idumaean Antipater, who for selfish ends deliberately made mischief between the brothers. An appeal to M. Aemilius Scaurus, who in 65 came into Syria as the legate of Pompey, led to the interference of the Romans, the siege of Jerusalem by Pompey, and the vassalage of the Jews (*q.v.*). Hyrcanus II. was appointed high priest and ethnarch, without the title of king (63). Repeated but fruitless attempts were made by the Hasmonaeans and their patriotic supporters to throw off the Roman yoke. In 47 Antipater, who curried favour with Rome, was made procurator of Judaea, and his sons Phasael and Herod governors of Jerusalem and Galilee respectively. Six years later the Idumaean brothers were appointed tetrarchs of Judaea. At length, in 40, the Parthians set up as king Antigonus, sole surviving son of Aristobulus. Thereupon Phasael committed suicide in prison, but Herod effected his escape and with the help of the Romans seated himself on the throne of Judaea (37 B.C.). Through the execution of Antigonus by M. Antonius (Mark Antony) the same year the Hasmonaean dynasty became extinct.

LITERATURE.—1 and 2 Macc. and Josephus are the main sources for the Maccabaean history. For references in classical authors see E. Schürer, *Geschichte des jüdischen Volkes* (1901, p 106 seq.). Besides the numerous modern histories of Israel (*e.g.* those by Dérenbourg, Ewald, Stanley, Stade, Renan, Schürer, Kent, Wellhausen, Guthe), see also Madden, *Coins of the Jews* (1881), H. Weiss's *Judas Makkabaeus* (1897), and the articles in the *Ency. Bib.*, Hastings's *Dict. Bible*, the *Jewish Encyclopedia*. Among more popular sketches are Moss's *From Malachi to Matthew* (1893); Streanes' *The Age of the Maccabees* (1898); Morrison's *The Jews under Roman Rule* ("Story of the Nations" series); W. Fairweather's *From the Exile to the Advent* (1901); E. R. Bevan's *Jerusalem under the High Priests* (1904); F. Henderson's *The Age of the Maccabees* (1907); also, articles JEWS; SELEUCID DYNASTY.

(W. F.*)

MACCABEES, BOOKS OF, the name given to several Apocryphal books of the Old Testament. The Vulgate contains two books of Maccabees which were declared canonical by the council of Trent (1546) and found a place among the Apocrypha of the English Bible. Three other books of this name are extant. Book iii. is included in the Septuagint but not in the Vulgate. Book iv. is embraced in the Alexandrian, Sinaitic, and other MSS. of the Septuagint, as well as in some MSS. of Josephus. A "Fifth" book is contained in the Ambrosian Peshitta, but it seems to be merely a Syriac reproduction of the sixth book of Josephus's history of the *Jewish War*. None of the books of Maccabees are contained in the Vatican (B); all of them are found in a Syriac recension.

1 Maccabees was originally written in Hebrew, but is preserved only in a Greek translation. Origen gives a transliteration of "its Semitic title,"[1] and Jerome says distinctly: "The First Book of Maccabees I found in Hebrew." The frequent Hebraisms which mark the Greek translation, as well as the fact that some obscure passages in the Greek text are best accounted for as mistranslations from the Hebrew, afford internal evidence of the truth of this testimony. There are good reasons for regarding the book as a unity, although some scholars (Destinon, followed by Wellhausen) consider the concluding chapters (xiii.-xvi.) a later addition unknown to Josephus, who, however, seems to have already used the Greek. It probably dates from about the beginning of the first century B.C.[2]

As it supplies a detailed and accurate record of the forty years from the accession of Antiochus Epiphanes to the death of Simon (175-135 B.C.), without doubt the most stirring chapter in Jewish history, the book is one of the most precious historical sources we possess. In its careful chronology, based upon the Seleucid era, in the minuteness of its geographical knowledge, in the frankness with which it records defeat as well as victory, on the restraint with which it speaks of the enemies of the Jews, in its command of details, it bears on its face the stamp of genuineness. Not that it is wholly free from error or exaggeration, but its mistakes are due merely to defective knowledge of the outside world, and its overstatements, virtually confined to the matter of numbers, proceed from a patriotic desire to magnify Jewish victories. While the author presumably had some written sources at his disposal,[3] his narrative is probably for the most part founded upon personal knowledge and recollection of the events recorded, and upon such first-hand information as, living in the second generation after, he would still be in a position to obtain. His sole aim is honestly to relate what he knew of the glorious struggles of his nation.

Although written in the style of the historical books of the old Testament, the work is characterized by a religious reticence which avoids even the use of the divine name, and by the virtual absence of the Messianic hope. The observance of the law is strongly urged, and the cessation of prophecy deplored (iv. 46; xiv. 41). There is no allusion either to the immortality of the soul or to the resurrection of the dead. The rewards to which the dying Mattathias points his sons are all for this life. Many scholars are of opinion that the unknown author was a Sadducee,[4] but all that can be said with certainty is that he was a

Palestinian Jew devotedly attached to the national cause.

> Until the council of Trent 1 Maccabees had only "ecclesiastical" rank, and although not accepted as canonical by the Protestant churches, it has always been held in high estimation. Luther says "it closely resembles the rest of the books of Holy Scripture, and would not be unworthy to be enumerated with them."

2 Maccabees, the epitome of a larger work in five books by one Jason of Cyrene, deals with the same history as its predecessor, except that it begins at a point one year earlier (176 B.C.), and stops short at the death of Nicanor (161 B.C.), thus covering a period of only fifteen years. First of all[5] the writer describes the futile attempt of Heliodorus to rob the Temple, and the malicious intrigues of the Benjamite Simon against the worthy high priest Onias III. (iii. i-iv. 6). As throwing light upon the situation prior to the Maccabaean revolt this section of the book is of especial value. Chapters iv. 7-vii. 42 contain a more detailed narrative of the events recorded in 1 Macc. i. 10-64. The remainder of the book runs parallel to 1 Macc, iii.-vii.

Originally written in excellent Greek, from a pronouncedly Pharisaic standpoint, it was possibly directed against the Hasmonaean dynasty. It shows no sympathy with the priestly class. Both in trustworthiness and in style it is inferior to 1 Macc. Besides being highly coloured, the narrative does not observe strict chronological sequence. Instead of the sober annalistic style of the earlier historian we have a work marked by hyperbole, inflated rhetoric and homiletic reflection. Bitter invective is heaped upon the national enemies, and strong predilection is shown for the marvellous. The fullness and inaccuracy of detail which are a feature of the book suggest that Jason's information was derived from the recollections of eye-witnesses orally communicated. In spite of its obvious defects, however, it forms a useful supplement to the first book.

The writer's interests are religious rather than historical. In 1 Macc, there is a keen sense of the part to be played by the Jews themselves, of the necessity of employing their own skill and valour; here they are made to rely rather upon divine intervention. Fantastic apparitions of angelic and supernatural beings, gorgeously arrayed and mostly upon horseback, are frequently introduced. In general, the views reflected in the book are those of the Pharisees. The ungodly will be punished mercilessly, and in exact correspondence to their sins.[6] The chastisements of erring Jews are of short duration, and intended to recall them to duty. If the faithful suffer martyrdom, it is in order to serve as an example to others, and they shall be compensated by being raised up "unto an eternal renewal of life." The eschatology of 2 Macc. is singularly advanced, for it combines the doctrine of a resurrection with that of immortality. It is worthy of note that the Roman Church finds support in this book for its teaching with reference to prayers for the dead and purgatory (xii. 43 seq.). An allusion to Jeremiah as "he who prayeth much for the people and the holy city" (xv. 14) it likewise appeals to as favouring its views respecting the intercession of the saints.

Neither of Jason's work, nor of the epitomizer's, can the precise date be determined. The changed relations with Rome (viii. 10, 36) prove, however, that the latter was written later than 1 Macc.; and it is equally clear that it was composed before the destruction of Jerusalem, A.D. 70.

> The account given of the martyrs in chs. vi. and vii. led to frequent allusions to this book in early patristic literature. Only Augustine, however, was minded to give it the canonical rank to which it has been raised by the Roman Church. Luther judged of it as unfavourably as he judged of 1 Macc, favourably, and even "wished it had never existed."

3 Maccabees, although purporting to be an historical narrative, is really an animated, if somewhat vapid, piece of fiction written in Greek somewhere between 100 B.C. and A.D. 70,[7] and apparently preserved only in part.[8] It has no connexion with the Hasmonaeans, but is a story of the deliverance experienced by the Egyptian Jews from impending martyrdom at the hand of Ptolemy IV. Philopator, who reigned in the century previous to the Maccabaean rising (222-205 B.C.). The title is of later origin, and rendered possible only by the generalization of the name Maccabee so as to embrace all who suffered for the ancestral faith. Josephus refers the legend on which it is based to the time of Ptolemy VII. Physcon (146-117 B.C.). Some scholars (Ewald, Reuss, Hausrath) think that what the story really points to is the persecution under Caligula, but in that case Ptolemy would naturally have been represented as claiming divine honours. No other source informs us of a visit to Jerusalem, or of a persecution of the Jews, on the part of Philopator. Possibly, however, the story may be founded on some historical situation regarding which we have no definite knowledge. The purpose of the writer was evidently to cheer his Egyptian brethren during some persecution at Alexandria. Although the book was favourably regarded in the Syrian, it was apparently unknown to the Latin Church. Among the Jews it was virtually ignored.

> Briefly, the tale is as follows:—After the battle of Raphia[9] (217 B.C.), Ptolemy IV. Philopator insisted on entering the sanctuary at Jerusalem, but was struck down by the Almighty in answer to the prayers of the horrified Jews. On his return to Egypt he revenged himself by curtailing the religious liberty of the Alexandrian Jews, and by depriving of their civic rights all who refused to worship Bacchus. Exasperated by their loyalty to their religion, the king ordered all the Jews in Egypt to be imprisoned in the hippodrome of Alexandria. Clerks were told off to prepare a list of the prisoners' names, but after forty days constant toil they had exhausted their writing materials without finishing their task. Ptolemy further commanded that 500 elephants should be intoxicated and let loose upon the occupants of the race-course. Only an accident prevented the carrying out of this design; the king had slept until it was past the time for his principal meal. On the following day, in virtue of a divinely induced forgetfulness, Ptolemy recollected nothing but the loyalty of the Jews to his throne. The same evening, nevertheless, he repeated his order for their destruction. Accordingly, on the morning of the third day, when the king attended to see his commands executed, things had reached a crisis. The Jews prayed to the Lord for mercy, and two angels appeared from heaven, to the confusion of the royal troops, who were trampled down by the elephants. Ptolemy now vented his wrath upon his counsellors, liberated the Jews, and feasted them for seven days. They determined that these should be kept as festal days henceforth in commemoration of their deliverance. The provincial governors were enjoined to take the Jews under their protection, and leave was given to the latter to slay those of their kinsmen who had deserted the faith. They further celebrated their deliverance at Ptolemais, where they built a synagogue, and they reached their various abodes to find themselves not only reinstated in their possessions, but raised in the esteem of the Egyptians.

4 Maccabees differs essentially from the other books of this name. While it does not itself aim at being a history, it makes striking use of Jewish history for purposes of edification. It bears, moreover, a distinctly philosophical character, and takes the form of a "tractate" or discourse, addressed to Jews only,[10] upon "the supremacy of pious reason over the passions." [11] The material is well arranged and systematically handled. In the prologue (i. 1-12) the writer explains the aim and scope of his work. Then follows the first main division (i. 13-iii. 18), in which he treats philosophically the proposition that reason is the mistress of the passions, inquiring what is meant by "reason" and what by "passion," as well as how many kinds of passion there are, and whether reason rules them all. The conclusion reached is that with the exception of forgetfulness and ignorance all the affections are under the lordship of reason, or at all events of *pious* reason. To follow the dictates of pious reason in opposition to natural inclination is to have learned the secret of victory over the passions. In the second part of the book (iii. 19-xviii. 5) the writer goes on to prove his thesis from Jewish history, dwelling in particular upon the noble stand made against the tyranny of Antiochus IV. Epiphanes by the priest Eleazar, the seven brothers and their mother—all of whom chose torture and death rather than apostatize from the faith. Finally he appeals to his readers to emulate these acts of piety (xvii. 7-xviii. 24). In his gruesome descriptions of physical sufferings the author offends against good taste even more than the writer of 2 Macc., while both contrast very unfavourably in this respect with the sober reserve of the gospel narratives.

The book is written in a cultured, if somewhat rhetorical, Greek style, and is unmistakably coloured by the Stoic philosophy. The four cardinal virtues are represented as forms of wisdom, which again is inseparable from the Mosaic law. That the writer owes no slavish adherence to any philosophical system is plain from his independent treatment of the affections. Although influenced by Hellenism, he is a loyal Jew, earnestly desirous that all who profess the same faith should adhere to it in spite of either Greek allurements or barbaric persecution. It is not to reason as such, but only to pious reason (*i.e.* to reason enlightened and controlled by the divine law), that he attributes lordship over the passions. While in his zeal for legalism he virtually adopts the standpoint of Pharisaism, he is at one with Jewish Hellenism in substituting belief in the soul's immortality

for the doctrine of a bodily resurrection.

The name of the author is unknown. He was, however, clearly a Hellenistic Jew, probably resident in Alexandria or Asia Minor. In the early Church the work was commonly ascribed to Josephus and incorporated with his writings. But apart from the fact that it is found also in several MSS. of the Septuagint, the language and style of the book are incompatible with his authorship. So also is the circumstance that 2 Macc., which forms the basis of 4 Macc., was unknown to Josephus. Moreover, several unhistorical statements (such as, *e.g.* that Seleucus was succeeded by his *son* Antiochus Epiphanes, iv. 15) militate against the view that Josephus was the author. The date of composition cannot be definitely fixed. It is, however, safe to say that the book must have been written later than 2 Macc., and (in view of the acceptance it met with in the Christian Church) prior to the destruction of Jerusalem. Most likely it is a product of the Herodian period.

5 Maccabees. Writing in 1566 Sixtus Senensis mentions having seen at Lyons a manuscript of a so-called "Fifth Book of Maccabees" in the library of Santas Pagninus, which was soon afterwards destroyed by fire. It began with the words: "After the murder of Simon, John his son became high priest in his stead." Sixtus conjectures that it may have been a Greek translation of the "chronicles" of John Hyrcanus, alluded to in 1 Macc., xvi. 24. He acknowledges that it is a history of Hyrcanus practically on the lines of Josephus, but concludes from its Hebraistic style that it was not from that writer's pen. The probability, however, is that it was "simply a reproduction of Josephus, the style being changed perhaps for a purpose" (Schürer).

The Arabic "Book of Maccabees" contained in the Paris and London Polyglotts, and purporting to be a history of the Jews from the affair of Heliodorus (186 B.C.) to the close of Herod's reign, is historically worthless, being nothing but a compilation from 1 and 2 Macc. and Josephus. In the one chapter (xii.) where the writer ventures to detach himself from these works he commits glaring historical blunders. The book was written in somewhat Hebraistic Greek subsequent to A.D. 70. In Cotton's English translation of *The Five Books of Maccabees* it is this book that is reckoned the "Fifth."

The best modern editions of the Greek text of the four books of Maccabees are those of O. F. Fritzsche (1871) and H. B. Swete (Cambridge Septuagint, vol. iii., 1894). C. J. Ball's *The Variorum Apocrypha* will be found specially useful by those who cannot conveniently consult the Greek. The best modern commentary is that of C. L. W. Grimm (1853-1857). C. F. Keil's commentary on 1 and 2 Macc. is very largely indebted to Grimm. More recently there have appeared commentaries by E. C. Bissell on 1, 2 and 3 Macc. in Lange-Schaff's commentary, 1880—the whole Apocrypha being embraced in one volume, and much of the material being transferred from Grimm; G. Rawlinson on 1 and 2 Macc. in the *Speaker's Commentary* 1888 (containing much useful matter, but marred by too frequent inaccuracy); O. Zöckler, on 1, 2 and 3 Macc., 1891 (slight and unsatisfactory); W. Fairweather and J. S. Black on 1 Macc. in the *Cambridge Bible for Schools* (1897); E. Kautzsch on 1 and 3 Macc., A. Kamphausen on 2 Macc. and A. Deissmann on 4 Macc. in *Die Apok. u. Pseudepigr. des Alt. Test.*, 1898 (a most serviceable work for the student of apocryphal literature). Brief but useful introductions to all the four books of Maccabees are given in E. Schürer's *Geschichte des Jüdischen Volkes im Zeitalter Jesu Christi* (3rd ed., 1898-1901; Eng. tr. of earlier edition, 1886-1890).

(W. F.*)

1   Σαρβὴθ Σαβαναιέλ (Sarbeth Sabanaiel). No satisfactory explanation of this title has yet been given from the Hebrew (see the commentaries). The book may, however, have been known to Origen only in an Aramaic translation, in which case, according to the happy conjecture of Dalman (*Gramm.* 6) the two words may have represented the Aramaic ספר בית חשמונאי ("book of the Hasmonaean house").

2   If the book is a unity, ch. xvi. 23 implies that it was written after the death of Hyrcanus which occurred in 105 B.C. On the other hand the friendly references to Rome in ch. viii. show that it must have been written before the siege of Jerusalem by Pompey in 63 B.C.

3   Cf. ix. 22, xi. 37, xiv. 18, 27.

4   See especially Geiger, *Urschrift und Uebersetzungen der Bibel*, 206 seq.

5   Prefixed to the book are two spurious letters from Palestinian Jews (i., ii. 18), having no real connexion with it, or even with one another, further than that they both urge Egyptian Jews to observe the Feast of the Dedication. Between these and the main narrative is inserted the writer's own preface, in which he explains the source and aim of his work (ii. 19-32).

6   iv. 38. 42; v. 9 seq.; ix. 5-18.

7   The date of composition can be only approximately determined. As the writer is acquainted with the Greek additions to Daniel (vi. 6), the first century B.C. forms the superior limit; and as the book found favour in the Eastern Church, the first century A.D. forms the inferior limit.

8   Apart from its abrupt commencement, the references in i. 2 to "the plot" as something already specified, and in ii. 25 to the king's "before-mentioned" companions, of whom, however, nothing is said in the previous section of the book, point to the loss of at least an introductory chapter.

9   The statements with reference to the war between Antiochus the Great and Ptolemy Philopator are in general agreement with those of the classical historians, and to this extent the tale may be said to have an historical setting. By Grimm (*Einl.* § 3), the observance of the two yearly festivals (vi. 26; vii. 19), and the existence of the synagogue at Ptolemais when the book was written, are viewed as the witness of tradition to the fact of some great deliverance. Fritzsche has well pointed out, however (art. "Makkabäer" in Schenkel's *Bibel-Lexicon*) that in the hands of Jewish writers of the period nearly every event of consequence has a festival attached to it.

10   Even if with Freudenthal we regard the work as a homily actually delivered to a Jewish congregation—and there are difficulties in the way of this theory, particularly the absence of a Biblical text—it was clearly intended for publication. It is essentially a book in the form of a discourse, whether it was ever orally delivered or not. So Deissmann in Kautzsch, *Die Apok. u. Pseudepigr. des A. T.* ii. 151.

11   Hence the title sometimes given to it: αὐτοκράτορος λογισμοῦ ("On the supremacy of reason"). It is also styled Μακκαβαίων δ᾽, Μακκαβαϊκόν, εἰς τοὺς Μακκαβαίους.

MacCARTHY, DENIS FLORENCE (1817-1882), Irish poet, was born in Dublin on the 26th of May 1817, and educated there and at Maynooth. His earlier verses appeared in *The Dublin Satirist*, and in 1843 he became a regular contributor of political verse to the recently founded *Nation*. He also took an active part in the Irish political associations. In 1846 he edited *The Poets and Dramatists of Ireland* and the *Book of Irish Ballads*. His collected *Ballads, Poems and Lyrics* (1850), including translations from nearly all the modern languages, took immensely with his countrymen on account of their patriotic ring. This was followed by *The Bellfounder* (1857), *Under-glimpses* and other poems (1857) and *The Early Life of Shelley* (1871). In 1853 he began a number of translations from the Spanish of Calderon's dramas, which won for him a medal from the Royal Spanish Academy. He had already been granted a civil list pension for his literary services. He died in Ireland on the 7th of April 1882.

M'CARTHY, JUSTIN (1830-   ), Irish politician, historian and novelist, was born in Cork on the 22nd of November 1830, and was educated at a school in that town. He began his career as a journalist, at the age of eighteen, in Cork. From 1853 to 1859 he was in Liverpool, on the staff of the *Northern Daily Times*, during which period he married (in March 1855) Miss Charlotte Allman. In 1860 he removed to London, as parliamentary reporter to the *Morning Star*, of which he became editor in 1864. He gave up his post in 1868, and, after a lecturing tour in the United States, joined the staff of the *Daily News* as leader-writer in 1870. In this capacity he became one of the most useful and respected upholders of the Liberal politics of the time. He lectured again in America in 1870-1871, and again in 1886-1887. He represented Co. Longford in Parliament as a Liberal and Home Ruler from 1879 to 1885; North Longford, 1885-1886; Londonderry, 1886-1892; and North Longford from 1892 to 1900. He was chairman of the Anti-Parnellites from the fall of C. S. Parnell in 1890 until January 1896; but his Nationalism was of a temperate and orderly kind, and though his personal distinction singled him out for the chairmanship during the party dissensions of this period, he was in no active sense the political leader. His real bent was towards literature. His earliest publications were novels, some of which, such as *A Fair Saxon* (1873), *Dear Lady Disdain* (1875), *Miss Misanthrope* (1878), *Donna Quixote* (1879), attained considerable popularity. His most important work is his *History of Our Own Times* (vols. i.-iv., 1879-1880; vol. v., 1897), which treats of the period between Queen Victoria's accession and her diamond jubilee. Easily and delightfully written, and on the whole eminently sane and moderate, these volumes form a brilliant piece of narrative from a Liberal standpoint. He also began a *History of the Four Georges* (1884-1901), of which the latter half was written by his son, Justin Huntly M'Carthy (b. 1860), himself the author of various clever novels, plays, poetical pieces and short histories. Justin M'Carthy, amongst other works, wrote biographies of Sir Robert Peel (1891), Pope Leo XIII. (1896) and W. E. Gladstone (1898); *Modern England* (1898); *The Reign of Queen Anne* (1902) and *Reminiscences* (2 vols., 1899).

McCHEYNE, ROBERT MURRAY (1813-1843), Scottish divine, was born at Edinburgh on the 21st of May 1813, was educated at the University and at the Divinity Hall of his native city, and held pastorates at Larbert, near Falkirk, and Dundee. A mission of inquiry among the Jews throughout Europe and in Palestine, and a religious revival at his church in Dundee, made him feel that he was being called to evangelistic rather than to pastoral work, but before he could carry out his plans he died, on the 25th of March 1843. McCheyne, though wielding remarkable influence in his lifetime, was still more powerful afterwards, through his *Memoirs and Remains*, edited by Andrew Bonar, which ran into far over a hundred English editions. Some of his hymns, *e.g.* "When this passing world is done," are well known.

See his *Life*, by J. C. Smith (1910).

McCLELLAN, GEORGE BRINTON (1826-1885), American soldier, was born in Philadelphia on the 3rd of December 1826. After passing two years (1840-1842) in the university of Pennsylvania, he entered the United States military academy, from which he graduated with high honours in July 1846. Sent as a lieutenant of engineers to the Mexican War, he took part in the battles under General Scott, and by his gallantry won the brevets of first-lieutenant at Contreras-Churubusco and captain at Chapultepec; he was afterwards detailed as assistant-instructor at West Point, and employed in explorations in the South-West and in Oregon. Promoted in 1855 captain of cavalry, he served on a military commission sent to Europe to study European armies and especially the war in the Crimea. On his return he furnished an able and interesting report, republished (1861) under the title of *Armies of Europe*. In 1856 he designed a saddle, which was afterwards well known as the McClellan. Resigning his commission in 1857, McClellan became successively chief engineer and vice-president of the Illinois Central railroad (1857-1860), general superintendent of the Mississippi & Ohio railroad, and, a little later, president of the eastern branch of the same, with his residence in Cincinnati. When the Civil War broke out he was, in April 1861, made major-general of three months' militia by the governor of Ohio; but General Scott's favour at Washington promoted him rapidly (May 14) to the rank of major-general, U.S.A., in command of the department of the Ohio. Pursuant to orders, on the 26th of May, McClellan sent a small force across the Ohio river to Philippi, dispersed the Confederates there early in June, and immensely aided the Union cause in that region by rapid and brilliant military successes, gained in the short space of eight days. These operations, though comparatively trivial as the Civil War developed, brought great results, in permanently dividing old Virginia by the creation of the state of West Virginia, and in presenting the first sharp, short and wholly successful campaign of the war.

Soon after the first Bull Run disaster he was summoned to Washington, and the Union hailed him as chieftain and preserver. Only thirty-four years old, and with military fame and promotion premature and quite in excess of positive experience, he reached the capital late in July and assumed command there. At first all was deference and compliance with his wishes. In November Scott retired that the young general might control the operations of the whole Union army. McClellan proved himself extraordinarily able as an organizer and trainer of soldiers. During the autumn, winter and spring he created the famous Army of the Potomac, which in victory and defeat retained to the end the impress of McClellan's work. But he soon showed petulance towards the civil authorities, from whom he came to differ concerning the political ends in view; and he now found severe critics, who doubted his capacity for directing an offensive war; but the government yielded to his plans for an oblique, instead of a direct, movement upon Richmond and the opposing army. At the moment of starting he was relieved as general-in-chief. By the 5th of April a great army was safely transported to Fortress Monroe, and other troops were sent later, though a large force was (much against his will) retained to cover Washington. McClellan laid slow siege to Yorktown, not breaking the thin line first opposed to him, but giving Johnston full time to reinforce and then evacuate the position. McClellan followed up the Confederate rearguard and approached Richmond, using White House on the Pamunkey as a base of supplies; this entailed a division of his forces on either bank of the Chickahominy. At Fair Oaks (Seven Pines) was fought on the 31st of May a bloody battle, ending the following day in a Confederate repulse. Johnston being severely wounded, Lee came to command on the Southern side. After a pause in the operations McClellan felt himself ready to attack at the moment when Lee, leaving a bare handful of men in the Richmond lines, despatched two-thirds of his entire force to the north of the Chickahominy to strike McClellan's isolated right wing. McClellan himself made little progress, and the troops beyond the Chickahominy were defeated after a strenuous defence; whereupon McClellan planned, and during the celebrated Seven Days' Battle triumphantly executed, a change of base to the James river. But the result was strategically a failure, and General Halleck, who was now general-in-chief, ordered the army to reinforce General Pope in central Virginia. The order was obeyed reluctantly.

Pope's disastrous defeats brought McClellan a new opportunity to retrieve his fame. Again in command of the Army of the

Potomac, he was sent with all available forces to oppose Lee, who had crossed the Potomac into Maryland early in September. McClellan advanced slowly and carefully, reorganizing his army as he went. The battle of South Mountain placed him in a position to attack Lee, and a few days later was fought the great battle of Antietam, in which Lee was worsted. But the Confederates safely recrossed the Potomac, and McClellan showed his former faults in a tardy pursuit. On the eve of an aggressive movement, which he was at last about to make, he was superseded by Burnside (Nov. 7). McClellan was never again ordered to active command, and the political elements opposed to the general policy of Lincoln's administration chose him as presidential candidate in 1864, on a platform which denounced the war as a failure and proposed negotiating with the South for peace. McClellan, while accepting his candidacy, repudiated the platform, like a soldier and patriot. At the polls on the 8th of November Lincoln was triumphantly re-elected president. McClellan had previously resigned his commission in the army, and soon afterwards went to Europe, where he remained until 1868. Upon his return he took up his residence in New York City, where (1868-1869) he was engaged in superintending the construction of an experimental floating battery. In 1870-1872 he was engineer-in-chief of the city's department of docks. With Orange, N.J., as his next principal residence, he became governor of New Jersey (1878-1881). During his term he effected great reforms in the administration of the state and in the militia. He was offered, but declined, a second nomination. During his last years he made several tours of Europe, visited the East, and wrote much for the magazines. He also prepared monographs upon the Civil War, defending his own action. He died suddenly of heart-disease on the 29th of October 1885 at Orange.

McClellan was a clear and able writer and effective speaker; and his *Own Story*, edited by a friend and published soon after his death, discloses an honourable character, sensitive to reproach, and conscientious, even morbidly so, in his patriotism. He carried himself well in civil life and was of irreproachable private conduct. During the Civil War, however, he was promoted too early and rapidly for his own good, and the strong personal magnetism he inspired while so young developed qualities injurious to a full measure of success and usefulness, despite his great opportunities. The reasons for his final displacement in 1862 were both civil and military, and the president had been forbearing with him. As a soldier he possessed to an extraordinary degree the enthusiastic affection of his men. With the army that he had created the mere rumour of his presence was often a spur to the greatest exertions. That he was slow, and perhaps too tender-hearted, in handling armed masses for action may be admitted, and though admirable for defensive war and a safe strategist, he showed himself unfitted to take the highly essential initiative, both because of temperament and his habitual exaggeration of obstacles and opposing numbers. But he met and checked the armies of the Confederacy when they were at their best and strongest, and his work laid the foundations of ultimate success.

His son, GEORGE BRINTON MCCLELLAN (b. 1865), graduated in 1886 at Princeton (from which he received the degree of LL.D. in 1905), and became a newspaper reporter and editor in New York City. He identified himself with the Tammany Hall organization, and in 1889-1892 was treasurer of the New York and Brooklyn Bridge under the city government. In 1892 he was admitted to the bar, and was elected to the board of aldermen, of which he was president in 1893 and 1894. In 1895-1903 he was a Democratic representative in Congress; in 1903 he was elected mayor of New York City on the Tammany ticket, defeating mayor Seth Low, the "Fusion" candidate; and in 1905 he was re-elected for a four-year term, defeating William M. Ivins (Republican) and William R. Hearst (Independence League). He published *The Oligarchy of Venice* (1904).

Besides the report mentioned above, General McClellan wrote a *Bayonet Exercise* (1852); *Report on Pacific Railroad Surveys* (1854); *Report on the Organization, &c., of the Army of the Potomac* (1864), a government publication which he himself republished with the addition of a memoir of the West Virginian campaign. He also wrote a series of articles on the Russo-Turkish War for *The North American Review*. See memoir prefaced to *McClellan's Own Story*, and Michie, *General McClellan* ("Great Commanders" series).

McCLERNAND, JOHN ALEXANDER (1812-1900), American soldier and lawyer, was born in Breckinridge county, Kentucky, on the 30th of May 1812. He was admitted to the bar in Shawneetown, Illinois, in 1832; in the same year served as a volunteer in the Black Hawk War, and in 1835 founded the *Shawneetown Democrat*, which he thereafter edited. As a Democrat he served in 1836 and in 1840-1843 in the Illinois House of Representatives, and in 1843-1851 and in 1859-1861 was a representative in Congress, where in his first term he vigorously opposed the Wilmot proviso, but in his second term was a strong Unionist and introduced the resolution of the 15th of July 1861, pledging money and men to the national government. He resigned from congress, raised in Illinois the "McClernand Brigade," and was commissioned (May 17, 1861) brigadier-general of volunteers. He was second in command at the battle of Belmont (Missouri) in November 1861, and commanded the right wing at Fort Donelson. On the 21st of March he became a major-general of volunteers. At Shiloh he commanded a division, which was practically a reserve to Sherman's. In October 1861 Stanton, secretary of war, ordered him north to raise troops for the expedition against Vicksburg; and early in January 1864, at Milliken's Bend, McClernand, who had been placed in command of one of the four corps of Grant's army, superseded Sherman as the leader of the force that was to move down the Mississippi. On the 11th of January he took Arkansas Post. On the 17th, Grant, after receiving the opinion of Admiral Foote and General Sherman that McClernand was unfit, united a part of his own troops with those of McClernand and assumed command in person, and three days later ordered McClernand back to Milliken's Bend. During the rest of this Vicksburg campaign there was much friction between McClernand and his colleagues; he undoubtedly intrigued for the removal of Grant; it was Grant's opinion that at Champion's Hill (May 16) he was dilatory; and because a congratulatory order to his corps was published in the press (contrary to an order of the department and another of Grant) he was relieved of his command on the 18th of June, and was replaced by General E. O. C. Ord. President Lincoln, who saw the importance of conciliating a leader of the Illinois War-Democrats, restored him to his command in 1864, but McClernand resigned in November of that year. He was district judge of the Sangamon (Illinois) District in 1870-1873, and was president of the National Democratic Convention in 1876. He died in Springfield, Illinois, on the 20th of September 1900.

His son, EDWARD JOHN MCCLERNAND (b. 1848), graduated at the U.S. Military Academy in 1870. He served on the frontier against the Indians, notably in the capture of Chief Joseph in October 1877, became lieutenant-colonel and assistant adjutant-general of volunteers in 1898, and served in Cuba in 1898-99. He was then ordered to the Philippines, where he commanded various districts, and from April 1900 to May 1901, when he was mustered out of the volunteer service, was acting military governor.

MACCLESFIELD, CHARLES GERARD, 1ST EARL OF (*c.* 1618-1694), eldest son of Sir Charles Gerard, was a member of an old Lancashire family, his great-grandfather having been Sir Gilbert Gerard (d. 1593) of Ince, in that county, one of the most distinguished judges in the reign of Elizabeth. His mother was Penelope Fitton of Gawsworth, Cheshire. Charles Gerard was educated abroad, and in the Low Countries learnt soldiering, in which he showed himself proficient when on the

outbreak of the Civil War in England he raised a troop of horse for the king's service. Gerard commanded a brigade with distinction at Edgehill, and gained further honours at the first battle of Newbury and at Newark in 1644, for which service he was appointed to the chief command in South Wales. Here his operations in 1644 and 1645 were completely successful in reducing the Parliamentarians to subjection; but the severity with which he ravaged the country made him personally so unpopular that when, after the defeat at Naseby in June 1645, the king endeavoured to raise fresh forces in Wales, he was compelled to remove Gerard from the local command. Gerard was, however, retained in command of the king's guard during Charles's march from Wales to Oxford, and thence to Hereford and Chester in August 1645; and having been severely wounded at Rowton Heath on the 23rd of September, he reached Newark with Charles on the 4th of October. On the 8th of November 1645 he was created Baron Gerard of Brandon in the county of Suffolk; but about the same time he appears to have forfeited Charles's favour by having attached himself to the party of Prince Rupert, with whom after the surrender of Oxford Gerard probably went abroad. He remained on the Continent throughout the whole period of the Commonwealth, sometimes in personal attendance on Charles II., at others serving in the wars under Turenne, and constantly engaged in plots and intrigues. For one of these, an alleged design on the life of Cromwell, his cousin Colonel John Gerard was executed in the Tower in July 1654. At the Restoration Gerard rode at the head of the king's life-guards in his triumphal entry into London; his forfeited estates were restored, and he received lucrative offices and pensions. In 1668 he retired from the command of the king's guard to make room for the duke of Monmouth, receiving, according to Pepys, the sum of £12,000 as solatium. On the 23rd of July 1679 Gerard was created earl of Macclesfield and Viscount Brandon. A few months later he entered into relations with Monmouth, and co-operated with Shaftesbury in protesting against the rejection of the Exclusion Bill. In September 1685, a proclamation having been issued for his arrest, Macclesfield escaped abroad, and was outlawed. He returned with William of Orange in 1688, and commanded his body-guard in the march from Devonshire to London. By William he was made a privy councillor, and lord lieutenant of Wales and three western counties. Macclesfield died on the 7th of January 1694. By his French wife he left two sons and two daughters.

His eldest son CHARLES, 2nd earl of Macclesfield (*c.* 1659-1701), was born in France and was naturalized in England by act of parliament in 1677. Like his father he was concerned in the intrigues of the duke of Monmouth; in 1685 he was sentenced to death for being a party to the Rye House plot, but was pardoned by the king. In 1689 he was elected member of parliament for Lancashire, which he represented till 1694, when he succeeded to his father's peerage. Having become a major-general in the same year, Macclesfield saw some service abroad; and in 1701 he was selected first commissioner for the investiture of the elector of Hanover (afterwards King George I.) with the order of the Garter, on which occasion he also was charged to present a copy of the Act of Settlement to the dowager electress Sophia. He died on the 5th of November 1701, leaving no legitimate children.

In March 1698 Macclesfield was divorced from his wife Anna, daughter of Sir Richard Mason of Sutton, by act of parliament, the first occasion on which a divorce was so granted without a previous decree of an ecclesiastical court. The countess was the mother of two children, who were known by the name of Savage, and whose reputed father was Richard Savage, 4th Earl Rivers (d. 1712). The poet Richard Savage (*q.v.*) claimed that he was the younger of these children. The divorced countess married Colonel Henry Brett about the year 1700, and died at the age of eighty-five in 1753. Her daughter Anna Margaretta Brett was a mistress of George I. The 2nd earl of Macclesfield was succeeded by his brother Fitton Gerard, 3rd earl (*c.* 1665-1702), on whose death without heirs the title became extinct in December 1702.

In 1721 the title of earl of Macclesfield was revived in favour of THOMAS PARKER (*c.* 1666-1732). The son of Thomas Parker, an attorney at Leek, young Parker was a student at Trinity College, Cambridge, and became a barrister in 1691. In 1705 he was elected member of parliament for Derby, and having gained some reputation in his profession, he took a leading part in the proceedings against Sacheverell in 1710. In the same year he was appointed lord chief justice of the queen's bench, but he refused to become lord chancellor in the following year; however he accepted this office in 1718, two years after he had been made Baron Parker of Macclesfield by George I., who held him in high esteem. In 1721 he was created Viscount Parker and earl of Macclesfield, but when serious charges of corruption were brought against him he resigned his position as lord chancellor in 1725. In the same year Macclesfield was impeached, and although he made a very able defence he was found guilty by the House of Lords. His sentence was a fine of £30,000 and imprisonment until this was paid. He was confined in the Tower of London for six weeks, and after his release he took no further part in public affairs. The earl, who built a grammar school at Leek, died in London on the 28th of April 1732.

Macclesfield's only son, GEORGE, (*c.* 1697-1764) 2nd earl of Macclesfield of this line, was celebrated as an astronomer. As Viscount Parker he was member of parliament for Wallingford from 1722 to 1727, but his interests were not in politics. In 1722 he became a fellow of the Royal Society, and he spent most of his time in astronomical observations at his Oxfordshire seat, Shirburn Castle, which had been bought by his father in 1716; here he built an observatory and a chemical laboratory. The earl was very prominent in effecting the change from the old to the new style of dates, which came into operation in 1752. His action in this matter, however, was somewhat unpopular, as the opinion was fairly general that he had robbed the people of eleven days. From 1752 until his death on the 17th of March 1764 Macclesfield was president of the Royal Society, and he made some observations on the great earthquake of 1755. His successor was his son Thomas (1723-1795), from whom the present earl is descended.

For the earls of the Gerard family see Lord Clarendon, *History of the Rebellion*, ed. by W. D. Macray; E. B. G. Warburton, *Memoirs of Prince Rupert and the Cavaliers* (3 vols., 1849); *State Papers of John Thurloe* (7 vols., 1742); J. R. Phillips, *Memoirs of the Civil War in Wales and the Marches, 1642-49* (2 vols., 1874); and the duke of Manchester, *Court and Society from Elizabeth to Anne* (2 vols., 1864). For Lord Chancellor Macclesfield, see Lord Campbell, *Lives of the Lord Chancellors and Keepers of the Great Seal* (1845-1869).

MACCLESFIELD, a market town and municipal borough in the Macclesfield parliamentary division of Cheshire, England, 166 m. N.W. by N. of London, on the London & North-Western, North Staffordshire and Great Central railways. Pop. (1901), 34,624. It lies on and above the small river Bollin, the valley of which is flanked by high ground to east and west, the eastern hills rising sharply to heights above 1000 ft. The bleak upland country retains its ancient name of Macclesfield Forest. The church of St Michael, standing high, was founded by Eleanor, queen of Edward I., in 1278, and in 1740 was partly rebuilt and greatly enlarged. The lofty steeple by which its massive tower was formerly surmounted was battered down by the Parliamentary forces during the Civil War. Connected with the Church there are two chapels, one of which, Rivers Chapel, belonged to a college of secular priests founded in 1501 by Thomas Savage, afterwards archbishop of York. Both the church and chapels contain several ancient monuments. The free grammar school, originally founded in 1502 by Sir John Percival, was refounded in 1552 by Edward VI., and a commercial school was erected in 1840 out of its funds. The county lunatic asylum is situated here. The town-hall is a handsome modern building with a Grecian frontage on two sides. Originally the trade of Macclesfield was principally in twist and silk buttons, but this has developed into the manufacture of all kinds of silk. Besides this staple trade, there are various textile manufactures and extensive breweries; while stone and slate quarries, as well as coal-mines, are worked in the neighbourhood. Recreation grounds include Victoria Park and Peel Park, in which are preserved the old market cross and stocks. Water communication is provided by the Macclesfield canal. The borough is under a mayor, 12 aldermen and 36 councillors. Area, 3214 acres. The populous suburb of SUTTON, extending S.S.E. of the town, is

partly included in the borough.

Previous to the Conquest, Macclesfield (Makesfeld, Mackerfeld, Macclesfeld, Meulefeld, Maxfield) was held by Edwin, earl of Mercia, and at the time of the Domesday Survey it formed a part of the lands of the earl of Chester. The entry speaks of seven hedged enclosures, and there is evidence of fortification in the 13th century, to which the names Jordangate, Chestergate and Wallgate still bear witness. In the 15th century Henry Stafford, duke of Buckingham, had a fortified manor-house here, traces of which remain. There is a tradition, supported by a reference on a plea roll, that Randle, earl of Chester (1181-1232) made Macclesfield a free borough, but the earliest charter extant is that granted by Edward, prince of Wales and earl of Chester, in 1261, constituting Macclesfield a free borough with a merchant gild, and according certain privileges in the royal forest of Macclesfield to the burgesses. This charter was confirmed by Edward III. in 1334, by Richard II. in 1389, by Edward IV. in 1466 and by Elizabeth in 1564. In 1595 Elizabeth issued a new charter to the town, confirmed by James I. in 1605 and Charles II. in 1666, laying down a formal borough constitution under a mayor, 2 aldermen, 24 capital burgesses and a high steward. In 1684 Charles II. issued a new charter, under which the borough was governed until the Municipal Reform Act 1835. The earliest mention of a market is in a grant by James I. to Charles, prince of Wales and earl of Chester, in 1617. In the charter of 1666 a market is included among the privileges confirmed to the borough as those which had been granted in 1605, or by any previous kings and queens of England. The charter of Elizabeth in 1595 granted an annual fair in June, and this was supplemented by Charles II. in 1684 by a grant of fairs in April and September. Except during the three winter months fairs are now held monthly, the chief being "Barnaby" in June, when the town keeps a week's holiday. Macclesfield borough sent two members to parliament in 1832 for the first time. In 1880 it was disfranchised for bribery, and in 1885 the borough was merged in the county division of Macclesfield. The manufacture of silk-covered buttons began in the 16th century, and flourished until the early 18th. The first silk mill was erected about 1755, and silk manufacture on a large scale was introduced about 1790. The manufacture of cotton began in Macclesfield about 1785.

See J. Corry, *History of Macclesfield* (1817).

M'CLINTOCK, SIR FRANCIS LEOPOLD (1819-1907), British naval officer and Arctic explorer, was born at Dundalk, Ireland, on the 8th of July 1819, of a family of Scottish origin. In 1831 he entered the royal navy, joining the "Samarang" frigate, Captain Charles Paget. In 1843 he passed his examination for lieutenancy and joined the "Gorgon" steamship, Captain Charles Hotham, which was driven ashore at Montevideo and salved, a feat of seamanship on the part of her captain and officers which attracted much attention. Hitherto, and until 1847, M'Clintock's service was almost wholly on the American coasts, but in 1848 he joined the Arctic expedition under Sir James Ross in search of Sir John Franklin's ships, as second lieutenant of the "Enterprise." In the second search expedition (1850) he was first lieutenant of the "Assistance," and in the third (1854) he commanded the "Intrepid." On all these expeditions M'Clintock carried out brilliant sleigh journeys, and gained recognition as one of the highest authorities on Arctic travel. The direction which the search should follow had at last been learnt from the Eskimo, and M'Clintock accepted the command of the expedition on board the "Fox," fitted out by Lady Franklin in 1857, which succeeded in its object in 1859 (see FRANKLIN, SIR JOHN). For this expedition M'Clintock had obtained leave of absence, but the time occupied was afterwards counted in his service. He was knighted and received many other honours on his return. Active service now occupied him in various tasks, including the important one of sounding in the north Atlantic, in connexion with a scheme for a north Atlantic cable route, until 1868. In that year he became naval aide-de-camp to Queen Victoria. In 1865 he had been elected a fellow of the Royal Society. He unsuccessfully contested a seat in parliament for the borough of Drogheda, where he made the acquaintance of Annette Elizabeth, daughter of R. F. Dunlop of Monasterboice; he married her in 1870. He became vice-admiral in 1877, and commander-in-chief on the West Indian and North American station in 1879. In 1882 he was elected an Elder Brother of Trinity House, and served actively in that capacity. In 1891 he was created K.C.B. He was one of the principal advisers in the preparations for the Antarctic voyage of the "Discovery" under Captain Scott. His book, *The Voyage of the "Fox" in the Arctic Seas*, was first published in 1859, and passed through several editions. He died on the 17th of November 1907.

See Sir C. R. Markham, *Life of Admiral Sir Leopold M'Clintock* (1909).

McCLINTOCK, JOHN (1814-1870), American Methodist Episcopal theologian and educationalist, was born in Philadelphia on the 27th of October 1814. He graduated at the university of Pennsylvania in 1835, and was assistant professor of mathematics (1836-1837), professor of mathematics (1837-1840), and professor of Latin and Greek (1840-1848) in Dickinson College, Carlisle, Pennsylvania. He opposed the Mexican War and slavery, and in 1847 was arrested on the charge of instigating a riot, which resulted in the rescue of several fugitive slaves; his trial, in which he was acquitted, attracted wide attention. In 1848-1856 he edited *The Methodist Quarterly Review* (after 1885 *The Methodist Review*); from 1857 to 1860 he was pastor of St Paul's (Methodist Episcopal) Church, New York City; and in 1860-1864 he had charge of the American chapel in Paris, and there and in London did much to turn public opinion in favour of the Northern States. In 1865-1866 he was chairman of the central committee for the celebration of the centenary of American Methodism. He retired from the regular ministry in 1865, but preached in New Brunswick, New Jersey, until the spring of 1867, and in that year, at the wish of its founder, Daniel Drew, became president of the newly established Drew theological seminary at Madison, New Jersey, where he died on the 4th of March 1870. A great preacher, orator and teacher, and a remarkably versatile scholar, McClintock by his editorial and educational work probably did more than any other man to raise the intellectual tone of American Methodism, and, particularly, of the American Methodist clergy. He introduced to his denomination the scholarly methods of the new German theology of the day—not alone by his translation with Charles E. Blumenthal of Neander's *Life of Christ* (1847), and of Bungener's *History of the Council of Trent* (1855), but by his great project, McClintock and Strong's *Cyclopaedia of Biblical, Theological and Ecclesiastical Literature* (10 vols., 1867-1881; Supplement, 2 vols., 1885-1887), in the editing of which he was associated with Dr James Strong (1822-1894), professor of exegetical theology in the Drew Theological Seminary from 1868 to 1893, and the sole editor of the last six volumes of the *Cyclopaedia* and of the supplement. With George Richard Crooks (1822-1897), his colleague at Dickinson College and in 1880-1897 professor of historical theology at Drew Seminary, McClintock edited several elementary textbooks in Latin and Greek (of which some were republished in Spanish), based on the pedagogical principle of "imitation and constant repetition." Among McClintock's other publications are: *Sketches of Eminent Methodist Ministers* (1863); an edition of Richard Watson's *Theological Institutes* (1851); and *The Life and Letters of Rev. Stephen Olin* (1854).

See G. R. Crooks, *Life and Letters of the Rev. Dr John McClintock* (New York, 1876).

McCLOSKEY, JOHN (1810-1885), American cardinal, was born in Brooklyn, New York, on the 20th of March 1810. He graduated at Mt St Mary's College, Emmitsburg, Maryland, in 1827, studied theology there, was ordained a priest in 1834, and in 1837, after two years in the college of the Propaganda at Rome, became rector of St Joseph's, New York City, a charge to which he returned in 1842 after one year's presidency of St John's College (afterwards Fordham University), Fordham, New York, then just opened. In 1844 he was consecrated bishop of Axieren *in partibus*, and was made coadjutor to Bishop Hughes of New York with the right of succession; in 1847 he became bishop of the newly created see of Albany; and in 1864 he succeeded to the archdiocese of New York, then including New York, New Jersey, and New England. In April 1875 he was invested as a cardinal, with the title of Sancta Maria supra Minervam, being the first American citizen to receive this dignity. He attended the conclave of 1878, but was too late to vote for the new pope. In May 1879 he dedicated St Patrick's Cathedral in New York City, whose corner-stone had been laid by Archbishop Hughes in 1858. Archbishop Corrigan became his coadjutor in 1880 because of the failure of McCloskey's always delicate health. The fiftieth anniversary of his ordination to the priesthood was celebrated in 1884. He died in New York City on the 10th of October 1885. He was a scholar, a preacher, and a man of affairs, temperamentally quiet and dignified; and his administration differed radically from that of Archbishop Hughes; he was conciliatory rather than polemic and controversial, and not only built up the Roman Catholic Church materially, but greatly changed the tone of public opinion in his diocese toward the Church.

M'CLURE, SIR ROBERT JOHN LE MESURIER (1807-1873), English Arctic explorer, born at Wexford, in Ireland, on the 28th of January 1807, was the posthumous son of one of Abercrombie's captains and spent his childhood under the care of his godfather, General Le Mesurier, governor of Alderney, by whom he was educated for the army. He entered the navy, however, in 1824, and twelve years later gained his first experience of Arctic exploration as mate of the "Terror" in the expedition (1836-1837) commanded by Captain (afterwards Sir) George Back. On his return he obtained his commission as lieutenant, and from 1838 to 1839 served on the Canadian lakes, being subsequently attached to the North American and West Indian naval stations, where he remained till 1846. Two years later he joined the Franklin search expedition (1848-1849) under Sir J. C. Ross as first lieutenant of the "Enterprise," and on the return of this expedition was given the command of the "Investigator" in the new search expedition (1850-1854) which was sent out by way of Bering Strait to co-operate with another from the north-west. In the course of this voyage he achieved the distinction of completing (1830) the work connected with the discovery of a North-West Passage (see Polar Regions). On his return to England, M'Clure was awarded gold medals by the English and French geographical societies, was knighted and promoted to post-rank, his commission being dated back four years in recognition of his special services. From 1856 to 1861 he served in Eastern waters, commanding the division of the naval brigade before Canton in 1858, for which he received a C.B. in the following year. His latter years were spent in a quiet country life; he attained the rank of rear-admiral in 1867, and of vice-admiral in 1873.

See Admiral Sherard Osborn, *The Discovery of a North-West Passage* (1856).

MacCOLL, MALCOLM (*c.* 1838-1907), British clergyman and publicist, was the son of a Scottish farmer. He was educated at Trinity College, Glenalmond, for the Scotch Episcopal ministry, and after further study at the university of Naples was ordained in 1859, and entered on a succession of curacies in the Church of England, in London and at Addington, Bucks. He quickly became known as a political and ecclesiastical controversialist, wielding an active pen in support of W. E. Gladstone, who rewarded him with the living of St George's, Botolph Lane, in 1871, and with a canonry of Ripon in 1884. The living was practically a sinecure, and he devoted himself to political pamphleteering and newspaper correspondence, the result of extensive European travel, a wide acquaintance with the leading personages of the day, strong views on ecclesiastical subjects from a high-church standpoint, and particularly on the politics of the Eastern Question and Mahommedanism. He took a leading part in ventilating the Bulgarian and Armenian "atrocities," and his combative personality was constantly to the fore in support of the campaigns of Gladstonian Liberalism. He died in London on the 5th of April 1907.

McCOMBIE, WILLIAM (1805-1880), Scottish agriculturist, was born at Tillyfour, Aberdeenshire, where he founded the herd of black-polled cattle with which his name is associated. He was the first tenant farmer to represent a Scottish constituency, and was returned to parliament, unopposed, as Liberal member for the western division of Aberdeen in 1868. He died unmarried in February 1880. His work *Cattle and Cattle-breeders* (1867) passed into a fourth edition in 1886.

McCOOK, ALEXANDER McDOWELL (1831-1903), American soldier, was born in Columbiana county, Ohio, on the 22nd of April 1831. He graduated at the U. S. military academy in 1852, served against the Apaches and Utes in New Mexico in 1853-57, was assistant instructor of infantry tactics at the military academy in 1858-1861, and in April 1861 became colonel of the 1st Ohio Volunteers. He served in the first battle of Bull Run; commanded a brigade in Kentucky in the winter of 1861, a division in Tennessee and Mississippi early in 1862, and the 1st Corps in Kentucky in October of the same year; was in

command of Nashville in November and December of that year; and was then engaged in Tennessee until after the battle of Chickamauga, after which he saw no active service at the front during the Civil War. He was promoted to be brigadier-general of volunteers in September 1861, and to be major-general of volunteers in July 1862, earned the brevet of lieutenant-colonel in the regular army at the capture of Nashville, Tennessee, that of colonel at Shiloh, and that of brigadier-general at Perryville, and in March 1865 was breveted major-general for his services during the war. In February-May 1865 he commanded the district of Eastern Arkansas. He resigned from the volunteer service in October 1865, was commissioned lieutenant-colonel of the 26th Infantry in March 1867, served in Texas, mostly in garrison duty, until 1874, and in 1886-1890 (except for brief terms of absence) commanded Fort Leavenworth, Kansas, and the infantry and cavalry school there. He became a brigadier-general in 1890, and a major-general in 1894; retired in 1895; and in 1898-1899 served on a commission to investigate the United States department of war as administered during the war with Spain.

His father, DANIEL McCOOK (1798-1863), killed at Buffington's Island during General John H. Morgan's raid in Ohio, and seven of his eight brothers (three of whom were killed in battle) all served in the Civil War; this family and that of John McCook (1806-1865), Daniel's brother, a physician, who served as a volunteer surgeon in the Civil War, are known as the "fighting McCooks"—four of John's sons served in the Union army and one in the Union navy.

JOHN JAMES McCOOK (b. 1845), the youngest brother of Alexander McDowell McCook, served in the West and afterwards in the army of the Potomac, was wounded at Shady Grove, Virginia, in 1864, and in 1865 was breveted lieutenant-colonel of volunteers; he graduated at Kenyon College in 1866, subsequently practised law in New York City, where he became head of the firm Alexander & Green; was a prominent member of the Presbyterian Church, and was a member of the prosecuting committee in the Briggs heresy trial in 1892-1893.

His cousin, ANSON GEORGE McCOOK (b. 1835), a son of John, was admitted to the Ohio bar in 1861, served throughout the Civil War in the Union Army, and was breveted brigadier-general of volunteers; he was a Republican representative in Congress from New York in 1877-1883; and in 1884-1893 was secretary of the United States Senate.

Another son of John McCook, EDWARD MOODY McCOOK (1833-1909), was an efficient cavalry officer in the Union army, was breveted brigadier-general in the regular army and major-general of volunteers in 1865, was United States minister to Hawaii in 1866-1869, and was governor of Colorado Territory in 1869-1873, and in 1874-1875.

His brother, HENRY CHRISTOPHER McCOOK (b. 1837), was first lieutenant and afterwards chaplain of the 41st Illinois, was long pastor of the Tabernacle Presbyterian Church in Philadelphia, and was president of the American Presbyterian Historical Society, but is best known for his popular and excellent works on entomology, which include: *The Mound-making Ants of the Alleghanies* (1877); *The Natural History of the Agricultural Ants of Texas* (1879); *Tenants of an Old Farm* (1884); *American Spiders and their Spinning-work* (3 vols., 1889-1893), *Nature's Craftsmen* (1907) and *Ant Communities* (1909).

Another brother, JOHN JAMES McCOOK (b. 1843), a cousin of the lawyer of the same name, was a 2nd lieutenant of volunteers in the Union army in 1861; graduated at Trinity College, Hartford, Connecticut, in 1863, and at the Berkeley divinity school in 1866; entered the Protestant Episcopal ministry in 1867, and in 1869 became rector of St John's, East Hartford, Connecticut; became professor of modern languages in Trinity College, Hartford, in 1883; in 1895-1897 was president of the board of directors of the Connecticut reformatory; and wrote on prison reform and kindred topics.

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MacCORMAC, SIR WILLIAM, BART. (1836-1901), Irish surgeon, was born at Belfast on the 17th of January 1836, being the son of Dr Henry MacCormac. He studied medicine and surgery at Belfast, Dublin and Paris, and graduated in arts, medicine and surgery at the Queen's University of Ireland, in which he afterwards became an examiner in surgery. He began practice in Belfast, where he became surgeon to the General Hospital, but left it for London on his marriage in 1861 to Miss Katherine M. Charters. In the Franco-German War of 1870 he was surgeon-in-chief to the Anglo-American Ambulance, and was present at Sedan; and he also went through the Turco-Servian War of 1876. He became in this way an authority on gun-shot wounds, and besides being highly successful as a surgeon was very popular in society, his magnificent physique and Irish temperament making him a notable and attractive personality. In 1881 he was appointed assistant-surgeon at St Thomas's Hospital, London, and for twenty years continued his work there as surgeon, lecturer and consulting surgeon. In 1881 he acted as honorary secretary-general of the International Medical Congress in London, and was knighted for his services. In 1883 he was elected member of the council of the College of Surgeons, and in 1887 a member of the court of examiners; in 1893 he delivered the Bradshaw lecture, and in 1896 was elected president, being re-elected to this office in 1897, 1898, 1899, and 1900 (the centenary year of the college), an unprecedented record. In 1897 he was created a baronet, and appointed surgeon-in-ordinary to the prince of Wales. In 1899 he was Hunterian Orator. In the same year he volunteered to go out to South Africa as consulting surgeon to the forces, and from November 1899 to April 1900 he saw much active service both in Cape Colony and Natal, his assistance being cordially acknowledged on his return. In 1901 he was appointed honorary serjeant-surgeon to the king. But during 1898 he had suffered from a prolonged illness, and he had perhaps put too much strain on his strength, for on the 4th of December 1901 he died somewhat suddenly at Bath. Besides treatises on *Surgical Operations* and *Antiseptic Surgery*, and numerous contributions to the medical journals, MacCormac was the author of *Work under the Red Cross* and of an interesting volume commemorating the centenary of the Royal College of Surgeons in 1900. The latter contains biographical notices of all the masters and presidents up to that date.

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McCORMICK, CYRUS HALL (1809-1884), American inventor of grain-harvesting machinery, was born at Walnut Grove, in what is now Roane county, W. Va., U.S.A., on the 15th of February 1809. His father was a farmer who had invented numerous labour-saving devices for farmwork, but after repeated efforts had failed in his attempts to construct a successful grain-cutting machine. In 1831, Cyrus, then twenty-two years old, took up the problem, and after careful study constructed a machine which was successfully employed in the late harvest of 1831 and patented in 1834. The McCormick reaper after further improvements proved a complete success; and in 1847 the inventor removed to Chicago, where he established large works for manufacturing his agricultural machines. William H. Seward has said of McCormick's invention, that owing to it "the line of civilization moves westward thirty miles each year." Numerous prizes and medals were awarded for his reaper, and he was elected a corresponding member of the French Academy of Sciences, "as having done more for the cause of agriculture than any other living man." He died in Chicago on the 13th of May 1884.

See Herbert N. Casson, *Cyrus Hall McCormick: his Life and Work* (Chicago, 1909).

McCOSH, JAMES (1811-1894), Scottish philosophical writer, was born of a Covenanting family in Ayrshire, on the 1st of April 1811. He studied at Glasgow and Edinburgh, receiving at the latter university his M.A., at the suggestion of Sir William Hamilton, for an essay on the Stoic philosophy. He became a minister of the Established Church of Scotland, first at Arbroath and then at Brechin, and took part in the Free Church movement of 1843. In 1852 he was appointed professor of logic and metaphysics in Queen's College, Belfast; and in 1868 was chosen president and professor of philosophy of the college of New Jersey, at Princeton. He resigned the presidency in 1888, but continued as lecturer on philosophy till his death on the 16th of November 1894. He was most successful in college administration, a good lecturer and an effective preacher. His general philosophical attitude and method were Hamiltonian; he insisted on severing religious and philosophical data from merely physical, and though he added little to original thought, he clearly restated and vigorously used the conclusions of others. In his controversial writings he often failed to understand the real significance of the views which he attacked, and much of his criticism is superficial.

His chief works are: *Method of Divine Government, Physical and Moral* (Edinburgh, 1850, 5th ed., 1856, and frequently republished in New York); *The Typical Forms and Special Ends in Creation* (Edinburgh, 1855; new editions, New York, 1867-1880); *Intuitions of the Mind inductively investigated* (London and New York, 1860; 3rd rev. ed., 1872); *An Examination of Mr J. S. Mill's Philosophy* (London and New York, 1866; enlarged 1871, several eds.); *Philosophical Papers* containing (1) "Examination of Sir W. Hamilton's Logic," (2) "Reply to Mr Mill's third edition," and (3) "Present State of Moral Philosophy in Britain;" *Religious Aspects of Evolution* (New York, 1888, 2nd ed., 1890). For a complete list of his writings see J. H. Dulles, *McCosh Bibliography* (Princeton, 1895).

McCOY, SIR FREDERICK (1823-1899), British palaeontologist, the son of Dr Simon McCoy, was born in Dublin in 1823, and was educated in that city for the medical profession. His interests, however, became early centred in natural history, and especially in geology, and at the age of eighteen he published a *Catalogue of Organic Remains* compiled from specimens exhibited in the Rotunda at Dublin (1841). He assisted Sir R. J. Griffith (*q.v.*) by studying the fossils of the carboniferous and silurian rocks of Ireland, and they prepared a joint *Synopsis of the Silurian Fossils of Ireland* (1846). In 1846 Sedgwick secured his services, and for at least four years he devoted himself to the determination and arrangement of the fossils in the Woodwardian Museum at Cambridge. Sedgwick wrote of him as "an excellent naturalist, an incomparable and most philosophical palaeontologist, and one of the steadiest and quickest workmen that ever undertook the arrangement of a museum" (*Life and Letters of Sedgwick*, ii. 194). Together they prepared the important and now classic work entitled *A Synopsis of the Classification of the British Palaeozoic Rocks, with a Systematic Description of the British Palaeozoic Fossils in the Geological Museum of the University of Cambridge* (1855). Meanwhile McCoy in 1850 had been appointed professor of geology in Queen's College, Belfast, and in 1854 he accepted the newly founded professorship of natural science in the university of Melbourne. There he lectured for upwards of thirty years; he established the National Museum of Natural History and Geology in Melbourne, of which he was director; and becoming associated with the geological survey of Victoria as palaeontologist, he issued a series of decades entitled *Prodromus of the Palaeontology of Victoria*. He also issued the *Prodromus of the Zoology of Victoria*. To local societies he contributed many papers, and he continued his active scientific work for fifty-eight years—his last contribution, "Note on a new Australian Pterygotus," being printed in the *Geological Magazine* for May 1899. He was elected F.R.S. in 1880, and was one of the first to receive the Hon. D.Sc. from the university of Cambridge. In 1886 he was made C.M.G., and in 1891 K.C.M.G. He died in Melbourne on the 16th of May 1899.

Obituary (with bibliography) in *Geol. Mag.* 1899, p. 283.

M'CRIE, THOMAS (1772-1835), Scottish historian and divine, was born at Duns in Berwickshire in November 1772. He studied in Edinburgh University, and in 1796 he was ordained minister of the Second Associate Congregation, Edinburgh. In 1806, however, with some others M'Crie seceded from the "general associate synod," and formed the "constitutional associate presbytery," afterwards merged in the "original seceders." He was consequently deposed by the associate synod, and his congregation withdrew with him and built another place of worship in which he officiated until his death. M'Crie devoted himself to investigations into the history, constitution and polity of the churches of the Reformation; and the first-fruits of his study were given to the public in November 1811 as *The Life of John Knox, containing Illustrations of the History of the Reformation in Scotland*, which procured for the author the degree of D.D. from Edinburgh University, an honour conferred then for the first time upon a Scottish dissenting minister. This work, of great learning and value, exercised an important influence on public opinion at the time. At the solicitation of his friend Andrew Thomson, M'Crie became a contributor to *The Edinburgh Christian Instructor*; and in 1817 he subjected some of Sir W. Scott's works to a criticism which took the form of a vindication of the Covenanters. Preserving the continuity of his historical studies, he followed up his first work with *The Life of Andrew Melville* (1819). In 1827 he published a *History of the Progress and Suppression of the Reformation in Italy*, and in 1829 a *History of the Progress and Suppression of the Reformation in Spain*.

His latest literary undertaking was a life of John Calvin. Only three chapters were completed when the writer died on the 5th of August 1835, leaving four sons and one daughter.

See Thomas M'Crie (1797-1875), *Life of T. M'Crie* (1840), and Hugh Miller, *My Schools and Schoolmasters* (1869).

MACCULLAGH, JAMES (1809-1847), Irish mathematician and physicist, was born in 1809, near Strabane, Ireland. After a brilliant career at Trinity College, Dublin, he was elected fellow in 1832. From 1832 to 1843 he held the chair of mathematics; and during his tenure of this post he improved in a most marked manner the position of his university as a mathematical centre. In 1843 he was transferred to the chair of natural philosophy. Overwork, mainly on subjects beyond the natural range of his powers, induced mental disease; and he died by his own hand in October 1847.

His *Works* were published in 1880. Their distinguishing feature is the geometry—which has rarely been applied either to pure space problems or to known physical questions such as the rotation of a rigid solid or the properties of Fresnel's wave-surface with such singular elegance; in this respect his work takes rank with that of Louis Poinsot. One specially remarkable geometrical discovery of MacCullagh's is that of the "modular generation of surfaces of the second degree"; and a noteworthy contribution to physical optics is his "theorem of the polar plane." But his methods, which, in less known subjects, were almost entirely tentative, were altogether inadequate to the solution of the more profound physical problems to which his attention was mainly devoted, such as the theory of double refraction, &c. See G. G. Stokes's "Report on Double Refraction" (*B. A. Report*, 1862).

MACCULLOCH, HORATIO (1805-1867), Scottish landscape painter, was born in Glasgow. He studied for a year under John Knox, a Glasgow landscapist of some repute, was then engaged at Cumnock, painting the ornamental lids of snuff-boxes, and afterwards employed in Edinburgh by Lizars, the engraver, to colour the illustrations in Selby's *British Birds* and similar works. Meanwhile he was working unweariedly from nature, greatly influenced in his early practice by the watercolours of H. W. Williams. Returning to Glasgow in some four or five years, he was employed on several large pictures for the decoration of a public hall in St George's Place, and he did a little as a theatrical scene-painter. About this time he was greatly impressed with a picture by Thomson of Duddingston. Gradually MacCulloch asserted his individuality, and formed his own style on a close study of nature; his works form an interesting link between the old world of Scottish landscape and the new. In 1829 MacCulloch first figured in the Royal Scottish Academy's exhibition, and year by year, till his death on the 24th of June 1867, he was a regular exhibitor. In 1838 he was elected a member of the Scottish Academy. The subjects of his numerous landscapes were taken almost exclusively from Scottish scenery.

Several works by MacCulloch were engraved by William Miller and William Forrest, and a volume of photographs from his landscapes, with an excellent biographical notice of the artist by Alexander Fraser, R.S.A., was published in Edinburgh in 1872.

McCULLOCH, HUGH (1808-1895), American financier, was born at Kennebunk, Maine, on the 7th of December 1808. He was educated at Bowdoin College, studied law in Boston, and in 1833 began practice at Fort Wayne, Indiana. He was cashier and manager of the Fort Wayne branch of the old state bank of Indiana from 1835 to 1857, and president of the new state bank from 1857 to 1863. Notwithstanding his opposition to the National Banking Act of 1862, he was selected by Secretary Chase as comptroller of the currency in 1863 to put the new system into operation. His work was so successful that he was appointed secretary of the treasury by President Lincoln in 1865, and was continued in office by President Johnson until the close of his administration in 1869. In his first annual report, issued on the 4th of December 1865, he strongly urged the retirement of the legal tenders or greenbacks as a preliminary to the resumption of specie payments. In accordance with this suggestion an act was passed, on the 12th of March 1866, authorizing the retirement of not more than $10,000,000 in six months and not more than $4,000,000 per month thereafter, but it met with strong opposition and was repealed on the 4th of February 1868, after only $48,000,000 had been retired. He was much disappointed by the decision of the United States Supreme Court upholding the constitutionality of the legal tenders (12 Wallace 457). Soon after the close of his term of office McCulloch went to England, and spent six years (1870-1876) as a member of the banking firm of Jay Cooke, McCulloch & Co. From October 1884 until the close of President Arthur's term of office in March 1885 he was again secretary of the treasury. He died at his home near Washington, D.C., on the 24th of May 1895.

The chief authority for the life of McCulloch is his own book, *Men and Measures of Half a Century* (New York, 1888).

M'CULLOCH, SIR JAMES (1819-1893), Australian statesman, was born in Glasgow. He entered the house of Dennistoun Brothers, became a partner, and went to Melbourne to open a branch. In 1854, shortly after his arrival in Victoria, he was appointed a nominee member of the Legislative Council, and in the first Legislative Assembly under the new constitution was returned for the electorate of the Wimmera. In 1857 he was appointed minister of trade and customs in the second ministry of Haines, which lasted till 1858, and subsequently he became treasurer in the Nicholson administration, which held office from October 1859 to November 1860. In June 1862 the third O'Shanassy ministry was defeated by a combination between a section of its supporters led by M'Culloch and the opposition proper under Heales, and M'Culloch became premier and chief secretary. Hitherto he had been regarded as a supporter of the landed, squatting and importing interests, but the coalition ministry introduced a number of measures which at the time were regarded by the propertied classes in the colony as revolutionary. In addition to passing a Land Bill, which extended the principle of free selection and deferred payments, the ministry announced their intention of reducing the duties on the export of gold and the import duties upon tea and sugar, and of supplying the deficiency by the imposition of duties ranging from 5 to 10% upon a number of articles which entered into competition with the local industries, thus introducing protection. The mercantile community took alarm at the proposal, and at the general election of 1864 the ministerial policy was warmly opposed. But a majority was returned in its favour, and a new tariff was carried through the popular branch of the legislature. There was no probability of its being assented to by the Council, which, under the constitution, had the power of rejecting, although it could not amend, any money Bill. The government therefore decided upon tacking the tariff to the Appropriation Bill, and compelling the Council either to agree to the new fiscal proposals or to refuse to pay the public creditors and the civil servants. The Council accepted the challenge, and rejected the Appropriation Bill. But M'Culloch and his colleagues would not give way. They continued to collect the new duties under the authority of the Assembly, and took advantage of a clause in the Audit Act which directed the governor to sign the necessary warrants for the payment of any sum awarded by verdicts in the supreme court in favour of

persons who had sued the government. M'Culloch borrowed £40,000 from the London Chartered Bank, of which he was a director, to meet pressing payments, and the bank at his instigation sued the government for the amount of the advance. The attorney-general at once accepted judgment, and the governor, who had placed himself unreservedly in the hands of his ministers, signed the necessary warrant, and the Treasury repaid to the bank the amount of its advance, plus interest and costs. In the next session the tariff was again sent up to the Council, which promptly rejected it, whereupon the ministry dissolved the assembly and appealed to the country. The result of the general election was to increase M'Culloch's majority, and the tariff was again sent to the Council, only to be again rejected. M'Culloch resigned, but no member of the opposition was willing to form a ministry, and he resumed office. Eventually a conference between the two houses was held, and the Council passed the tariff, after a few modifications in it had been agreed to by the Assembly. Just at the moment that peace was restored, the governor, Sir Charles Darling, was recalled by the home government, on the ground that he had displayed partisanship by assisting M'Culloch's government and their majority in the Assembly to coerce the Council. In order to show their gratitude to the dismissed governor, the Assembly decided to grant a sum of £20,000 to Lady Darling. The home government intimated that Sir Charles Darling must retire from the Colonial service if this gift were accepted by his wife, but M'Culloch included the money in the annual Appropriation Bill, with the result that it was rejected by the Council. The new governor, Viscount Canterbury, was less complaisant than his predecessor, but after an unsuccessful attempt to obtain other advisers, he agreed to recommend the Council to pass the Appropriation Bill with the £20,000 grant included. The Upper House declined to adopt this course, and again rejected the Bill. A long and bitter struggle between the two Chambers ended in another general election in 1868, which still further increased the ministerial majority; but Lord Canterbury, in obedience to instructions from the colonial office, declined to do anything to facilitate the passage of the Darling grant. M'Culloch resigned, and after protracted negotiations Sir Charles Sladen formed from the minority in the Assembly a ministry which only lasted two months. The deadlock seemed likely to become more stringent than ever, when a communication was received from Sir Charles Darling, that neither he nor his wife could receive anything like a donation from the people of Victoria. The attempt to pass the grant was therefore abandoned, and in July 1868 M'Culloch resumed office with different colleagues, but resigned in the following year, when he was knighted. He formed a third ministry in 1870. During this third administration he passed a measure through both Houses which secured a life annuity of £1000 per annum to Lady Darling. Additional taxation being necessary, Sir James M'Culloch was urged by his protectionist supporters to increase the import duties, but he refused, and proposed to provide for the deficit by levying a tax upon town, suburban and country property. This proposal was defeated in the Assembly; Sir James resigned in June 1871, and was appointed agent-general for Victoria in London. He held that appointment till 1873, was created K.C.M.G. in 1874, returned to the colony the same year, and in 1875 formed his fourth and last ministry, which kept power till May 1877, when his party was defeated at the general election. During his eighteen months of office he had to encounter a persistent opposition from Berry and his followers, who systematically obstructed the business of the Assembly, on the ground that the acting-governor, Sir William Stawell, had improperly refused a dissolution. Sir James M'Culloch, to counteract this obstruction, invented the closure, which was afterwards introduced with some modifications into the house of commons. After his defeat in 1877 Sir James retired from public life and returned to England, where he died on the 30th of January 1893 at Ewell, Surrey. He was twice married—first, in 1841, to Susan, daughter of the Rev. James Renwick, of Muirton, Scotland; secondly, in 1867, to Margaret, daughter of William Inglis, of Walflat, Dumbartonshire. He left the house of Dennistoun Brothers in 1862, and founded a new firm at Melbourne in conjunction with Leishman, Inglis & Co. of London, under the title of M'Culloch, Sellars & Co. He held several important commercial positions, and was president of the Melbourne Chamber of Commerce.

<div style="text-align:right">(G. C. L.)</div>

MACCULLOCH, JOHN (1773-1835), Scottish geologist, descended from the Maccullochs of Nether Ardwell in Galloway, was born in Guernsey, on the 6th of October 1773, his mother being a native of that island. Having displayed remarkable powers as a boy, he was sent to study medicine in the university of Edinburgh, where he qualified as M.D. in 1793, and then entered the army as assistant surgeon. Attaching himself to the artillery, he became chemist to the board of ordnance (1803). He still continued, however, to practise for a time as a physician, and during the years 1807-1811 he resided at Blackheath. In 1811 he communicated his first papers to the Geological Society. They were devoted to an elucidation of the geological structure of Guernsey, of the Channel Islands, and of Heligoland. The evidence they afforded of his capacity, and the fact that he already had received a scientific appointment, probably led to his being selected in the same year to make some geological and mineralogical investigations in Scotland. He was asked to report upon stones adapted for use in powder-mills, upon the suitability of the chief Scottish mountains for a repetition of the pendulum experiments previously conducted by Maskelyne and Playfair at Schiehallion, and on the deviations of the plumb-line along the meridian of the Trigonometrical Survey. In the course of the explorations necessary for the purposes of these reports he made extensive observations on the geology and mineralogy of Scotland. He formed also a collection of the mineral productions and rocks of that country, which he presented to the Geological Society in 1814. In that year he was appointed geologist to the Trigonometrical Survey; and in 1816-1817 he was president of the Geological Society. Comparatively little had been done in the investigation of Scottish geology, and finding the field so full of promise, he devoted himself to its cultivation with great ardour. One of his most important labours was the examination of the whole range of islands along the west of Scotland, at that time not easily visited, and presenting many obstacles to a scientific explorer. The results of this survey appeared (1819) in the form of his *Description of the Western Islands of Scotland, including the Isle of Man* (2 vols. 8vo, with an atlas of plates in 4to), which forms one of the classical treatises on British geology. He was elected F.R.S. in 1820. He continued to write papers, chiefly on the rocks and minerals of Scotland, and had at last gathered so large an amount of information that the government was prevailed upon in the year 1826 to employ him in the preparation of a geological map of Scotland. From that date up to the time of his death he returned each summer to Scotland and traversed every district of the kingdom, inserting the geological features upon Arrowsmith's map, the only one then available for his purpose. He completed the field-work in 1832, and in 1834 his map and memoir were ready for publication, but these were not issued until 1836, the year after he died. Among his other works the following may be mentioned: *A Geological Classification of Rocks with Descriptive Synopses of the Species and Varieties, comprising the Elements of Practical Geology* (1821); *The Highlands and Western Isles of Scotland*, in a series of letters to Sir Walter Scott (4 vols. 1824); *A System of Geology, with a Theory of the Earth and an Examination of its Connexion with the Sacred Records* (2 vols. 1831). During a visit to Cornwall he was killed by being dragged along in the wheel of his carriage, on the 21st of August 1835.

In penning an obituary notice, C. Lyell in 1836 (*Proc. Geol. Soc.* ii. 357) acknowledged "with gratitude" that he had "received more instruction from Macculloch's labours in geology than from those of any living writer."

M'CULLOCH, JOHN RAMSAY (1789-1864), British economist and statistician, was born on the 1st of March 1789

at Whithorn in Wigtownshire. His family belonged to the class of "statesmen," or small landed proprietors. He was for some time employed at Edinburgh as a clerk in the office of a writer to the signet. But, the *Scotsman* newspaper having been established at the beginning of 1817, M'Culloch sent a contribution to the fourth number, the merit of which was at once recognized; he soon became connected with the management of the paper, and during 1818 and 1819 acted as editor. Most of his articles related to questions of political economy, and he delivered lectures in Edinburgh on that science. He now also began to write on subjects of the same class in the *Edinburgh Review*, his first contribution being an article on Ricardo's *Principles of Political Economy* in 1818. Within the next few years he gave both public lectures and private instruction in London on political economy. In 1823 he was chosen to fill the lectureship established by subscription in honour of the memory of Ricardo. A movement was set on foot in 1825 by Jeffrey and others to induce the government to found in the university of Edinburgh a chair of political economy, separate from that of moral philosophy, the intention being to obtain the appointment for M'Culloch. This project fell to the ground; but in 1828 he was made professor of political economy in London University. He then fixed his residence permanently in London, where he continued his literary work, being now one of the regular writers in the *Edinburgh Review*. In 1838 he was appointed comptroller of the stationery office; the duties of this position, which he held till his death, he discharged with conscientious fidelity, and introduced important reforms in the management of the department. Sir Robert Peel, in recognition of the services he had rendered to political science, conferred on him a literary pension of £200 per annum. He was elected a foreign associate of the Institute of France (*Académie des sciences morales et politiques*). He died in London, after a short illness, on the 11th of November 1864, in the seventy-sixth year of his age. To his personal character and social qualities very favourable testimony was borne by those who knew him best. In general politics he always remained a Whig pure and simple; though he was in intimate relations with James Mill and his circle, he never shared the Radical opinions of that group.

M'Culloch cannot be regarded as an original thinker on political economy. He did not contribute any new ideas to that science, or introduce any noteworthy correction of the views, either as to method or doctrine, generally accepted by the dominant school of his day. But the work he did must be pronounced, in relation to the wants of his time, a very valuable one. His name will probably be less permanently associated with anything he has written on economic science, strictly so called, than with his great statistical and other compilations. His *Dictionary of Commerce and Commercial Navigation* (1832) and his *Statistical Account of the British Empire* (1837) remain imposing monuments of his extensive and varied knowledge and his indefatigable industry. Another useful work of reference, also the fruit of wide erudition and much labour, is his *Literature of Political Economy* (1845). Though weak on the side of the foreign literature of the science, it is very valuable as a critical and biographical guide to British writers.

McCULLOUGH, JOHN EDWARD (1837-1885), American actor, was born in Coleraine, Ireland, on the 2nd of November 1837. He went to America at the age of sixteen, and made his first appearance on the stage at the Arch Street Theatre, Philadelphia, in 1857. In support of Edwin Forrest and Edwin Booth he played second rôles in Shakespearian and other tragedies, and Forrest left him by will all his prompt books. Virginius was his greatest success, although even in this part and as Othello he was coldly received in England (1881). In 1884 he broke down physically and mentally, and he died in an asylum at Philadelphia on the 8th of November 1885.

MACCUNN, HAMISH (1868-   ), Scottish musical composer, was born at Greenock, the son of a shipowner, and was educated at the Royal College of Music. His first success was with the overture *Land of the Mountain and Flood* in 1887 at the Crystal Palace, and this was followed by other compositions, with a characteristic Scottish colouring. From 1888 to 1894 he was a professor at the Royal College of Music, and this latter year saw both his marriage to a daughter of John Pettie, R.A., and the production of his opera *Jeanie Deans* at Edinburgh. He was for some years conductor to the Carl Rosa Opera company, and subsequently to other companies. His opera *Diarmid* was produced at Covent Garden in 1897, and his other music includes cantatas, overtures, part-songs, instrumental pieces, and songs, all markedly Scottish in type.

MACDONALD, FLORA (1722-1790), Jacobite heroine, was the daughter of Ranald Macdonald of Milton in the island of South Uist in the Hebrides, and his wife Marion the daughter of Angus Macdonald, minister of South Uist. Her father died when she was a child, and her mother was abducted and married by Hugh Macdonald of Armadale. She was brought up under the care of the chief of her clan, Macdonald of Clanranald, and was partly educated in Edinburgh. In June 1746 she was living in Benbecula in the Hebrides when Prince Charles Edward (*q.v.*) took refuge there after the battle of Culloden. The prince's companion, Captain O'Neill, sought her help. The island was held for the government by the local militia, but the secret sympathies of the Macdonalds were with the Jacobite cause. After some hesitation Flora promised to help. At a later period she told the duke of Cumberland, son of George III. and commander-in-chief in Scotland, that she acted from charity and would have helped him also if he had been defeated and in distress, a statement which need not be accepted as quite literally true. The commander of the militia in the island, a Macdonald, who was probably admitted into the secret, gave her a pass to the mainland for herself, a manservant, an Irish spinning maid, Betty Burke, and a boat's crew of six men. The prince was disguised as Betty Burke. After a first repulse at Waternish, the party landed at Portree. The prince was hidden in a cave while Flora Macdonald found help for him in the neighbourhood, and was finally able to escape. He had left Benbecula on the 27th of June. The talk of the boatmen brought suspicion on Flora Macdonald, and she was arrested and brought to London. After a short imprisonment in the Tower, she was allowed to live outside of it, under the guard of a "messenger" or gaoler. When the Act of Indemnity was passed in 1747 she was left at liberty. Her courage and loyalty had gained her general sympathy, which was increased by her good manners and gentle character. Dr Johnson, who saw her in 1773, describes her as "a woman of soft features, gentle manners and elegant presence." In 1750 she married Allen Macdonald of Kingsburgh, and in 1773 they emigrated to America. In the War of Independence he served the British government and was taken prisoner. In 1779 his wife returned home in a merchant ship which was attacked by a privateer. She refused to leave the deck during the action, and was wounded in the arm. She died on the 5th of March 1790. There is a statue to her memory in Inverness. Flora Macdonald had a large family of sons, who mostly entered the army or navy, and two daughters.

See A. C. Ewald, *Life and Times of Prince Charles Edward* (1886). The so-called *Autobiography* of Flora Macdonald, published by her grand-daughter F. F. Walde (1870) is of small value.

MACDONALD, GEORGE (1824-1905), Scottish novelist and poet, was born at Huntly, Aberdeenshire. His father, a farmer, was one of the Macdonalds of Glencoe, and a direct descendant of one of the families that suffered in the massacre. Macdonald's youth was passed in his native town, under the immediate influence of the Congregational Church, and in an atmosphere strongly impregnated with Calvinism. He took his degree at Aberdeen University, and migrated thence to London, studying at Highbury College for the Congregational ministry. In 1850 he was appointed pastor of Trinity Congregational Church, Arundel, and, after resigning his cure there, was engaged in ministerial work in Manchester. His health, however, was unequal to the strain, and after a short sojourn in Algiers he settled in London and adopted the profession of literature. In 1856 he published his first book, *Within and Without*, a dramatic poem; following it in 1857 with a volume of *Poems*, and in 1858 by the delightful "faerie romance" *Phantastes*. His first conspicuous success was achieved in 1862 with *David Elginbrod*, the forerunner of a number of popular novels, which include *Alec Forbes of Howglen* (1865), *Annals of a Quiet Neighbourhood* (1866), *Robert Falconer* (1868), *Malcolm* (1875), *The Marquis of Lossie* (1877), and *Donal Grant* (1883). He was for a time editor of *Good Words for the Young*, and lectured successfully in America in 1872-1873. He wrote admirable stories for the young, and published some volumes of sermons. In 1877 he was given a civil list pension. He died on the 18th of September 1905.

Both as preacher and as lecturer on literary topics George Macdonald's sincerity and moral enthusiasm exercised great influence upon thoughtful minds. His verse is homely and direct, and marked by religious fervour and simplicity. As a portrayer of Scottish peasant-life in fiction he was the precursor of a large school, which has benefited by his example and surpassed its original leader in popularity. The religious tone of his novels is relieved by tolerance and a broad spirit of humour, and the simpler emotions of humble life are sympathetically treated.

MACDONALD, SIR HECTOR ARCHIBALD (1852-1903), British soldier, was born of humble parentage at Muir of Allan-Grange, Ross-shire, Scotland, in 1852. As a boy he was employed in a draper's shop at Dingwall, but in 1870 he enlisted in the 92nd (Gordon) Highlanders. He rose rapidly through the non-commissioned ranks, and had already been a colour-sergeant for some years when, in the Afghan War of 1879, he distinguished himself in the presence of the enemy so much as to be promoted to commissioned rank, his advancement being equally acceptable to his brother officers and popular with the rank and file. As a subaltern he served in the first Boer War of 1880-81, and at Majuba, where he was made prisoner, his bravery was so conspicuous that General Joubert gave him back his sword. In 1885 he served under Sir Evelyn Wood in the reorganization of the Egyptian army, and he took part in the Nile Expedition of that year. In 1888 he became a regimental captain in the British service, but continued to serve in the Egyptian army, being particularly occupied with the training of the Sudanese battalions. In 1889 he received the D.S.O. for his conduct at Toski and in 1891, after the action at Tokar, he was promoted substantive major. In 1896 he commanded a brigade of the Egyptian army in the Dongola Expedition, and during the following campaigns he distinguished himself in every engagement, above all in the final battle of Omdurman (1898) at the crisis of which Macdonald's Sudanese brigade, manœuvring as a unit with the coolness and precision of the parade ground, repulsed the most determined attack of the Mahdists. After this great service Macdonald's name became famous in England and Scotland, the popular sobriquet of "Fighting Mac" testifying the interest aroused in the public mind by his career and his soldierly personality. He was promoted colonel in the army and appointed an aide-de-camp to the queen, and in 1899 he was promoted major-general and appointed to a command in India. In December 1899 he was called to South Africa to command the Highland Brigade, which had just suffered very heavily and had lost its commander, Major-General A. G. Wauchope, in the battle of Magersfontein. He commanded the brigade throughout Lord Roberts's Paardeberg, Bloemfontein and Pretoria operations, and in 1901 he was made a K.C.B. In 1902 he was appointed to command the troops in Ceylon, but early in the following year (March 25, 1903) he committed suicide in Paris. A memorial to this brilliant soldier, in the form of a tower 100 ft. high, was erected at Dingwall and completed in 1907.

MACDONALD, JACQUES ÉTIENNE JOSEPH ALEXANDRE (1765-1840), duke of Taranto and marshal of France, was born at Sedan on the 17th of November 1765. His father came of an old Jacobite family, which had followed James II. to France, and was a near relative of the celebrated Flora Macdonald. In 1785 Macdonald joined the legion raised to support the revolutionary party in Holland against the Prussians, and after it was disbanded he received a commission in the regiment of Dillon. On the breaking out of the Revolution, the regiment of Dillon remained eminently loyal, with the exception of Macdonald, who was in love with Mlle Jacob, whose father was enthusiastic for the doctrines of the Revolution. Directly after his marriage he was appointed aide-de-camp to General Dumouriez. He distinguished himself at Jemmapes, and was promoted colonel in 1793. He refused to desert to the Austrians with Dumouriez, and as a reward was made general of brigade, and appointed to command the leading brigade in Pichegru's invasion of Holland. His knowledge of the country proved most useful, and he was instrumental in the capture of the Dutch fleet by French hussars. In 1797, having been made general of division, he served first in the army of the Rhine and then in that of Italy. When he reached Italy, the peace of Campo Formio had been signed, and Bonaparte had returned to France; but, under the direction of Berthier, Macdonald first occupied Rome, of which he was made governor, and then in conjunction with Championnet he defeated General Mack, and revolutionized the kingdom of Naples under the title of the Parthenopaean Republic. When Suvarov invaded northern Italy, and was winning back the conquests of Bonaparte, Macdonald collected all the troops in the peninsula and moved northwards. With but 30,000 men he attacked, at the Trebbia, Suvarov with 50,000, and after three days' fighting, during which he held the Russians at bay, and gave time for Moreau to come up, he retired in good order to Genoa. After this gallant behaviour he was made governor of Versailles, and acquiesced, if he did not co-operate, in the events of the 18th Brumaire. In 1800 he received the command of the army in Switzerland which was to maintain the communications between the armies of Germany and of Italy. He carried out his orders to the letter, and at last, in the winter of 1800-1, he was ordered to march over the Splügen Pass. This achievement is fully described by Mathieu Dumas, who was chief of his staff, and is at least as noteworthy as

Bonaparte's famous passage of the St Bernard before Marengo, though followed by no such successful battle. On his return to Paris Macdonald married the widow of General Joubert, and was appointed French plenipotentiary in Denmark. Returning in 1805 he associated himself with Moreau and incurred the dislike of Napoleon, who did not include him in his first creation of marshals. Till 1809 he remained without employment, but in that year Napoleon gave him the command of a corps and the duties of military adviser to the young prince Eugène Beauharnais, viceroy of Italy. He led the army from Italy till its junction with Napoleon, and at Wagram commanded the celebrated column of attack which broke the Austrian centre and won the victory. Napoleon made him marshal of France on the field of battle, and presently created him duke of Taranto. In 1810 he served in Spain, and in 1812 he commanded the left wing of the grand army for the invasion of Russia. In 1813, after sharing in the battles of Lützen and Bautzen, he was ordered to invade Silesia, where Blücher defeated him with great loss at the Katzbach (see NAPOLEONIC CAMPAIGNS). After the terrible battle of Leipzig he was ordered with Prince Poniatowski to cover the evacuation of Leipzig; after the blowing up of the bridge, he managed to swim the Elster, while Poniatowski was drowned. During the defensive campaign of 1814 Macdonald again distinguished himself; he was one of the marshals sent by Napoleon to take his abdication in favour of his son to Paris. When all were deserting their old master, Macdonald remained faithful to him. He was directed by Napoleon to give in his adherence to the new régime, and was presented by him with the sabre of Murad Bey for his fidelity. At the Restoration he was made a peer of France and knight grand cross of the order of St Louis; he remained faithful to the new order of things during the Hundred Days. In 1815 he became chancellor of the Legion of Honour (a post he held till 1831), in 1816 major-general of the royal bodyguard, and he took a great part in the discussions in the House of Peers, voting consistently as a moderate Liberal. In 1823 he married Mlle de Bourgony, by whom he had a son, Alexander, who succeeded on his death in 1840 as duke of Taranto. From 1830 his life was spent in retirement at his country place Courcelles-le-Roi (Seine et Oise), where he died on the 7th of September 1840.

Macdonald had none of that military genius which distinguished Davout, Masséna and Lannes, nor of that military science conspicuous in Marmont and St Cyr, but nevertheless his campaign in Switzerland gives him a rank far superior to such mere generals of division as Oudinot and Dupont. This capacity for independent command made Napoleon, in spite of his defeats at the Trebbia and the Katzbach, trust him with large commands till the end of his career. As a man, his character cannot be spoken of too highly; no stain of cruelty or faithlessness rests on him.

Macdonald was especially fortunate in the accounts of his military exploits, Mathieu Dumas and Ségur having been on his staff in Switzerland. See Dumas, *Événements militaires*; and Ségur's rare tract, *Lettre sur la campagne du Général Macdonald dans les Grisons en 1800 et 1801* (1802), and *Éloge* (1842). His memoirs were published in 1892 (Eng. trans., *Recollections of Marshal Macdonald*), but are brief and wanting in balance.

MACDONALD, SIR JOHN ALEXANDER (1815-1891), first premier of the dominion of Canada, was born in Glasgow on the 11th of January 1815, the third child of Hugh Macdonald (d. 1841), a native of Sutherlandshire. The family emigrated to Canada in 1820, settling first at Kingston, Ontario. At the age of fifteen Macdonald entered a law office; he was called to the bar in 1836, and began practice in Kingston, with immediate success. Macdonald entered upon his active career at a critical period in the history of Canada, and the circumstances of the time were calculated to stimulate political thought. It was the year before the rebellion of 1837; the condition of the whole country was very unsettled; and it seemed well-nigh impossible to reconcile differences arising from racial and political antagonisms. During the rebellion young Macdonald volunteered for active service, but his military career never went farther than drilling and marching. The mission of Lord Durham; the publication of his famous report; the union of the two Canadas; the administrations of Lord Sydenham, Sir Charles Bagot, and Sir Charles Metcalfe, filled the years immediately succeeding 1837 with intense political interest, and in their results have profoundly influenced the constitution of the British Empire.

Macdonald made his first acquaintance with public business as an alderman of Kingston. In 1844 Sir Charles Metcalfe, in his contest with the Reform party led by Baldwin and Lafontaine, appealed to the electors, and Macdonald was elected to the provincial assembly as Conservative member for Kingston. A sentence in his first address to the electors strikes the dominant note of his public career: "I therefore need scarcely state my firm belief that the prosperity of Canada depends upon its permanent connexion with the mother country, and that I shall resist to the utmost any attempt (from whatever quarter it may come) which may tend to weaken that union." He took his seat on the 28th of November as a supporter of the Draper government. During the first three or four years he spoke little, but devoted himself with assiduity to mastering parliamentary forms and the business of the house. His capacity soon attracted attention, and in 1847 he was made receiver-general with a seat in the executive council, an office soon exchanged for the more important one of commissioner of Crown-lands. Although the government of which he thus became a member held office for only ten months, being placed in a hopeless minority on making an appeal to the country, Macdonald from this time forward took a position of constantly increasing weight in his party.

One of the first acts of the Reform government which succeeded that of which Macdonald was a member was to pass the Rebellion Losses Bill, made famous in colonial history by the fact that it brought to a crucial test the principle of responsible government. The assent of Lord Elgin to the bill provoked in Montreal a riot which ended in the burning of the houses of parliament, and so great was the indignation of the hitherto ultra-loyal Conservative party that many of its most prominent members signed a document favouring annexation to the United States; Macdonald on the other hand took steps, in conjunction with others, to form a British-American league, having for its object the confederation of all the provinces, the strengthening of the connexion with the mother country, and the adoption of a national commercial policy. He remained in opposition from 1848 till 1854, holding together under difficult circumstances an unpopular party with which he was not entirely in sympathy. The two great political issues of the time were the secularization of the clergy reserves in Ontario, and the abolition of seigniorial tenure in Quebec. Both of these reforms Macdonald long opposed, but when successive elections had proved that they were supported by public opinion, he brought about a coalition of Conservatives and moderate reformers for the purpose of carrying them.

Out of this coalition was gradually developed the Liberal-conservative party, of which until his death Macdonald continued to be the most considerable figure, and which for more than forty years largely moulded the history of Canada. From 1854 to 1857 he was attorney-general of Upper Canada, and then, on the retirement of Colonel Taché, he became prime minister. This first coalition had now accomplished its temporary purpose, but so closely were parties divided at this period, that the defeat and reinstatement of governments followed each other in rapid succession.

The experiment of applying responsible government on party lines to the two Canadian provinces at last seemed to have come to a deadlock. Two general elections and the defeat of four ministries within three years had done nothing to solve the difficulties of the situation. At this critical period a proposal was made for a coalition of parties in order to carry out a broad scheme of British-American confederation. The immediate proposal is said to have come from George Brown; the large political idea had long been advocated by Macdonald and Alexander Galt in Upper Canada—by Joseph Howe and others in the maritime provinces. The close of the American Civil War, the Fenian raids across the American border, and the dangers incident to the international situation, gave a decisive impulse to the movement. Macdonald, at the head of a representative delegation from Ontario and Quebec, met the public men of the maritime provinces in conference at Charlottetown in 1864,

and the outline of confederation then agreed upon was filled out in detail at a conference held at Quebec soon afterwards. The actual framing of the British North America Act, into which the resolutions of these two conferences were consolidated, was carried out at the Westminster Palace Hotel in London, during December 1866 and January 1867, by delegates from all the provinces working in co-operation with the law officers of the Crown, under the presidency of Lord Carnarvon, then secretary of state for the colonies. Macdonald took the leading part in all these discussions, and he thus naturally became the first premier of the Dominion. He was made a K.C.B. in recognition of his services to the empire.

The difficulties of organizing the new Dominion, the questions arising from diverse claims and the various conditions of the country, called for infinite tact and resource on the part of the premier. Federal rights were to be safeguarded against the provincial governments, always jealous of their privileges. The people of Nova Scotia in particular, dissatisfied with the way in which their province had been drawn into the Union, maintained a fierce opposition to the Ottawa government, until their leader, Joseph Howe, fearing an armed rising, came to an agreement with Macdonald and accepted a seat in his cabinet. The establishment of a supreme court also occupied the attention of Sir John, who had a strong sense of the necessity of maintaining the purity and dignity of the judicial office. The act creating this court was finally passed during the administration of Alexander Mackenzie. The pledge made at confederation with regard to the building of the Intercolonial railway to connect the maritime provinces with those of the St Lawrence was fulfilled. The North-West Territories were secured as a part of confederated Canada by the purchase of the rights of the Hudson's Bay Company, and the establishment of Manitoba as a province in 1870. Canada's interests were protected during the negotiations which ended in the treaty of Washington in 1871, and in which Sir John took a leading part as one of the British delegates. In this year British Columbia entered the confederation, one of the provisions of union being that a transcontinental railroad should be built within ten years. This was declared by the opposition to be impossible. It was possible only to a leader of indomitable will. Charges of bribery against the government in connexion with the contract for the building of this line led to the resignation of the cabinet in 1874, and for four years Sir John was in opposition. But he was by no means inactive. During the summer of 1876 he travelled through Ontario addressing the people on the subject of a commercial system looking to the protection of native industries. This was the celebrated "National Policy," which had been in his thoughts as long ago as the formation of the British-American League in 1850. The government of Alexander Mackenzie refused to consider a protection policy, and determined to adhere to Free Trade, with a tariff for revenue only. On these strongly defined issues the two parties appealed to the people in 1878. The Liberal party was almost swept away, and Sir John, on his return to power, put his policy into effect with a thoroughness that commanded the admiration even of his opponents, who, after long resistance, adopted it on their accession to office in 1896. He also undertook the immediate construction of the Canadian Pacific railway, which had been postponed by the former government. The line was begun late in 1880, and finished in November 1885—an achievement which Sir John ranked among his greatest triumphs. "The faith of Sir John," says one of his biographers, "did more to build the road than the money of Mount-Stephen."

During the remaining years of his life his efforts at administration were directed mainly towards the organization and development of the great North-West. From 1878 until his death in 1891 Sir John retained his position as premier of Canada, and his history is practically that of Canada (*q.v.*). For forty-six years of a stormy political life he remained true to the cardinal policy that he had announced to the electors of Kingston in 1844. "A British subject I was born; a British subject I will die," says his last political manifesto to the people of the Dominion. At his advanced age the anxiety and excitement of the contested election of 1891 proved too great. On the 29th of May he suffered a stroke of paralysis, which caused his death eight days later (June 6).

The career of Sir John Macdonald must be considered in connexion with the political history of Canada and the conditions of its government during the latter half of the 19th century. Trained in a school where the principles of responsible government were still in an embryonic state, where the adroit management of coalitions and cabals was essential to the life of a political party, and where plots and counterplots were looked upon as a regular part of the political game, he acquired a dexterity and skill in managing men that finally gave him an almost autocratic power among his political followers. But great personal qualities supplemented his political dexterity and sagacity. A strong will enabled him to overcome the passionate temper which marked his youth, and later in his career a habit of intemperance, which he at first shared with many public men of his time. He was a man of strong ambitions, but these were curbed by a shrewd foresight, which led him for a long time to submit to the nominal leadership of other and smaller men. Politics he made his business, and to this he devoted all his energies. He had the gift of living for the work in hand without feeling the distraction of other interests. He had a singular faculty for reading the minds and the motives of men, and to this insight he perhaps owed the power of adaptability (called by his opponents shiftiness) which characterized his whole career. To this power the successful guidance of the Dominion through its critical formative period must be ascribed. Few political leaders have ever had such a number of antagonistic elements to reconcile as presented themselves in the first Canadian parliament after confederation. The man who could manage to rule a congeries of jealous factions, including Irish Catholics and Orangemen, French and English anti-federationists and agitators for independence, Conservatives and Reformers, careful economists and prodigal expansionists, was manifestly a man of unusual power, superior to small prejudices, and without strong bias towards any creed or section. Such a man Macdonald proved himself to be. His personality stands out at this period as the central power in which each faction chiefly reposed trust, and under which it could join hands with the others in the service of the state. His singleness of purpose, personal independence and indomitable energy enabled him to achieve triumphs that to others seemed impossible. His methods cannot always be defended, and were explained by himself only on grounds of necessity and the character of the electorate with which he had to deal. After the "Pacific scandal" of 1874 the leader of the opposite party declared that "John A." (as he was generally called) "has fallen, never to rise again." Yet he not only cleared his own character from the charges laid against him, but succeeded four years later in achieving his most signal party triumph. His natural urbanity allowed him to rule without seeming to rule. When baffled in minor objects he gave way with a good-natured flexibility which brought upon him at times charges of inconsistency. Yet Canada has seen statesmen of more contracted view insist on such small points, fall, and drag down their party with them. He lived at a time when the exigencies of state seemed to require the peculiar talents which he possessed. Entering politics at the dreariest and least profitable stage in Canadian history, he took the foremost part in the movement which made of Canada a nation; he guided that nation through the nebulous stages of its existence, and left it united, strong and vigorous, a monument to his patriotic and far-sighted statesmanship. His statue adorns the squares of the principal Canadian towns. In the crypt of St Paul's Cathedral a memorial has rightly been placed to him as a statesman, not merely of Canada, but of the empire. In unveiling that memorial Lord Rosebery fitly epitomized the meaning of his life and work when he said: "We recognize only this, that Sir John Macdonald had grasped the central idea that the British Empire is the greatest secular agency for good now known to mankind; that that was the secret of his success; and that he determined to die under it, and strove that Canada should live under it." Macdonald became a member of the Imperial Privy Council in 1879, and in 1884 he received the Grand Cross of the Bath. His first wife was his cousin, Miss Isabella Clark, who died in 1858, leaving one surviving son, the Hon. Hugh John Macdonald, at one time premier of the province of Manitoba. By his second marriage, to Miss Bernard in 1867, Macdonald left an only daughter. On his death in 1891 his widow was created Baroness Macdonald of Earnscliffe.

The authorized and fullest biography of Sir John A. Macdonald is one written by his private secretary, Joseph Pope. Others have been written by his nephew, Colonel J. Pennington Macpherson, and by J. E. Collins. A bright and amusing anecdotal life has been compiled by E. D. Biggar. A condensed biography by G. R. Parkin forms one of the "Makers of Canada" series (Toronto, 1907; new ed., 1909).

(G. R. P.)

MACDONALD, JOHN SANDFIELD (1812-1872), Canadian statesman, was born at St Raphael, Glengarry county, Ontario, on the 12th of December 1812. He was admitted to the bar in 1840, and settled in Cornwall. In the same year he married Miss Waggaman, the daughter of an American senator from Louisiana. In 1841 he was elected to the Canadian parliament for Glengarry, which seat he held for sixteen years. In 1842 he joined the Reformers in the cry for constitutional government, and from 1852 to 1854 was Speaker of the house. He was always uncertain in his party allegiance, and often attacked George Brown, the Liberal leader. Indeed, he well described himself as "the Ishmael of parliament." In 1862 he was called on by Lord Monck, the governor-general, to form a ministry, which by manifold shifts held office till February 1864. In the debates on federation he opposed the measure, but on its passage was in 1867 entrusted by the Conservatives with the task of organizing the provincial government of Ontario. He ruled the province with economy and efficiency, but was defeated in December 1871 by the Liberals, resigned the premiership, and died on the 1st of June 1872.

MACDONALD, LAWRENCE (1799-1878), British sculptor, was born at Findo-Gask, Perthshire, Scotland. In early life he served as a mason's apprentice. Having shown an aptitude for stone carving, he became an art student at the Trustees' Academy, Edinburgh. By the help of friends he was enabled to visit Rome, where together with other artists he helped to found the British Academy of Arts. He returned to Edinburgh in 1826. In 1829 he was elected a member of the Scottish Academy. From 1832 until his death his home was in Rome. Among his ideal works may be mentioned "Ulysses and his Dog Argos," "Andromeda chained to the Rock," "Eurydice," "Hyacinth," a "Siren," and a "Bacchante."

MACDONELL, JAMES (1841-1879), British journalist, was born at Dyce, Aberdeenshire. In 1858, after his father's death, he became clerk in a merchant's office. He began writing in the *Aberdeen Free Press*; in 1862 he was appointed to the staff of the *Daily Review* at Edinburgh, and at twenty-two he became editor of the *Northern Daily Express*. In 1865 he went to London to accept a position on the staff of the *Daily Telegraph*, which he retained until 1875, being special correspondent in France in 1870 and 1871. In 1873 he became a leader-writer on *The Times*. He died in London on the 2nd of March 1879. His posthumous *France since the First Empire*, though incomplete, gave a clever and accurate account of the French politics of his time.

MACDONNELL (or MACDONELL), **ALESTAIR** (*i.e.* Alexander) **RUADH** (*c.* 1725-1761), chief of Glengarry, a Scottish Jacobite who has been identified by Andrew Lang as the secret agent "Pickle," who acted as a spy on Prince Charles Edward after 1750. The family were a branch of the clan Macdonald, but spelt their name Macdonnell or Macdonell. His father was John, 12th chief of Glengarry, a violent and brutal man, who is said to have starved his first wife, Alestair's mother, to death on an island in the Hebrides. Alestair ran away to France while a mere boy in 1738, and there entered the Royal Scots, a regiment in the French service. In 1743 he commanded a company in it, and in 1744 was sent to Scotland as a Jacobite agent. In January 1745 he was sent back with messages, and was in France when Prince Charles Edward landed in Scotland. Late in 1745 he was captured at sea while bringing a picquet of the Royal Scots to help the prince. He remained a prisoner in the Tower for twenty-two months, and when released went abroad. In 1744 his father had made a transfer to him of the family estates, which were ruined. Alestair, who still affected to be a Jacobite, lived for a time in great poverty. In 1749 he was in London, and there is good reason to believe that he then offered his services as a spy to the British government, with which he communicated under the name of Pickle. His information enabled British ministers to keep a close watch on the prince and on the Jacobite conspiracies. Though he was denounced by a Mrs Cameron, whose husband he betrayed to death in 1752, he never lost the confidence of the Jacobite leaders. On the death of his father, in 1754, he succeeded to the estates, and proved himself a greedy landlord. He died on the 23rd of December 1761.

See Andrew Lang, *Pickle the Spy* (1897) and *The Companions of Pickle* (1898).

MACDONNELL, SORLEY BOY (*c.* 1505-1590), Scoto-Irish chieftain, son of Alexander Macdonnell, lord of Islay and Kintyre (Cantire), was born at Ballycastle, Co. Antrim. From an ancestor who about a hundred years earlier had married Margaret Bisset, heiress of the district on the Antrim coast known as the Glynns (or Glens), he inherited a claim to the lordship of that territory; and he was one of the most powerful of the Scottish settlers in Ulster whom the English government in the 16th century found difficulty in bringing into subjection. Many attempts were made to drive them out of Ireland, in one of which, about 1550, Sorley Boy Macdonnell was taken prisoner and conveyed to Dublin Castle, where, however, his confinement was brief. The chief rivals of the Macdonnells were the Mac Quillins who dominated the northern portion of Antrim, known as the Route, and whose stronghold was Dunluce Castle, near the mouth of the Bush. Sorley Boy Macdonnell took an active part in the tribal warfare between his own clan and the Mac Quillins; and in 1558, when the latter had been to a great extent overcome, his elder brother James committed to him the lordship of the Route, his hold on which he made good by decisively defeating the Mac Quillins in Glenshesk. Sorley Boy was now too powerful and turbulent to be neglected by Queen Elizabeth and her ministers, who were also being troubled by his great contemporary, Shane O'Neill; and the history of Ulster for the next twenty years consists for the most part of alternating conflict and alliance between Macdonnells and O'Neills, and attempts on the part of the English government to subdue them both. With this object Elizabeth aimed at fomenting the rivalry

between the two clans; and she came to terms sometimes with the one and sometimes with the other. Sorley Boy's wife was an illegitimate half-sister of Shane O'Neill; but this did not deter him from leaguing himself with the government against the O'Neills, if by so doing he could obtain a formal recognition of his title to the lands of which he was in actual possession. In 1562 Shane O'Neill paid his celebrated visit to London, where he obtained recognition by Elizabeth of his claims as head of the O'Neills; and on his return to Ireland he attacked the Macdonnells, ostensibly in the English interest. He defeated Sorley Boy near Coleraine in the summer of 1564; in 1565 he invaded the Glynns, and at Ballycastle won a decisive victory, in which James Macdonnell and Sorley Boy were taken prisoners. James soon afterwards died, but Sorley Boy remained O'Neill's captive till 1567, when Shane was murdered by the Macdonnells at Cushendun (see O'NEILL). Sorley Boy then went to Scotland to enlist support, and he spent the next few years in striving to frustrate the schemes of Sir Thomas Smith, and later of the earl of Essex, for colonizing Ulster with English settlers. Sorley Boy was willing to come to terms with the government provided his claims to his lands were allowed, but Essex determined to reduce him to unconditional submission. John Norris was ordered to proceed by sea from Carrickfergus to Rathlin Island, where Sorley Boy's children and valuables, together with the families of his principal retainers, had been lodged for safety; and while the chieftain was himself at Ballycastle, within sight of the island, the women and children were massacred by the English. Sorley Boy retaliated by a successful raid on Carrickfergus and by re-establishing his power in the Glynns and the Route, which the Mac Quillins made ineffectual attempts to recover. Macdonnell's position was still further strengthened by an alliance with Turlough Luineach O'Neill, and by a formidable immigration of followers from the Scottish islands. In 1584 Sir John Perrot determined to make a further effort to subdue the turbulent chieftain. After another expedition to Scotland seeking help, Sorley Boy landed at Cushendun in January 1585, and his followers regained possession of Dunluce Castle. In these circumstances Sir John Perrot opened negotiations with Sorley Boy, who in the summer of 1586 repaired to Dublin and made submission to Elizabeth's representative. He obtained a grant to himself and his heirs of all the Route country between the rivers Bann and Bush, with certain other lands to the east, and was made constable of Dunluce Castle, For the rest of his life Sorley Boy gave no trouble to the English government. He died in 1590, and was buried in Bonamairgy Abbey, at Ballycastle. He is said to have married when over eighty years of age, as his second wife, a daughter of Turlough Luineach O'Neill, a kinswoman of his first wife; and two of his five daughters married members of the O'Neill family. Sorley Boy had several sons by his first marriage, one of whom, Randal, was created earl of Antrim (*q.v.*), and was ancestor of the present holder of that title.

See G. Hill, *An Historical Account of the Macdonnells of Antrim* (London, 1873); Richard Bagwell, *Ireland under the Tudors* (3 vols., London, 1885-1890); *Calendar of State Papers: Carew MSS.* i., ii., (6 vols., 1867-1873); Donald Gregory, *History of the Western Highlands and Isles of Scotland* 1493-1625 (London, 1881); Sir J. T. Gilbert, *History of the Viceroys of Ireland* (Dublin, 1865).

(R. J. M.)

MACDONOUGH, THOMAS (1786-1825), American sailor, was born in the state of Delaware, his father being an officer of the Continental Army, and entered the United States navy in 1800. During his long service as a lieutenant he took part in the bombardment of Tripoli, and on a subsequent occasion showed great firmness in resisting the seizure of a seaman as an alleged deserter from the British navy, his ship at the time lying under the guns of Gibraltar. When war with England broke out, in 1812, he was ordered to cruise in the lakes between Canada and the United States, with his headquarters on lake Champlain. He was instrumental in saving New York and Vermont from invasion by his brilliant victory of lake Champlain gained, on the 11th of September 1814, with a flotilla of 14 vessels carrying 86 guns, over Captain George Downie's 16 vessels and 92 guns. For this important achievement New York and Vermont granted him estates, whilst Congress gave him a gold medal.

MacDOWELL, EDWARD ALEXANDER (1861-1908), American musical composer, was born in New York City on the 18th of December 1861. His father, an Irishman of Belfast, had emigrated to America shortly before the boy's birth. He had a varied education in music, first under Spanish-American teachers, and then in Europe, at Paris (Debussy being a fellow pupil), Stuttgart, Wiesbaden and Weimar, where he was chiefly influenced by Joachim, Raff and Liszt. From 1879 to 1887 he lived in Germany, teaching and studying, and also appearing as solo pianist at important concerts. In 1884 he married Marian Nevins, of New York. In 1888 he returned to America, and settled in Boston till in 1896 he was made professor of music at Columbia University, New York. He resigned this post in 1904, and in 1905 overwork and insomnia resulted in a complete cerebral collapse. He died on the 24th of January 1908. MacDowell's work gives him perhaps the highest place among American composers. Deeply influenced by modern French models and by German romanticism, full of poetry and "atmosphere," and founded on the "programme," idea of composition, it is essentially creative in the spirit of a searcher after delicate truths of artistic expression. His employment of touches of American folk-song, suggested by Indian themes, is characteristic. This is notably the case with his orchestral *Indian Suite* (1896) and *Woodland Sketches* for the piano. His first concerto, in A minor, for piano and orchestra, and first pianoforte suite, were performed at Weimar in 1882. His works include orchestral suites and "poems," songs, choruses, and various pieces for pianoforte, his own instrument; they are numbered from *op.* 9 to *op.* 62, his first eight numbered works being destroyed by him.

See Lawrence Gilman, *Edward MacDowell* (1906).

McDOWELL, IRVIN (1818-1885), American soldier, was born in Columbus, Ohio, on the 15th of October 1818. He was educated in France, and graduated at the U. S. military academy in 1838. From 1841 to 1845 he was instructor, and later adjutant, at West Point. He won the brevet of captain in the Mexican War, at the battle of Buena Vista, and served as adjutant-general, chiefly at Washington, until 1861, being promoted major in 1856. In 1858-1859 he visited Europe. Whilst occupied in mustering volunteers at the capital, he was made brigadier-general in May 1861, and placed in command during the premature Virginian campaign of July, which ended in the defeat at Bull Run. Under McClellan he became a corps commander and major-general of volunteers (March 1862). When the Peninsular campaign began McDowell's corps was detained against McClellan's wishes, sent away to join in the fruitless chase of "Stonewall" Jackson in the Shenandoah Valley, and eventually came under the command of General Pope, taking part in the disastrous campaign of Second Bull Run. Involved in Pope's

disgrace, McDowell was relieved of duty in the field (Sept. 1862), and served on the Pacific coast 1864-68. He became, on Meade's death in November 1872, major-general of regulars (a rank which he already held by brevet), and commanded successively the department of the east, the division of the south, and the division of the Pacific until his retirement in 1882. The latter years of his life were spent in California, and he died at San Francisco on the 4th of May 1885. As a commander he was uniformly unfortunate. Undoubtedly he was a faithful, unselfish and energetic soldier, in patriotic sympathy with the administration, and capable of great achievements. It was his misfortune to be associated with the first great disaster to the Union cause, to play the part of D'Erlon at Quatre-Bras between the armies of Banks and McClellan, and finally to be involved in the catastrophe of Pope's campaign. That he was perhaps too ready to accept great risks at the instance of his superiors is the only just criticism to which his military character was open.

MACDUFF, a police burgh and seaport of Banffshire, Scotland. Pop. (1001), 3431. It lies on the right bank of the mouth of the Deveron, 1 m. E. of Banff and 50¼ m. N.W. of Aberdeen by the Great North of Scotland railway. The site was originally occupied by the fishing village of Doune, but after its purchase by the 1st earl of Fife, about 1732, the name was altered to Macduff by the 2nd earl, who also procured for it in 1783 a royal charter constituting it a burgh. In honour of the occasion he rebuilt the market cross, in front of the parish church. The harbour, safer and more accessible than that of Banff, was constructed by the duke of Fife, and transferred to the burgh in 1808. The inhabitants are chiefly employed in the herring fishery, but there is some boat-building, besides rope-and-sail making, manure works, saw-mills and oilcake mills. A stone bridge across the Deveron communicates with Banff. Good bathing facilities, a bracing climate and a mineral well attract numerous visitors to Macduff every summer. The burgh unites with Banff, Cullen, Elgin, Inverurie, Kintore and Peterhead (the Elgin burghs) in returning one member to parliament.

McDUFFIE, GEORGE (1788-1851), American political leader, was born in Columbia county, Georgia. He Was admitted to the bar in 1814, and served in the South Carolina General Assembly in 1818-1821, and in the national House of Representatives in 1821-1834. In 1821 he published a pamphlet in which strict construction and states' rights were strongly denounced; yet in 1832 there were few more uncompromising nullificationists. The change seems to have been gradual, and to have been determined in part by the influence of John C. Calhoun. When, after 1824, the old Democratic-Republican party split into factions, he followed Andrew Jackson and Martin Van Buren in opposing the Panama Congress and the policy of making Federal appropriations for internal improvements. He did not hesitate, however, to differ from Jackson on the two chief issues of his administration: the Bank and nullification. In 1832 he was a prominent member of the South Carolina Nullification Convention, and drafted its address to the people of the United States. He served as governor in 1834-1836, during which time he helped to reorganize South Carolina College. From January 1843 until January 1846 he was a member of the United States Senate. The leading Democratic measures of those years all received his hearty support. McDuffie, like Calhoun, became an eloquent champion of state sovereignty; but while Calhoun emphasized state action as the only means of redressing a grievance, McDuffie paid more attention to the grievance itself. Influenced in large measure by Thomas Cooper, he made it his special work to convince the people of the South that the downfall of protection was essential to their material progress. His argument that it is the producer who really pays the duty of imports has been called the economic basis of nullification. He died at Cherry Hill, Sumter district, South Carolina, on the 11th of March 1851.

MACE (Fr. *masse*, O. Fr. *mace*, connected with Lat. *mateola*, a mallet), originally a weapon of offence, made of iron, steel or latten, capable of breaking through the strongest armour.[1] The earliest *ceremonial* maces, as they afterwards became, though at first intended to protect the king's person, were those borne by the serjeants-at-arms, a royal body-guard established in France by Philip II., and in England probably by Richard I. By the 14th century a tendency towards a more decorative serjeant's mace, encased with precious metals, is noticeable. The history of the civic mace (carried by the serjeants-at-mace) begins about the middle of the 13th century, though no examples of that period are in existence to-day. Ornamented civic maces were considered an infringement of one of the privileges of the king's serjeants, who, according to the Commons' petition in 1344, were alone deemed worthy of having maces enriched with costly metals. This privilege was, however, granted to the serjeants of London, and later to those of York (in 1396), Norwich (in 1403/4) and Chester (in 1506). Maces covered with silver are known to have been used at Exeter in 1387/8; two were bought at Norwich in 1435, and others for Launceston in 1467/8. Several other cities and towns had silver maces in the next century, and in the 16th they were almost universally used. Early in the 15th century the flanged end of the mace, *i.e.* the head of the war mace, was borne uppermost, and the small button with the royal arms in the base. By the beginning of the Tudor period, however, these blade-like flanges, originally made for offence, degenerated into mere ornaments, while the greater importance of the end with the royal arms (afterwards enriched with a cresting) resulted in the reversal of the position. The custom of carrying the flanged end upward did not die out at once: a few maces were made to carry both ways, such as the beautiful pair of Winchcombe silver maces, dating from the end of the 15th century. The Guildford mace is one of the finest of the fifteen specimens of the 15th century. The flanged ends of the maces of this period were often beautifully pierced and decorated. These flanges gradually became smaller, and later (in the 16th and early 17th centuries) developed into pretty projecting scroll-brackets and other ornaments, which remained in vogue till about 1640. The next development in the embellishment of the shaft was the reappearance of these small scroll-brackets on the top, immediately under the head of the mace. They disappear altogether from the foot in the last half of the 17th century, and are found only under the heads, or, in rarer instances, on a knob on the shaft. The silver mace-heads were mostly plain, with a cresting of leaves or flowers in the 15th

and 16th centuries. In the reign of James I. they began to be engraved and decorated with heraldic devices, &c. As the custom of having serjeants' maces ceased (about 1650), the large maces, borne before the mayor or bailiffs, came into general use. Thomas Maundy was the chief maker of maces during the Commonwealth. He made the mace for the House of Commons in 1649, which is the one at present in use there, though without the original head with the non-regal symbols, the latter having been replaced by one with regal symbols at the Restoration. There are two maces in the House of Lords, the earliest dating from the reign of William III. The dates of the eight large and massive silver-gilt maces of the serjeants-at-arms, kept in the jewel-house at the Tower of London, are as follows: two of Charles II., two of James II., three of William and Mary, and one of Queen Anne (the cypher of George I. was subsequently added to the latter). All the foregoing are of the type which was almost universally adopted, with slight differences, at the Restoration. The civic maces of the 18th century follow this type, with some modifications in shape and ornamentation. The historic English silver maces of the 18th century include the one of 1753 at Norfolk, Virginia, and that of 1756 of the state of South Carolina, both in the United States of America; two, made in 1753 and 1787, at Jamaica; that of 1791 belonging to the colony of Grenada, and the Speaker's mace at Barbados, dating from 1812; and the silver mace of the old Irish House of Commons, 1765-1766, now in the possession of Lord Massereene and Ferrard.

Among other maces, more correctly described as staves, in use at the present time, are those carried before ecclesiastical dignitaries and clergy in cathedrals and parish churches and the maces of the universities. At Oxford there are three of the second half of the 16th century and six of 1723-1724, while at Cambridge there are three of 1626 and one of 1628, but altered at the Commonwealth and again at the Restoration. The silver mace with crystal globe of the lord high treasurer of Scotland, at Holyrood Palace, was made about 1690 by Francis Garthorne. The remarkable mace or sceptre of the lord mayor of London is of crystal and gold and set with pearls; the head dates from the 15th century, while the mounts of the shaft are early medieval. A mace of an unusual form is that of the Tower ward of London, which has a head resembling the White Tower in the Tower of London, and which was made in the reign of Charles II. The beautiful mace of the Cork gilds, made by Robert Goble of Cork in 1696 for the associated gilds, of which he had been master, is in the Victoria and Albert Museum, where there is also a large silver mace of the middle of the 18th century, with the arms of Pope Benedict XIV., which is said to have been used at the coronation of Napoleon as king of Italy at Milan in 1805.

From Jewitt and Hope's *Corporation Plate and Insignia* (1895), by permission of Bemrose & Co.

Fɪɢ. 2.—Mace of the House of Commons.
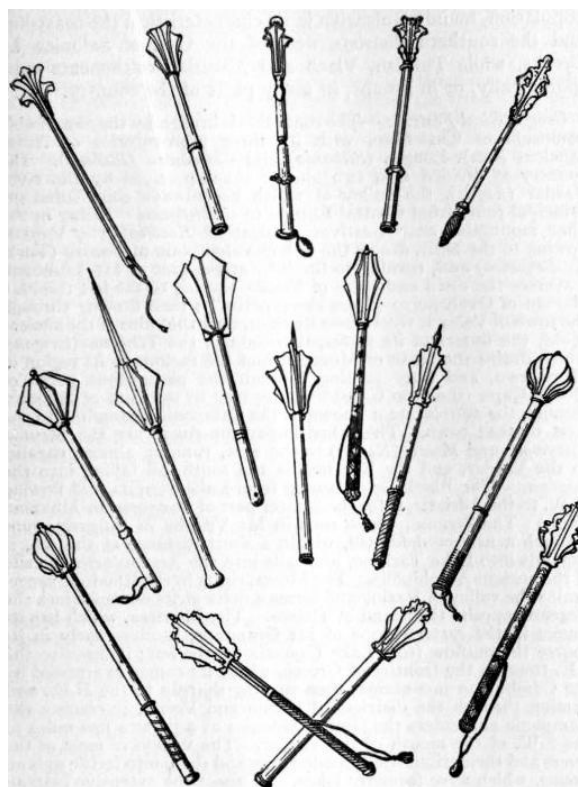
Bibliography.—Jewitt and Hope, *Corporation Plate and Insignia of Office*, &c. (2 vols., 1895); J. R. Garstin, *Irish State and Civic Maces*, &c. (1898); J. Paton, *Scottish History and Life* (1902); J. H. Buck, *Old Plate* (1903), pp. 124-140; Cripps, *Old English Plate* (9th ed., 1906), pp. 394-404; E. Alfred Jones, *Old Plate at the Tower of London* (1908); ed., "Some Historic Silver Maces," *Burlington Magazine* (Dec. 1908).

(E. A. J.)

1   The mace was carried in battle by medieval bishops (Odo of Bayeux is represented on the Bayeux tapestry as wielding one) instead of the sword, so as to conform to the canonical rule which forbade priests to shed blood.—[Ed.]

MACEDO, JOSÉ AGOSTINHO DE (1761-1831), Portuguese poet and prose writer, was born at Beja of plebeian family, and studied Latin and rhetoric with the Oratorians in Lisbon. He became professed as an Augustinian in 1778, but owing to his turbulent character he spent a great part of his time in prison, and was constantly being transferred from one convent to another, finally giving up the monastic habit to live licentiously in the capital. In 1792 he was unfrocked, but by the aid of powerful friends he obtained a papal brief which secularized him and permitted him to retain his ecclesiastical status. Taking to journalism and preaching he now made for himself a substantial living and a unique position. In a short time he was recognized as the leading pulpit orator of the day, and in 1802 he became one of the royal preachers. Macedo was the first to introduce from abroad and to cultivate didactic and descriptive poetry, the best example of which is his notable transcendental poem *Meditation* (1813). His colossal egotism made him attempt to supersede Camoens as Portugal's greatest poet, and in 1814 he produced *Oriente*, an insipid epic notwithstanding its correct and vigorous verse, dealing with the same subject as the *Lusiads*—Gama's discovery of the sea route to India. This amended paraphrase met with a cold reception, whereupon Macedo published his *Censura dos Lusiadas*, containing a minute examination and virulent indictment of Camoens. Macedo founded and wrote for a large number of journals, and the tone and temper of these and his political pamphlets induced his leading biographer to name him the "chief libeller" of Portugal, though at the time his jocular and satirical style gained him popular favour. An extreme adherent of absolutism, he expended all his brilliant powers of invective against the Constitutionalists, and advocated a general massacre of the opponents of the Miguelite régime. Notwithstanding his priestly office and old age, he continued his aggressive journalistic campaign, until his own party, feeling that he was damaging the cause by his excesses, threatened him with proceedings, which caused him in 1829 to resign the post of censor of books for the Ordinary, to which he had been appointed in 1824. Though his ingratitude was proverbial, and his moral character of the worst, when he died in 1831 he left behind him many friends, a host of admirers, and a great but ephemeral literary reputation. His ambition to rank as the king of letters led to his famous conflict with Bocage (*q.v.*), whose poem *Pena de Talião* was perhaps the hardest blow Macedo ever received. His malignity reached its height in a satirical poem in six cantos, *Os Burros* (1812-1814), in which he pilloried by name men and women of all grades of society, living and dead, with the utmost licence of expression. His translation of the *Odes* of Horace, and his dramatic attempts, are only of value as evidence of the extraordinary versatility of the man, but his treatise, if his it be, *A Demonstration of the Existence of God*, at least proves his possession of very high mental powers. As a poet, his odes on Wellington and the emperor Alexander show true inspiration, and the poems of the same nature in his *Lyra anacreontica*, addressed to his mistress, have considerable merit.

See *Memorias para la vida intima de José Agostinho de Macedo* (ed. Th. Braga, 1899); *Cartas e opusculos* (1900); *Censuras á diversas obras* (1901).

(E. Pr.)

MACEDONIA, the name generally given to that portion of European Turkey which is bounded on the N. by the Kara-Dagh mountain range and the frontier of Bulgaria, on the E. by the river Mesta, on the S. by the Aegean Sea and the frontier of Greece, and on the W. by an ill-defined line coinciding with the mountain chains of Shar (ancient *Scardus*) Grammus and Pindus. The Macedonia of antiquity was originally confined to the inland region west of the Axius, between that river and the Scardus range, and did not include the northern portion, known as Paeonia, or the coast-land, which, with the eastern districts, was inhabited by Thracian tribes; the people of the country were not Hellenic. In modern Macedonia are included the vilayet of Salonica (Turk. *Selanik*), the eastern and greater portion of the vilayet of Monastir (sanjaks of Monastir, Servia [Turk. *Selfije*], and part of that of Kortcha), and the south-eastern portion of the vilayet of Kossovo (sanjak of Usküb). The greater part of Macedonia is inhabited by a Slavonic population, mainly Bulgarian in its characteristics; the coast-line and the southern districts west of the Gulf of Salonica by Greeks, while Turkish, Vlach and Albanian settlements exist sporadically, or in groups, in many parts of the country.

Geographical Features.—The coast-line is broken by the remarkable peninsula of Chalcidice, with its three promontories of Athos (ancient *Acte*), Longus (*Sithonia*) and Cassandra (*Pallene*). The country is divided into two almost equal portions by the river Vardar (*Axius*), the valley of which has always constituted the principal route from Central Europe to the Aegean. Rising in the Shar mountains near Gostivar (Bulgarian *Kostovo*), the Vardar, flowing to the N.E., drains the rich elevated plain of Tetovo (Turk. *Kalkandelen*) and, turning to the S.E. at the foot of Mt Liubotrn, traverses the town and plain of Usküb, leaving to the left the high plateau of Ovchepolye ("the sheep-plain"); then flowing through the town of Veles, it receives on its right, near the ruins of the ancient Stobi, the waters of its principal tributary, the Tcherna (*Erigon*), which drains the basin of Monastir and the mountainous region of Morichovo, and after passing through the picturesque gorge of Demir-Kapu (the Iron Gate) finds its way to the Gulf of Salonica through the alluvial tract known as the Campania, extending to the west of that town. The other important rivers are the Struma (*Strymon*) and Mesta (*Nestus*) to the east, running almost parallel to the Vardar, and the Bistritza in the south, all falling into the Aegean. (The Black Drin, issuing from Lake Ochrida and flowing N.W. to the Adriatic, is for the greater part of its course an Albanian river.) The Struma, which rises in Mt Vitosha in Bulgaria, runs through a narrow defile till, within a short distance of the sea, it expands into Lake Tachino, and falls into the Aegean near the site of the ancient Amphipolis. The Mesta, rising in the Rhodope range, drains the valley of Razlog and forms a delta at its entrance into the Aegean opposite the island of Thasos. The Bistritza, which has its source in the eastern slope of Mt Grammus, receives early in its course the outflow from Lake Castoria on the left; it flows to the S.E. towards the frontier of Greece, where its course is arrested by the Cambunian mountains; then turning sharply to the N.E., and passing through the districts of Serfije and Verria, it reaches the Campania and enters the Gulf of Salonica at a point a few miles to the S.W. of the mouth of the Vardar. The valleys of most of the rivers and their tributaries broaden here and there into fertile upland basins, which were formerly lakes. Of these the extensive plateau of Monastir, the ancient plain of Pelagonia, about 1500 ft. above the sea, is the most remarkable; the basins of Tetovo, Usküb, Kotchané, Strumnitza, Nevrokop, Melnik, Serres and Drama furnish other examples. The principal lakes are Ochrida (*Lychnitis*) on the confines of Albania; Prespa, separated from Ochrida by the

Galinitza mountains, and supposed to be connected with it by a subterranean channel; Castoria, to the S.E. of Prespa; Ostrovo, midway between Prespa and the Vardar; Tachino (*Cercinitis*) on the lower course of the Struma; Beshik (*Bolbe*), separating the Chalcidian peninsula from the mainland, and Doiran (probably *Prasias*), beneath the southern declivity of the Belasitza mountains; the smaller lakes of Amatovo and Yenije are in the alluvial plain on either side of the lower Vardar. Lake Ochrida (*q.v.*) finds egress into the Black Drin (*Drilon*) at Struga, where there are productive fisheries. The lacustrine habitations of the Paeonians on Lake Prasias described by Herodotus (v. 16) find a modern counterpart in the huts of the fishing population on Lake Doiran. The surface of the country is generally mountainous; the various mountain-groups present little uniformity in their geographical contour. The great chain of Rhodope, continued to the N.W. by the Rilska and Osogovska Planina, forms a natural boundary on the north; the principal summit, Musalla (9031 ft.), is just over the Bulgarian frontier. The adjoining Dospat range culminates in Belmeken (8562 ft.), also just over the Bulgarian frontier. Between the upper courses of the Mesta and Struma is the Perim Dagh or Pirin Planina (*Orbelos*) with Elin (8794 ft.), continued to the south by the Bozo Dagh (6081 ft.); still further south, overlooking the bay of Kavala, are the Bunar Dagh and Mt Pangaeus, famous in antiquity for its gold and silver mines. Between the Struma and the Vardar are the Belasitza, Krusha and other ranges. West of the Vardar is the lofty Shar chain (*Scardus*) overlooking the plain of Tetovo and terminating at its eastern extremity in the pyramidal Liubotrn (according to some authorities, 10,007 ft., and consequently the highest mountain in the Peninsula; according to others 8989, 8856, or 8200 ft.). The Shar range, with the Kara Dagh to the east, forms the natural boundary of Macedonia on the N.W.; this is prolonged on the west by the Yaina-Bistra and Yablanitza mountains with several summits exceeding 7000 ft. in height, the Odonishta Planina overlooking Lake Ochrida on the west, the Morova Planina, the Grammus range, and Pindus with Smolika (8546 ft.). The series of heights is broken by the valleys of the Black Drin and Devol, which flow to the Adriatic. Between the Vardar and the plain of Monastir the Nija range culminates in Kaimakchalan (8255 ft.); south-west of Monastir is Mt Peristeri (7720 ft.) overlooking Lake Prespa on the east; on the west is the Galinitza range separating it from Lake Ochrida. Between Lake Ostrovo and the lower Bistritza are the Bermius and Kitarion ranges with Doxa (5240 ft.) and Turla (about 3280 ft.). South of the Bistritza are the Cambunian mountains forming the boundary of Thessaly and terminating to the east in the imposing mass of Etymbos, or Olympus (9794 ft.). Lastly, Mt Athos, at the extremity of the peninsula of that name, reaches the height of 6350 ft. The general aspect of the country is bare and desolate, especially in the neighbourhood of the principal routes; the trees have been destroyed, and large tracts of land remain uncultivated. Magnificent forests, however, still clothe the slopes of Rhodope, Pirin and Pindus. The well-wooded and cultivated districts of Grevena and Castoria, which are mainly inhabited by a Vlach population, are remarkably beautiful, and the scenery around Lakes Ochrida and Prespa is exceedingly picturesque. For the principal geological formations see BALKAN PENINSULA.

The climate is severe; the spring is often rainy, and the melted snows from the encircling mountains produce inundations in the plains. The natural products are in general similar to those of southern Bulgaria and Servia—the fig, olive and orange, however, appear on the shores of the Aegean and in the sheltered valleys of the southern region. The best tobacco in Europe is grown in the Drama and Kavala districts; rice and cotton are cultivated in the southern plains.

Population.—The population of Macedonia may perhaps be estimated at 2,200,000. About 1,300,000 are Christians of various churches and nationalities; more than 800,000 are Mahommedans, and about 75,000 are Jews. Of the Christians, the great majority profess the Eastern Orthodox faith, owning allegiance either to the Greek patriarchate or the Bulgarian exarchate. Among the Orthodox Christians are reckoned some 4000 Turks. The small Catholic minority is composed chiefly of Uniate Bulgarians (about 3600), occupying the districts of Kukush and Doiran; there are also some 2000 Bulgarian Protestants, principally inhabiting the valley of Razlog. The Mahommedan population is mainly composed of Turks (about 500,000). In addition to these there are some 130,000 Bulgars, 120,000 Albanians, 35,000 gipsies and 14,000 Greeks, together with a smaller number of Vlachs, Jews and Circassians, who profess the creed of Islam. The untrustworthy Turkish statistics take religion, not nationality, as the basis of classification. All Moslems are included in the *millet*, or nation, of Islam. The Rûm, or Roman (*i.e.* Greek) *millet* comprises all those who acknowledge the authority of the Oecumenical patriarch, and consequently includes, in addition to the Greeks, the Servians, the Vlachs, and a certain number of Bulgarians; the Bulgar *millet* comprises the Bulgarians who accept the rule of the exarchate; the other *millets* are the *Katolik* (Catholics), *Ermeni* (Gregorian Armenians), *Musevi* (Jews) and *Prodesdan* (Protestants). The population of Macedonia, at all times scanty, has undoubtedly diminished in recent years. There has been a continual outflow of the Christian population in the direction of Bulgaria, Servia and Greece, and a corresponding emigration of the Turkish peasantry to Asia Minor. Many of the smaller villages are being abandoned by their inhabitants, who migrate for safety to the more considerable towns—usually situated at some point where a mountain pass descends to the outskirts of the plains. In the agricultural districts the Christian peasants, or *rayas*, are either small proprietors or cultivate holdings on the estates of Turkish landowners. The upland districts are thinly inhabited by a nomad pastoral population.

Towns.—The principal towns are Salonica (pop. in 1910, about 130,000), Monastir (60,000), each the capital of a vilayet, and Usküb (32,000), capital of the vilayet of Kossovo. In the Salonica vilayet are Serres (28,000), pleasantly situated in a fertile valley near Lake Tachino; Nevrokop (6200), Mehomia (5000), and Bansko (6500), in the valley of the Upper Mesta; Drama (9000), at the foot of the Bozo Dagh, with its port Kavala (9500); Djumaia (6440), Melnik (4300) and Demir Hissar (5840) in the valley of the Struma, with Strumnitza (10,160) and Petrich (7100) in the valley of its tributary, the Strumnitza; Veles (Turk. *Koprülü*) on the Vardar (19,700); Doiran (6780) and Kukush (7750); and, to the west of the Vardar, Verria (Slav. *Ber*, anc. *Beroea*, Turk. *Karaferia*, 10,500), Yenijé-Vardar (9599) and Vodena (anc. *Edessa*, *q.v.*, 11,000). In the portion of the Kossovo vilayet included in Macedonia are Kalkandelen (Slav. *Tetovo*, 19,200), Kumanovo (14,500) and Shtip (Turk. *Istib*, 21,000). In the Monastir vilayet are Prilep (24,000) at the northern end of the Pelagonian plain, Krushevo (9350), mainly inhabited by Vlachs, Resen (4450) north of Lake Prespa, Florina (Slav. *Lerin*, 9824); Ochrida (14,860), with a picturesque fortress of Tsar Samuel, and Struga (4570), both on the north shore of Lake Ochrida; Dibra (Slav. *Debr*) on the confines of Albania (15,500), Castoria (Slav. *Kostur*), on the lake of that name (6190), and Kozhané (6100). (Dibra, Kavala, Monastir, Ochrida, Salonica, Serres, Usküb and Vodena are described in separate articles.)

Races.—Macedonia is the principal theatre of the struggle of nationalities in Eastern Europe. All the races which dispute the reversion of the Turkish possessions in Europe are represented within its borders. The Macedonian probably may therefore be described as the quintessence of the Near Eastern Question. The Turks, the ruling race, form less than a quarter of the entire population, and their numbers are steadily declining. The first Turkish immigration from Asia Minor took place under the Byzantine emperors before the conquest of the country. The first purely Turkish town, Yenijé-Vardar, was founded on the ruins of Vardar in 1362. After the capture of Salonica (1430), a strong Turkish population was settled in the city, and similar colonies were founded in Monastir, Ochrida, Serres, Drama and other important places. In many of these towns half or more of the population is still Turkish. A series of military colonies were subsequently established at various points of strategic importance along the principal lines of communication. Before 1360 large numbers of nomad shepherds, or Yuruks, from the district of Konia, in Asia Minor, had settled in the country; their descendants are still known as Konariotes. Further immigration from this region took place from time to time up to the middle of the 18th century. After the establishment of the feudal system in 1397 many of the Seljuk noble families came over from Asia Minor; their descendants may be recognized among the beys or Moslem landowners in southern Macedonia. At the beginning of the 18th century the Turkish population was very considerable, but since that time it has continuously decreased. A low birth-rate, the exhaustion of the male population by military service, and great mortality from epidemics, against which Moslem fatalism takes no precautions, have brought about a decline which has latterly been hastened by emigration. On the other hand, there has been a considerable Moslem immigration from Bosnia, Servia, Bulgaria and Greece, but the newcomers, *mohajirs*, do not form a permanent colonizing element. The Turkish rural population is found in three principal groups: the most easterly extends from the Mesta to Drama, Pravishta and Orfano, reaching the sea-coast on either side of Kavala, which is partly Turkish, partly Greek. The second, or central, group begins on the sea-coast, a little west of the mouth of the Strymon, where a Greek population intervenes, and extends to the north-west along the Kara-Dagh and Belasitza ranges in the direction of Strumnitza, Veles, Shtip and Radovisht. The third, or southern, group is centred around Kaïlar, an entirely Turkish town, and extends from Lake Ostrovo to Selfijé (Servia). The second and third groups are mainly composed of Konariot shepherds. Besides these fairly compact settlements there are numerous isolated Turkish colonies in various parts of the country. The

The Turks.

Turkish rural population is quiet, sober and orderly, presenting some of the best characteristics of the race. The urban population, on the other hand, has become much demoralized, while the official classes, under the rule of Abdul Hamid II. and his predecessors, were corrupt and avaricious, and seemed to have parted with all scruple in their dealings with the Christian peasantry. The Turks, though still numerically and politically strong, fall behind the other nationalities in point of intellectual culture, and the contrast is daily becoming more marked owing to the educational activity of the Christians.

The Greeks and Vlachs.

The Greek and Vlach populations are not always easily distinguished, as a considerable proportion of the Vlachs have been hellenized. Both show a remarkable aptitude for commerce; the Greeks have maintained their language and religion, and the Vlachs their religion, with greater tenacity than any of the other races. From the date of the Ottoman conquest until comparatively recent times, the Greeks occupied an exceptional position in Macedonia, as elsewhere in the Turkish Empire, owing to the privileges conferred on the patriarchate of Constantinople, and the influence subsequently acquired by the great Phanariot families. All the Christian population belonged to the Greek *millet* and called itself Greek; the bishops and higher clergy were exclusively Greek; Greek was the language of the upper classes, of commerce, literature and religion, and Greek alone was taught in the schools. The supremacy of the patriarchate was consummated by the suppression of the autocephalous Slavonic churches of Ipek in 1766 and Ochrida in 1767. In the latter half of the 18th century Greek ascendancy in Macedonia was at its zenith; its decline began with the War of Independence, the establishment of the Hellenic kingdom, and the extinction of the Phanariot power in Constantinople. The patriarchate, nevertheless, maintained its exclusive jurisdiction over all the Orthodox population till 1870, when the Bulgarian exarchate was established, and the Greek clergy continued to labour with undiminished zeal for the spread of Hellenism. Notwithstanding their venality and intolerance, their merits as the only diffusers of culture and enlightenment in the past should not be overlooked. The process of hellenization made greater progress in the towns than in the rural districts of the interior, where the non-Hellenic populations preserved their languages, which alone saved the several nationalities from extinction. The typical Greek, with his superior education, his love of politics and commerce, and his distaste for laborious occupations, has always been a dweller in cities. In Salonica, Serres, Kavala, Castoria, and other towns in southern Macedonia the Hellenic element is strong; in the northern towns it is insignificant, except at Melnik, which is almost exclusively Greek. The Greek rural population extends from the Thessalian frontier to Castoria and Verria (*Beroea*); it occupies the whole Chalcidian peninsula and both banks of the lower Strymon from Serres to the sea, and from Nigrita on the west to Pravishta on the east; there are also numerous Greek villages in the Kavala district. The Mahommedan Greeks, known as Valachides, occupy a considerable tract in the upper Bistritza valley near Grevena and Liapsista. The purely Greek population of Macedonia may possibly be estimated at a quarter of a million. The Vlachs, or Rumans, who call themselves *Aromuni* or *Aromâni* (*i.e.* Romans), are also known as *Kutzovlachs* and *Tzintzars*: the last two appellations are, in fact, nicknames, "Kutzovlach" meaning "lame Vlach," while "Tzintzar" denotes their inability to pronounce the Rumanian *cinci* (five). The Vlachs are styled by some writers "Macedo-Rumans," in contradistinction to the "Daco-Rumans," who inhabit the country north of the Danube. They are, in all probability, the descendants of the Thracian branch of the aboriginal Thraco-Illyrian population of the Balkan Peninsula, the Illyrians being represented by the Albanians. This early native population, which was apparently hellenized to some extent under the Macedonian empire, seems to have been latinized in the period succeeding the Roman conquest, and probably received a considerable infusion of Italian blood. The Vlachs are for the most part either highland shepherds or wandering owners of horses and mules. Their settlements are scattered all over the mountains of Macedonia: some of these consist of permanent dwellings, others of huts occupied only in the summer. The compactest groups are found in the Pindus and Agrapha mountains (extending into Albania and Thessaly), in the neighbourhood of Monastir, Grevena and Castoria, and in the district of Meglen. The Vlachs who settle in the lowland districts are excellent husbandmen. The urban population is considerable; the Vlachs of Salonica, Monastir, Serres and other large towns are, for the most part, descended from refugees from Moschopolis, once the principal centre of Macedonian commerce. The towns of Metzovo, on the confines of Albania, and Klisura, in the Bistritza valley, are almost exclusively Vlach. The urban and most of the rural Vlachs are bilingual, speaking Greek as well as Rumanian; a great number of the former have been completely hellenized, partly in consequence of mixed marriages, and many of the wealthiest commercial families of Vlach origin are now devoted to the Greek cause. The Vlachs of Macedonia possibly number 90,000, of whom only some 3000 are Mahommedans. The Macedonian dialect of the Rumanian language differs mainly from that spoken north of the Danube in its vocabulary and certain phonetic peculiarities; it contains a number of Greek words which are often replaced in the northern speech by Slavonic or Latin synonyms.

The Albanians, Circassians, &c.

The Albanians, called by the Turks and Slavs *Arnauts*, by the Greeks Ἀρβανῖται, and by themselves *Shkyipetar*, have always been the scourge of western Macedonia. After the first Turkish invasion of Albania many of the chiefs or beys adopted Mahommedanism, but the conversion of the great bulk of the people took place in the 16th and 17th centuries. Professing the creed of the dominant power and entitled to bear arms, the Albanians were enabled to push forward their limits at the expense of the defenceless population around them, and their encroachments have continued to the present day. They have not only advanced themselves, but have driven to the eastward numbers of their Christian compatriots and a great portion of the once-prosperous Vlach population of Albania. Albanian revolts and disturbances have been frequent along the western confines of Macedonia, especially in the neighbourhood of Dibra: the Slavonic peasants have been the principal sufferers from these troubles, while the Porte, in pursuance of the "Islamic policy" adopted by the sultan Abdul Hamid II., dealt tenderly with the recalcitrant believers. In southern Macedonia the Albanians of the Tosk race extend over the upper Bistritza valley as far west as Castoria, and reach the southern and western shores of Lakes Prespa and Ochrida: they are also numerous in the neighbourhood of Monastir. In northern Macedonia the Albanians are of the Gheg stock: they have advanced in large numbers over the districts of Dibra, Kalkandelen and Usküb, driving the Slavonic population before them. The total number of Albanians in Macedonia may be estimated at about 120,000, of whom some 10,000 are Christians (chiefly orthodox Tosks). The Circassians, who occupy some villages in the neighbourhood of Serres, now scarcely number 3000: their predatory instincts may be compared with those of the Albanians. The Jews had colonies in Macedonia in the time of St Paul, but no trace remains of these early settlements. The Jews now found in the country descend from refugees who fled from Spain during the persecutions at the end of the 15th century: they speak a dialect of Spanish, which they write with Hebrew characters. They form a flourishing community at Salonica, which numbers more than half the population: their colonies at Monastir, Serres and other towns are poor. A small proportion of the Jews, known as *Deunmé* by the Turks, have embraced Mahommedanism.

The Slavonic Population.

With the exception of the southern and western districts already specified, the principal towns, and certain isolated tracts, the whole of Macedonia is inhabited by a race or races speaking a Slavonic dialect. If language is adopted as a test, the great bulk of the rural population must be described as Slavonic. The Slavs first crossed the Danube at the beginning of the 3rd century, but their great immigration took place in the 6th and 7th centuries. They overran the entire peninsula, driving the Greeks to the shores of the Aegean, the Albanians into the Mirdite country, and the latinized population of Macedonia into the highland districts, such as Pindus, Agrapha and Olympus. The Slavs, a primitive agricultural and pastoral people, were often unsuccessful in their attacks on the fortified towns, which remained centres of Hellenism. In the outlying parts of the peninsula they were absorbed, or eventually driven back, by the original populations, but in the central region they probably assimilated a considerable proportion of the latinized races. The western portions of the peninsula were occupied by Serb and Slovene tribes: the Slavs of the eastern and central portions were conquered at the end of the 7th century by the Bulgarians, a Ugro-Finnish horde, who established a despotic political organization, but being less numerous than the subjected race were eventually absorbed by it. The Mongolian physical type, which prevails in the districts between the Balkans and the Danube, is also found in central Macedonia, and may be recognized as far west as Ochrida and Dibra. In general, however, the Macedonian Slavs differ somewhat both in appearance and character from their neighbours beyond the Bulgarian and Servian frontiers: the peculiar type which they present is probably due to a considerable admixture of Vlach, Hellenic, Albanian and Turkish blood, and to the influence of the surrounding races. Almost all independent authorities, however, agree that the bulk of the Slavonic population of Macedonia is

Bulgarian. The principal indication is furnished by the language, which, though resembling Servian in some respects (*e.g.* the case-endings, which are occasionally retained), presents most of the characteristic features of Bulgarian (see BULGARIA: *Language*). Among these may be mentioned the suffix-article, the nasal vowels (retained in the neighbourhood of Salonica and Castoria, but modified elsewhere as in Bulgarian), the retention of *l* (*e.g. vulk* "wolf," *bel* "white"; Servian *vuk*, *beo*), and the loss of the infinitive. There are at least four Slavonic dialects in Macedonia, but the suffix-article, though varying in form, is a constant feature in all. The Slavs of western Macedonia are of a lively, enterprising character, and share the commercial aptitude of the Vlachs: those of the eastern and southern regions are a quiet, sober, hardworking agricultural race, more obviously homogeneous with the population of Bulgaria. In upper Macedonia large family communities, resembling the Servian and Bulgarian *zadruga*, are commonly found: they sometimes number over 50 members. The whole Slavonic population of Macedonia may be estimated at about 1,150,000, of whom about 1,000,000 are Christians of the Orthodox faith. The majority of these own allegiance to the Bulgarian exarchate, but a certain minority still remains faithful to the Greek patriarchate. The Moslem Bulgarians form a considerable element: they are found principally in the valley of the upper Mesta and the Rhodope district, where they are known as *Pomaks* or "helpers," *i.e.* auxiliaries to the Turkish army.

The Racial Propaganda.—The embittered struggle of the rival nationalities in Macedonia dates from the middle of the 19th century. Until that period the Greeks, owing to their superior culture and their privileged position, exercised an exclusive influence over the whole population professing the Orthodox faith. All Macedonia was either Moslem or Orthodox Christian, without distinction of nationalities, the Catholic or Protestant *millets* being inconsiderable. The first opposition to Greek ecclesiastical ascendancy came from the Bulgarians. The Bulgarian literary revival, which took place in the earlier part of the 19th century, was the precursor of the ecclesiastical and national movement which resulted in the establishment of the exarchate in 1870 (see BULGARIA). In the course of the struggle some of the Bulgarian leaders entered into negotiations with Rome; a Bulgarian Uniate church was recognized by the Porte, and the pope nominated a bishop, who, however, was mysteriously deported to Russia a few days after his consecration (1861). The first exarch, who was elected in 1871, was excommunicated with all his followers by the patriarch, and a considerable number of Bulgarians in Macedonia—the so-called "Bulgarophone Greeks"—fearing the reproach of schism, or influenced by other considerations, refrained from acknowledging the new spiritual power. Many of the recently converted uniates, on the other hand, offered their allegiance to the exarch. The firman of the 28th of February 1870 specified a number of districts within the present boundaries of Bulgaria and Servia, as well as in Macedonia, to which Bulgarian bishops might be appointed; other districts might be subjected to the exarchate should two-thirds of the inhabitants so desire. In virtue of the latter provision the districts of Veles, Ochrida and Usküb declared for the exarchate, but the Turkish government refrained from sanctioning the nomination of Bulgarian bishops to these dioceses. It was not till 1891 that the Porte, at the instance of Stamboloff, the Bulgarian prime minister, whose demands were supported by the Triple Alliance and Great Britain, issued the *berat*, or exequatur, for Bulgarian bishops at Ochrida and Usküb; the sees of Veles and Nevrokop received Bulgarian prelates in 1894, and those of Monastir, Strumnitza and Dibra in 1898. The Bulgarian position was further strengthened in the latter year by the establishment of "commercial agents" representing the principality at Salonica, Usküb, Monastir and Serres. During this period (1891-1898) the Bulgarian propaganda, entirely controlled by the spiritual power and conducted within the bounds of legality, made rapid and surprising progress. Subsequently the interference of the Macedonian committee at Sofia, in which the advocates of physical force predominated, and the rivalry of factions did much to injure the movement; the hostility of the Porte was provoked and the sympathy of the powers alienated by a series of assassinations and other crimes. According to the official figures, the Bulgarian schools, which in 1893 were 554, with 30,267 pupils and 853 teachers, in 1900 numbered 785 (including 5 gymnasia and 58 secondary schools), with 39,892 pupils and 1250 teachers. A great number of the schools were closed by the Turkish authorities after the insurrection of 1903 and many had not been reopened in 1909; the teachers were imprisoned or had fled into exile.

The Rumanian movement comes next to the Bulgarian in order of time. The Vlachs had shown greater susceptibility to Greek influence than any of the other non-Hellenic populations of Macedonia, and, though efforts to create a Rumanian propaganda were made as early as 1855, it was not till after the union of the principalities of Wallachia and Moldavia in 1861 that any indications of a national sentiment appeared amongst them. In 1886 the principal apostle of the Rumanian cause, a priest named Apostol Margaritis, founded a gymnasium at Monastir, and the movement, countenanced by the Porte, supported by the French Catholic missions, and to some extent encouraged by Austria, has made no inconsiderable progress since that time. There are now about forty Rumanian schools in Macedonia, including two gymnasia, and large sums are devoted to their maintenance by the ministry of education at Bucharest, which also provides qualified teachers. The Rumanian and Servian movements are at a disadvantage compared with the Bulgarian, owing to their want of a separate ecclesiastical organization, the orthodox Vlachs and Serbs in Turkey owning allegiance to the Greek patriarchate. The governments of Bucharest and Belgrade therefore endeavoured to obtain the recognition of Vlach and Servian *millets*, demanding respectively the establishment of a Rumanian bishopric at Monastir and the restoration of the patriarchate of Ipek with the appointment of a Servian metropolitan at Usküb. The Vlach *millet* was recognized by the Porte by iradé on the 23rd of May 1905, but the aims of the Servians, whose active interference in Macedonia is of comparatively recent date, have not been realized. Previously to 1878 the hopes of the Servians were centred on Bosnia, Herzegovina and the vilayet of Kossovo; but when the Berlin Treaty assigned Bosnia and Herzegovina to Austria, the national aspirations were directed to Macedonia, the Slavonic population of which was declared to be Servian. The strained relations existing between Russia and Bulgaria from 1886 to 1895 were to the advantage of the Servian propaganda, which after 1890 made remarkable progress. Great expenditure has been incurred by the Servian government in the opening and maintenance of schools. At the beginning of 1899 there were stated to be 178 Servian schools in the vilayets of Usküb, Salonica and Monastir (including fifteen gymnasia), with 321 teachers and 7200 pupils.

The Albanian movement is still in an inceptive stage; owing to the persistent prohibition of Albanian schools by the Turks, a literary propaganda, the usual precursor of a national revival, was rendered impossible till the outbreak of the Young Turk revolution in July 1908. After that date numerous schools were founded and an Albanian committee, meeting in November 1908, fixed the national alphabet and decided on the adoption of the Latin character. The educational movement is most conspicuous among the Tosks, or southern Albanians. Notwithstanding the encroachments of their rivals, the impoverishment of the patriarchate, and the injury inflicted on their cause by the Greco-Turkish War of 1897, the Greeks still maintain a large number of schools; according to statistics prepared at Athens there were in 1901, 927 Greek schools in the vilayets of Salonica and Monastir (including five gymnasia), with 1397 teachers and 57,607 pupils. The great educational activity displayed by the proselytizing movements in Macedonia, while tending to the artificial creation of parties, daily widens the contrast between the progressive Christian and the backward Moslem populations.

Antiquities.—Macedonia, like the neighbouring Balkan countries, still awaited exploration at the beginning of the 20th century, and little had been learned of the earlier development of civilization in these regions. The ancient indigenous population has left many traces of its presence in the tumuli which occur on the plains, and more especially along the valley of the Vardar. The unquiet state of the country went far to prevent any systematic investigation of these remains; excavations, however, were made by Körte and Franke at Niausta and near Salonica (see Kretschner, *Einleitung in die Geschichte der griechischen Sprache*, pp. 176, 421), and fragments of primitive pottery, with peculiar characteristics, were found by Perdrizet at Tchepelje, on the left bank of Lake Tachino. The oldest archaeological monuments of Macedonia are its coins, for which the mines of Crenides (the later Philippi), at the foot of Mt Pangaeus, of Chalcidice, of the island of Thasos, and of the mountains between Lake Prasias and the ancient Macedonian kingdom (Herod. v. 17), furnished abundance of metal. From the reign of Alexander I., in the epoch of the Persian wars (502-479 B.C.), the Macedonian dynasty issued silver coins of a purely Greek style. The Thracian communities around Mt Pangaeus also produced a variety of coins, especially at the beginning of the 5th century. The great octodrachms of this period were perhaps struck for the purpose of paying tribute to the Persians when the country between the Strymon and the Nestos was in their possession; most of the specimens have been found in Asia Minor. These large pieces present many characteristics of the Ionian style; it is evident that the Thracians derived the arts of minting

and engraving from the neighbouring Thasos, itself a colony from the Ionian Paros. The monarchs of Pella were enthusiastic admirers of Hellenic culture, and their court was doubtless frequented by Greek sculptors as well as men of letters, such as Herodotus and Euripides. At Pella has been found a funerary *stele* of the late 5th or early 4th century representing a Macedonian *hetaerus*—a beautiful specimen of the best Greek art, now preserved in the Imperial Ottoman Museum at Constantinople. To the Hellenic period belong the vaulted tombs under tumuli discovered at Pella, Pydna, Palatitza, and other places; the dead were laid in marble couches ornamented with sculptures, like those of the so-called sarcophagus of Alexander at Constantinople. These tombs doubtless received the remains of the Macedonian nobles and *hetaeri*: in one of them a fresco representing a conflict between a horseman and a warrior on foot has been brought to light by Kinch. Similarly constructed places of sepulture have been found at Eretria and elsewhere in Greece. At Palatitza the ruins of a remarkable structure, perhaps a palace, have been laid bare by Heuzey and Daumet. Unlike Greece, where each independent city had its acropolis, Macedonia offers few remnants of ancient fortification; most of the country towns appear to have been nothing more than open market-centres. The most interesting ruins in the country are those of the Roman and Byzantine epochs, especially those at Salonica (*q.v.*). The Byzantine fortifications and aqueduct of Kavala are also remarkable. At Verria (*Beroea*) may be seen some Christian remains, at Melnik a palace of the age of the Comneni, at Serres a fortress built by the Servian tsar Stephen Dushan (1336-1356). The remains at Filibejik (*Philippi*) are principally of the Roman and Byzantine periods; the numerous *ex voto* rock-tablets of the acropolis are especially interesting. The Roman inscriptions found in Macedonia are mainly funerary, but include several ephebic lists. The funerary tablets afford convincing proof of the persistence of the Thracian element, notwithstanding hellenization and latinization; many of them, for instance, represent the well-known Thracian horseman hunting the wild boar. The monastic communities on the promontory of Athos (*q.v.*), with their treasures of Byzantine art and their rich collections of manuscripts, are of the highest antiquarian interest.

History.—For the history of ancient Macedonia see MACEDONIAN EMPIRE.[1] After its subjugation by the Romans the country was divided into four districts separated by rigid political and social limitations. Before long it was constituted a province, which in the time of Augustus was assigned to the senate. Thenceforward it followed the fortunes of the Roman empire, and, after the partition of that dominion, of its eastern branch. Its Thraco-Illyrian inhabitants had already been largely latinized when Constantine the Great made Byzantium the imperial residence in A.D. 330; they called themselves Romans and spoke Latin. Towards the close of the 4th century the country was devastated by the Goths and Avars, whose incursions possessed no lasting significance. It was otherwise with the great Slavonic immigration, which took place at intervals from the 3rd to the 7th century. An important ethnographic change was brought about, and the greater part of Macedonia was colonized by the invaders (see BALKAN PENINSULA).

The Slavs were in their turn conquered by the Bulgarians (see BULGARIA: *History*) whose chief Krum (802-815) included central Macedonia in his dominions. The Byzantines retained the southern regions and Salonica, which temporarily fell into the hands of the Saracens in 904. With the exception of the maritime districts, the whole of Macedonia formed a portion of the empire of the Bulgarian tsar Simeon (893-927); the Bulgarian power declined after his death, but was revived in western Macedonia under the Shishman dynasty at Ochrida; Tsar Samuel (976-1014), the third ruler of that family, included in his dominions Usküb, Veles, Vodena and Melnik. After his defeat by the emperor Basil II. in 1014 Greek domination was established for a century and a half. The Byzantine emperors endeavoured to confirm their positions by Asiatic colonization; Turkish immigrants, afterwards known as Vardariotes, the first of their race who appeared in Macedonia, were settled in the neighbourhood of Salonica in the 9th century; colonies of Uzes, Petchenegs and Kumans were introduced at various periods from the 11th to the 13th century. While Greeks and Bulgarians disputed the mastery of Macedonia the Vlachs, in the 10th century, established an independent state in the Pindus region, which, afterwards known as Great Walachia, continued to exist till the beginning of the 14th century. In 1185 southern Macedonia was exposed to a raid of the Normans under William of Sicily, who captured Salonica and massacred its inhabitants. After the taking of Constantinople in 1204 by the Franks of the fourth crusade, the Latin empire of Romania was formed and the feudal kingdom of Thessalonica was bestowed on Boniface, marquis of Montferrat; this was overthrown in 1222 by Theodore, despot of Epirus, a descendant of the imperial house of the Comneni, who styled himself emperor of Thessalonica and for some years ruled over all Macedonia. He was defeated and captured by the Bulgarians in 1230 and the remnant of his possessions, to which his son John succeeded, was absorbed in the empire of Nicaea in 1234. Bulgarian rule was now once more established in Macedonia under the powerful monarch Ivan Asen II. (1218-1241) whose dynasty, of Vlach origin, had been founded at Trnovo in 1186 after a revolt of the Vlachs and Bulgars against the Greeks. A period of decadence followed the extinction of the Asen dynasty in 1257; the Bulgarian power was overthrown by the Servians at Velbuzhd (1330), and Macedonia was included in the realm of the great Servian tsar Dushan (1331-1355) who fixed his capital at Usküb. Dushan's empire fell to pieces after his death, and the anarchy which followed prepared the way for the advance of the Turks, to whom not only contending factions at Constantinople but Servian and Bulgarian princes alike made overtures.

Byzantine and Bulgarian Domination.

Macedonia and Thrace were soon desolated by Turkish raids; when it was too late the Slavonic states combined against the invaders, but their forces, under the Servian tsar Lazar, were routed at Kossovo in 1389 by the sultan Murad I. Salonica and Larissa were captured in 1395 by Murad's son Bayezid, whose victory over Sigismund of Hungary at Nicopolis in 1396 sealed the fate of the peninsula. The towns in the Struma valley were yielded to the Turks by John VII. Palaeologus in 1424; Salonica was taken for the last time in 1428 by Murad II. and its inhabitants were massacred. Large tracts of land were distributed among the Ottoman chiefs; a system of feudal tenure was developed by Mahommed II. (1451-1481), each fief furnishing a certain number of armed warriors. The Christian peasant owners remained on the lands assigned to the Moslem feudal lords, to whom they paid a tithe. The condition of the subject population was deplorable from the first, and became worse during the period of anarchy which coincided with the decadence of the central power in the 17th and 18th centuries; in the latter half of the 17th century efforts to improve it were made by the grand viziers Mehemet and Mustafa of the eminent house of Koprülü. The country was policed by the janissaries (*q.v.*). Numbers of the peasant proprietors were ultimately reduced to serfdom, working as labourers on the farms or *tchifliks* of the Moslem beys. Towards the end of the 18th century many of the local governors became practically independent; western Macedonia fell under the sway of Ali Pasha of Iannina; at Serres Ismail Bey maintained an army of 10,000 men and exercised a beneficent despotism. For more than two centuries Albanian incursions, often resulting in permanent settlements, added to the troubles of the Christian population. The reforms embodied in the Hatt-i-Sherif of Gulhané (1839) and in the Hatt-i-humayun (1856), in both of which the perfect equality of races and religions was proclaimed, remained a dead letter; the first "Law of the Vilayets" (1864), reforming the local administration, brought no relief, while depriving the Christian communities of certain rights which they had hitherto possessed.

Turkish Rule.

In 1876 a conference of the powers at Constantinople proposed the reorganization of the Bulgarian provinces of Turkey in two vilayets under Christian governors-general aided by popular assemblies. The "western" vilayet, of which Sofia was to be the capital, included northern, central and western Macedonia, extending south as far as Castoria. The *projet de règlement* elaborated by the conference was rejected by the Turkish parliament convoked under the constitution proclaimed on the 23rd of December 1876; the constitution, which was little more than a device for eluding European intervention, was shortly afterwards suspended. Under the treaty of San Stefano (March 3, 1878) the whole of Macedonia, except Salonica and the Chalcidic peninsula, was included in the newly formed principality of Bulgaria; this arrangement was reversed by the Treaty of Berlin (July 13) which left Macedonia under Turkish administration but provided (Art. xxiii.) for the introduction of reforms analogous to those of the Cretan Organic Statute of 1868. These reforms were to be drawn up by special commissions, on which the native element should be largely represented, and the opinion of the European commission for eastern Rumelia was to be taken before their promulgation. The Porte, however, prepared a project of its own, and the commission, taking this as a basis, drew up the elaborate "Law of the Vilayets" (Aug. 23, 1880). The law never received the sultan's sanction, and European diplomacy proved unequal to the task of securing its adoption.

European Intervention. Treaties of San Stefano and Berlin.

The Berlin Treaty, by its artificial division of the Bulgarian race, created the difficult and perplexing "Macedonian Question."

The Macedonian Question. The population handed back to Turkish rule never acquiesced in its fate; its discontent was aggravated by the deplorable misgovernment which characterized the reign of Abdul Hamid II., and its efforts to assert itself, stimulated by the sympathy of the enfranchised portion of the race, provoked rival movements on the part of the other Christian nationalities, each receiving encouragement and material aid from the adjacent and kindred states. Some insignificant risings took place in Macedonia after the signature of the Berlin Treaty, but in the interval between 1878 and 1893 the population remained comparatively tranquil, awaiting the fulfilment of the promised reforms.

In 1893, however, a number of secret revolutionary societies (*druzhestva*) were set on foot in Macedonia, and in 1894 similar bodies were organized as legal corporations in Bulgaria. The fall of Stamboloff in that year and the reconciliation of Bulgaria with Russia encouraged the revolutionaries in the mistaken belief that Russia would **Bulgarian Conspiracies.** take steps to revive the provisions of the San Stefano treaty. In 1895 the "Supreme Macedo-Adrianopolitan Committee" (*Vrkhoven Makedoni-Odrinski Komitet*) was formed at Sofia and forthwith despatched armed bands into northern Macedonia; the town of Melnik was occupied for a short time by the revolutionaries under Boris Sarafoff, but the enterprise ended in failure. Dispirited by this result, the "Vrkhovists," as the revolutionaries in Bulgaria were generally styled, refrained from any serious effort for the next five years; the movement was paralysed by dissensions among the chiefs, and rival parties were formed under Sarafoff and General Tzoncheff. Meanwhile the "Centralist" or local Macedonian societies were welded by two remarkable men, Damian Grueff and Gotzé Delcheff, into a formidable power known as the "Internal Organization," founded in 1893, which maintained its own police, held its own tribunals, assessed and collected contributions, and otherwise exercised an *imperium in imperio* throughout the country, which was divided into rayons or districts, and subdivided into departments and communes, each with its special staff of functionaries. The Internal Organization, as a rule, avoided co-operation with the revolutionaries in Bulgaria; it aimed at the attainment of Macedonian autonomy, and at first endeavoured, but unsuccessfully, to enlist the sympathies of the Greeks and Servians for the programme of "Macedonia for the Macedonians."

The principle of autonomy was suspected at Athens and Belgrade as calculated to ensure Bulgarian predominance and to delay or preclude the ultimate partition of the country. At Athens, especially, the progress of the Bulgarian movement was viewed with much alarm; it was feared that Macedonia would be lost to Hellenism, and in 1896 **Greek Action.** the *Ethniké Hetaerea* (see GREECE and CRETE) sent numerous bands into the southern districts of the country. The Hetaerea aimed at bringing about a war between Greece and Turkey, and the outbreak of trouble in Crete enabled it to accomplish its purpose. During the Greco-Turkish War (*q.v.*) Macedonia remained quiet, Bulgaria and Servia refraining from interference under pressure from Austria, Russia and the other great powers. The reverses of the Greeks were to the advantage of the Bulgarian movement, which continued to gain strength, but after the discovery of a hidden dépôt of arms at Vinitza in 1897 the Turkish authorities changed their attitude towards the Bulgarian element; extreme and often barbarous methods of repression were adopted, and arms were distributed among the Moslem population. The capture of an American missionary, Miss Stone, by a Bulgarian band under Sandansky in the autumn of 1901 proved a windfall to the revolutionaries, who expended her ransom of £T16,000 in the purchase of arms and ammunition.

In 1902 the Servians, after a prolonged conflict with the Greeks, succeeded with Russian aid in obtaining the nomination of Mgr. Firmilian, a Servian, to the archbishopric of Usküb. Contemporaneously with a series of Russo-Bulgarian celebrations in the Shipka pass in September of that year, an effort was made to provoke a rising in the **Troubles in 1902: Intervention of the Powers.** Monastir district by Colonel Yankoff, the lieutenant of General Tzoncheff; in November a number of bands entered the Razlog district under the general's personal direction. These movements, which were not supported by the Internal Organization, ended in failure, and merciless repression followed. The state of the country now became such as to necessitate the intervention of the powers, and the Austrian and Russian governments, which had acted in concert since April 1897, drew up an elaborate scheme of reforms. The Porte, as usual, endeavoured to forestall foreign interference by producing a project of its own, which was promulgated in November 1902, and Hilmi Pasha was appointed Inspector General of the Rumelian vilayets and charged with its application. The two powers, however, persevered in their intention and on the 21st of February 1903 presented to the Porte an identic memorandum proposing a series of reforms in the administration, police and finance, including the employment of "foreign specialists" for the reorganization of the gendarmerie.

At the same time the Bulgarian government, under pressure from Russia, arrested the revolutionary leaders in the principality, suppressed the committees, and confiscated their funds. The Internal Organization, however, was beyond reach, and preparations for an insurrection went rapidly forward. In March a serious Albanian revolt complicated the **Bulgarian Insurrection in 1903.** situation. At the end of April a number of dynamite outrages took place at Salonica; public opinion in Europe turned against the revolutionaries and the Turks seized the opportunity to wreak a terrible vengeance on the Bulgarian population. On the 2nd of August, the feast of St Elias, a general insurrection broke out in the Monastir vilayet, followed by sporadic revolts in other districts. The insurgents achieved some temporary successes and occupied the towns of Krushevo, Klisura and Neveska, but by the end of September their resistance was overcome; more than 100 villages were burned by the troops and bashi-bazouks, 8400 houses were destroyed and 60,000 peasants remained homeless in the mountains at the approach of winter.

The Austrian and Russian governments then drew up a further series of reforms known as the "Mürzsteg programme" (Oct. 9, 1903) to which the Porte assented in principle, though many difficulties were raised over details. Two **The "Mürzsteg Programme."** officials, an Austrian and a Russian, styled "civil agents" and charged with the supervision of the local authorities in the application of reforms, were placed by the side of the inspector-general while the reorganization of the gendarmerie was entrusted to a foreign general in the Turkish service aided by a certain number of officers from the armies of the great powers. The latter task was entrusted to the Italian General de Giorgis (April 1904), the country being divided into sections under the supervision of the officers of each power. The reforms proved a failure, mainly owing to the tacit opposition of the Turkish authorities, the insufficient powers attributed to the European officials, the racial feuds and the deplorable financial situation. In 1905 the powers agreed on the establishment of a financial commission on which the representatives of Great Britain, France, Germany and Italy would sit as colleagues of the civil agents. The Porte offered an obstinate resistance to the project and only yielded (Dec. 5) when the fleets of the powers appeared near the Dardanelles. Some improvement was now effected in the financial administration, but the general state of the country continued to grow worse; large funds were collected abroad by the committees at Athens, which despatched numerous bands largely composed of Cretans into the southern districts, the Servians displayed renewed activity in the north, while the Bulgarians offered a dogged resistance to all their foes.

The Austro-Russian *entente* came to an end in the beginning of 1908 owing to the Austrian project of connecting the Bosnian and Macedonian railway systems, and Great Britain and Russia now took the foremost place in the demand for **The "Reval Programme."** reforms. After a meeting between King Edward VII. and the emperor Nicholas II. at Reval in the early summer of 1908 an Anglo-Russian scheme, known as the "Reval programme," was announced; the project aimed at more effective European supervision and dealt especially with the administration of justice. Its appearance was almost immediately followed by the military revolt of the Young Turk or constitutional party, which began in the Monastir district under two junior officers, Enver Bey and Niazi Bey, in July. The restoration of the constitution of 1876 was proclaimed (July 24,1908), and the powers, anticipating the spontaneous adoption of reforms on the part of regenerated Turkey, decided to suspend the Reval programme and to withdraw their military officers from Macedonia.

See Lejean, *Ethnographie de la Turquie d'Europe* (Gotha, 1861); Hahn, *Reise von Belgrad nach Salonik* (Vienna, 1868); Yastreboff, *Obichai i pesni turetskikh Serbov* (St Petersburg, 1886); "Ofeicoff" (Shopoff), *La Macédoine au point de vue*

ethnographique, historique et philologique (Philippopolis, 1888); Gopchevitch, *Makedonien und Alt-Serbien* (Vienna, 1889); Verkovitch, *Topografichesko-ethnographicheskii ocherk Makedonii* (St Petersburg, 1889); Burada, *Cercetari despre scoalele Romanesci din Turcia* (Bucharest, 1890); Tomaschek, *Die heutigen Bewohner Macedoniens* (Sonderabdruck aus den Verhandlungen des IX. D. Geographen-Tages in Wien, 1891) (Berlin, 1891); *Die alten Thräker* (Vienna, 1893); Berard, *La Turquie et l'Hellénisme contemporain*, (Paris, 1893); *La Macédoine* (Paris, 1900); Shopoff, *Iz zhivota i polozhenieto na Bulgarite v vilayetite* (Philippopolis, 1894); Weigand, *Die Aromunen* (Leipzig, 1895); *Die nationalen Bestrebungen der Balkanvölker* (Leipzig, 1898); Nikolaides, *La Macédoine* (Berlin, 1899); "Odysseus," *Turkey in Europe* (London, 1900); Kunchoff, *Makedonia: etnografia i statistika* (Sofia, 1900); *La Macédoine et la Vilayet d'Andrinople* (Sofia, 1904), anonymous; L. Villari, *The Balkan Question* (London, 1905); H. N. Brailsford, *Macedonia: its Races and their Future* (London, 1906); J. Cvijić, *Grundlinien der Geographie und Geologie von Mazedonien und Altserbien* (Gotha, 1908). For the antiquities, see Texier and Pullan, *Byzantine Architecture* (London, 1864); Heuzey and Daumet, *Mission archéologique en Macédoine* (Paris, 1865); Duchesne and Bayet, *Mémoire sur une mission en Macédoine et au Mont Athos* (Paris, 1876); Barclay V. Head, *Catalogue of Greek Coins*; Macedonia (London, 1879); Kinch, *L'Arc de triomphe de Salonique* (Paris, 1890); *Beretning om en archaeologisk Reise i Makedonien* (Copenhagen, 1893); Mommsen, Suppl. to vol. iii. *Corpus inscript., latinarum* (Berlin, 1893); Perdrizet, Articles on Macedonian archaeology and epigraphy in *Bulletin de correspondance hellénique*, since 1894.

<div align="right">(J. D. B.)</div>

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1   Also Alexander, Perdiccas, Philip, &c.

MACEDONIAN EMPIRE, the name generally given to the empire founded by Alexander the Great of Macedon in the countries now represented by Greece and European Turkey, Asia Minor, Egypt, Syria, Persia and eastwards as far as northern India.[1] The present article contains a general account of the empire in its various aspects. It falls naturally into two main divisions:—I. The reign of Alexander. II. The period of his successors, the "Diadochi" and their dynasties.

I. *The Reign of Alexander.*—At the beginning of the 4th century B.C. two types of political association confronted each other in the lands of the Eastern Mediterranean,—the Persian monarchy with its huge agglomeration of subject peoples, and the Greek city-state. Each had a different principle of strength. The Persian monarchy was strong in its size, in the mere amount of men and treasure it could dispose of under a single hand; the Greek state was strong in its *morale*, in the energy and discipline of its soldiery. But the smallness of the single city-states and their unwillingness to combine prevented this superiority in quality from telling destructively upon the bulk of the Persian empire. The future belonged to any power that could combine the advantages of both systems, could make a state larger than the Greek *polis*, and animated by a spirit equal to that of the Greek soldier. This was achieved by the kings of Macedonia. The work, begun by his predecessors, of consolidating the kingdom internally and making its army a fighting-machine of high power was completed by the genius of Philip II. (359-336 B.C.), who at the same time by war and diplomacy brought the Greek states of the Balkan peninsula generally to recognize his single predominance. At the synod of Corinth (338) Philip was solemnly declared the captain-general (στρατηγὸς αὐτοκράτωρ) of the Hellenes against the Great King. The attack on Persia was delayed by the assassination of Philip in 336, and it needed some fighting before the young Alexander had made his position secure in Macedonia and Greece. The recognition as captain-general he had obtained at another synod in Corinth, by an imposing military demonstration in Greece immediately upon his accession. Then came the invasion of the Persian empire by Alexander in 334 at the head of an army composed both of Macedonians and contingents from the allied Greek states. Before this force the Persian monarchy went down, and when Alexander died eleven years later (323) a Macedonian empire which covered all the territory of the old Persian empire, and even more, was a realized fact.

1. Greeks and Persians.

The empire outside of Macedonia itself consisted of 22 provinces. *In Europe*, (1) Thrace; *in Asia Minor*, (2) Phrygia on the Hellespont, (3) Lydia, (4) Caria, (5) Lycia and Pamphylia, (6) Great Phrygia, (7) Paphlagonia and Cappadocia; *between the Taurus and Iran*, (8) Cilicia, (9) Syria, (10) Mesopotamia, (11) Babylonia, (12) Susiana; *in Africa*, (13) Egypt; *in Iran*, (14) Persis, (15) Media, (16) Parthia and Hyrcania, (17) Bactria and Sogdiana, (18) Areia and Drangiana, (19) Carmania, (20) Arachosia and Gedrosia; lastly *the Indian provinces*, (21) the Paropanisidae (the Kabul valley), and (22) the province assigned to Pithon, the son of Agenor, upon the Indus (J. Beloch, *Griech. Gesch.* III. [ii.], p. 236 seq.; for the Indian provinces cf. B. Niese, *Gesch. der griech. und maked. Staaten*, I. p. 500 seq.). Hardly provinces proper, but rather client principalities, were the two native kingdoms to which Alexander had left the conquered land beyond the Indus—the kingdoms of Taxiles and Porus.

2. Extent of the Empire.

The conquered empire presented Alexander with a system of government ready-made, which it was natural for the new masters to take over. For the Asiatic provinces and Egypt, the old Persian name of *satrapy* (see SATRAP) was still retained, but the governor seems to have been styled officially in Greek *strategos*, although the term *satrap* certainly continued current in common parlance. The governors appointed by Alexander were, in the west of the empire, exclusively Macedonians; in the east, members of the Old Persian nobility were still among the satraps at Alexander's death, Phrataphernes in Parthia and Hyrcania, and Alexander's father-in-law Oxyartes in the Paropanisidae. Alexander had at first trusted Persian grandees more freely in this capacity; in Babylonia, Bactria, Carmania, Susiana he had set Persian governors, till the ingrained Oriental tradition of misgovernment so declared itself that to the three latter provinces certainly Macedonians had been appointed before his death. Otherwise the only eastern satrapy whose governor was not a Macedonian, was Areia, under Stasanor, a Cypriote Greek. In the case of certain provinces, possibly in the empire generally, Alexander established a double control. The financial administration was entrusted to separate officials; we hear of such in Lydia (Arr. i. 17, 7), Babylonia (id. iii. 16, 4), and notably in Egypt (id. iii. 5, 4). Higher financial controllers seem to have been over groups of provinces (Philoxenus over Asia Minor, Arr. i. 17, 7; see Beloch, *Gr. Gesch.* III. [i] p. 14), and Harpalus over the whole finances of the empire, with his seat in Babylon. Again the garrisons in the chief cities, such as Sardis, Babylon, Memphis Pelusium and Susa, were under commands distinct from those of the provinces. The old Greek cities of the motherland were not formally subjects of the empire, but sovereign states, which assembled at Corinth as members of a great alliance, in which the Macedonian king was included as a member and held the office of captain-general. The Greek cities of Asia Minor stood to him in a similar relation, though not included in the Corinthian alliance, but in federations of their own (Kaerst, *Gesch. d. hellenist. Zeitalt.* i. 261 seq.). Their territory was not part of the king's country (*Inscr. in the Brit. Mus.* No. 400). Of course, in fact, the power of the king was so vastly superior that the Greek cities were in reality subject to his dictation, even in so intimate a matter as the readmission of their exiles, and might be obliged to receive his garrisons. Within the empire itself, the various communities were allowed, subject to the interference of the king or his officials, to manage their own affairs. Alexander is said to have granted the Lydians to be "free" and "to use the laws of the ancient Lydians," whatever exactly these expressions may mean (Arr. i. 17, 4). So too in Egypt, the native monarchs were left as the local authorities (Arr. iii. 5, 4). Especially to the gods of the conquered people Alexander showed respect. In Egypt and in Babylon he appeared as the restorer of the native religions to honour after the unsympathetic rule of the Persians. The temple of Marduk in Babylon which had fallen began to rise again at his command. It is possible that he offered sacrifice to Yahweh in Jerusalem. In Persia, the native aristocracy retained their power, and the Macedonian governor adopted Persian dress and manners (Diod. xix. 48, 5; Arr. vi. 30). A new factor introduced by Alexander was the foundation of Greek cities at all critical points of intercourse in the conquered lands. These, no doubt, possessed municipal autonomy with the ordinary organization of the Greek state; to what extent they were formally and regularly controlled by the provincial

3. System of Government.

authorities we do not know; Pithon, the satrap of the Indian province is specially described as sent "in colonias in Indis conditas" (Just. xiii. 4, 21). The empire included large tracts of mountain or desert, inhabited by tribes, which the Persian government had never subdued. The subjugation of such districts could only be by a system of effective military occupation and would be a work of time; but Alexander made a beginning by punitive expeditions, as occasion offered, calculated to reduce the free tribes to temporary quiet; we hear of such expeditions in the case of the Pisidians, the tribes of the Lebanon, the Uxii (in Khuzistan), the Tapyri (in the Elburz), the hill-peoples of Bajaor and Swat, the Cossaei (in Kurdistan); an expedition against the Arabs was in preparation when Alexander died.

See A. Köhler, *Reichsverwaltung u. Politik Alexanders des Grossen in Klio*, v. 303 seq. (1905).

4. Court. Alexander, who set out as king of the Macedonians and captain-general of the Hellenes, assumed after the death of Darius the character of the Oriental great king. He adopted the Persian garb (Plutarch, *de fort. Al.* i. 8) including a head-dress, the *diadema*, which was suggested by that of the Achaemenian king (*Just.* xii. 3, 8). We hear also of a sceptre as part of his insignia (*Diod.* xviii. 27, 1). The pomps and ceremonies which were traditional in the East were to be continued. To the Greeks and Macedonians such a régime was abhorrent, and the opposition roused by Alexander's attempt to introduce among them the practice of *proskynesis* (prostration before the royal presence), was bitter and effectual. The title of *chiliarch*, by which the Greeks had described the great king's chief minister, in accordance with the Persian title which described him as "commander of a thousand," *i.e.* of the royal body-guard, was conferred by Alexander upon his friend Hephaestion. The Greek Chares held the position of chief usher (εἰσαγγελεύς). Another Greek, Eumenes of Cardia, was chief secretary (ἀρχιγραμματεύς). The figure of the eunuch, so long characteristic of the Oriental court, was as prominent as ever (*e.g.* Bagoas, Plut. *Alex.* 67, &c.; cf. Arr. vii. 24).

Alexander, however, who impressed his contemporaries by his sexual continence, kept no harem of the old sort. The number of his wives did not go beyond two, and the second, the daughter of Darius, he did not take till a year before his death. In closest contact with the king's person were the seven, or latterly eight, body-guards, σωματοφύλακες, Macedonians of high rank, including Ptolemy and Lysimachus, the future kings of Egypt, and Thrace (Arr. vi. 28, 4). The institution, which the Macedonian court before Alexander had borrowed from Persia, of a corps of pages composed of the young sons of the nobility (παῖδες βασίλειοι or βασιλικοί) continued to hold an important place in the system of the court and in Alexander's campaigns (see Arr. iv. 13, 1; Curt. viii. 6, 6; Suid. βασίλειοι παῖδες; cf. the παῖδες of Eumenes, Diod. xix. 28, 3).

See Spiecker, *Der Hof und die Hofordnung Alex. d. Grossen* (1904).

5. Army. The army of Alexander was an instrument which he inherited from his father Philip. Its core was composed of the Macedonian peasantry who served on foot in heavy armour ("the Foot-companions" πεζεταῖροι). They formed the phalanx, and were divided into 6 brigades (τάξεις), probably on the territorial system. Their distinctive arm was the great Macedonian pike (*sarissa*), some 14 ft. long, of further reach than the ordinary Greek spear. They were normally drawn up in more open order than the heavy Greek phalanx, and possessed thereby a mobility and elasticity in which the latter was fatally deficient. Reckoning 1,500 to each brigade, we got a total for the phalanx of 9,000 men. Of higher rank than the *pezetaeri* were the royal foot-guards (βασιλικοὶ ὑπασπίσται), some 3,000 in number, more lightly armed, and distinguished (at any rate at the time of Alexander's death) by silver shields. Of these 1,000 constituted the royal corps (τὸ ἄγημα τὸ βασιλικόν). The Macedonian cavalry was recruited from a higher grade of society than the infantry, the *petite noblesse* of the nation. They bore by old custom the name of the king's Companions (ἑταῖροι), and were distributed into 8 territorial squadrons (ἴλαι) of probably some 250 men each, making a normal total of 2,000. In the cavalry also the most privileged squadron bore the name of the *agema*. The ruder peoples which were neighbors to the Macedonians (Paeonians, Agrianes, Thracians) furnished contingents of light cavalry and javelineers (ἀκοντισταί). From the Thessalians the Macedonian king, as overlord, drew some thousand excellent troopers. The rest of Alexander's army was composed of Greeks, not formally his subjects. These served partly as mercenaries, partly in contingents contributed by the states in virtue of their alliance. According to Diodorus (xvii. 17, 3) at the time of Alexander's passage into Asia, the mercenaries numbered 5,000, and the troops of the alliance 7,000 foot and 600 horse. All these numbers take no account of the troops left behind in Macedonia, 12,000 foot and 1,500 horse, according to Diodorus. When Alexander was lord of Asia, innovations followed in the army. Already in 330 at Persepolis, the command went forth that 30,000 young Asiatics were to be trained as Macedonian soldiers (the *epigoni*, Arr. vii., 6, 1). Contingents of the fine Bactrian cavalry followed Alexander into India. Persian nobles were admitted into the *agema* of the Macedonian cavalry. A far more radical remodelling of the army was undertaken at Babylon in 323, by which the old phalanx system was to be given up for one in which the unit was to be composed of Macedonians with pikes and Asiatics with missile arms in combination—a change calculated to be momentous both from a military point of view in the coming wars, and from a political, in the close fusion of Europeans and Asiatics. The death of Alexander interrupted the scheme, and his successors reverted to the older system. In the wars of Alexander the phalanx was never the most active arm; Alexander delivered his telling attacks with his cavalry, whereas the slow-moving phalanx held rather the position of a reserve, and was brought up to complete a victory when the cavalry charges had already taken effect. Apart from the pitched battles, the warfare of Alexander was largely hill-fighting, in which the *hypaspistae* took the principal part, and the contingents of light-armed hillmen from the Balkan region did excellent service.

For Alexander's army and tactics, beside the regular histories (Droysen, Niese, Beloch, Kaerst), see D. G. Hogarth, *Journal of Philol.*, xvii. 1 seq. (corrected at some points in his *Philip and Alexander*).

6. Fusion of Greeks and Asiatics. The modifications in the army system were closely connected with Alexander's general policy, in which the fusion of Greeks and Asiatics held so prominent a place. He had himself, as we have seen, assumed to some extent the guise of a Persian king. The Macedonian Peucestas received special marks of his favour for adopting the Persian dress. The most striking declaration of his ideals was the marriage feast at Susa in 324, when a large number of the Macedonian nobles were induced to marry Persian princesses, and the rank and file were encouraged by special rewards to take Eastern wives. We are told that among the schemes registered in the state papers and disclosed after Alexander's death was one for transplanting large bodies of Asiatics into Europe and Europeans into Asia, for blending the peoples of the empire by intermarriage into a single whole (Diod. xviii. 4, 4). How far did Alexander intend that in such a fusion Hellenic culture should retain its pre-eminence? How far could it have done so, had the scheme been realized? It is not impossible that the question may yet be raised again whether the Eurasian after all is the heir of the ages.

7. Divine Honours. High above all the medley of kindreds and tongues, untrammelled by national traditions, for he had outgrown the compass of any one nation, invested with the glory of achievements in which the old bounds of the possible seemed to fall away, stood in 324 the man Alexander. Was he a man? The question was explicitly suggested by the report that the Egyptian priest in the Oasis had hailed him in the god's name as the son of Ammon. The Egyptians had, of course, ascribed deity by old custom to their kings, and were ready enough to add Alexander to the list. The Persians, on the other hand, had a different conception of the godhead, and we have no proof that from them Alexander either required or received divine honours. From the Greeks he certainly received such honours; the ambassadors from the Greek states came in 323 with the character of *theori*, as if approaching a deity (Arr. vii. 23, 2). It has been supposed that in offering such worship the Greeks showed the effect of "Oriental" influence, but indeed we have not to look outside the Greek circle of ideas to explain it. As early as Aeschylus (*Supp.* 991) the proffering of divine honours was a form of expression for intense feelings of reverence or gratitude towards men which naturally suggested itself—as a figure of speech in Aeschylus, but the figure had been translated into action before Alexander not in the well-known case of Lysander only (cf. the case of Dion, Plut. *Dio*, 29). Among the educated Greeks rationalistic views of the old mythology had become so current that they could assimilate Alexander to Dionysus without supposing him to be supernatural, and to this temper the divine honours were a mere form, an elaborate sort of flattery. Did Alexander merely receive such honours? Or did he claim them himself? It would seem that he did. Many of the assertions as to his action in this line do not stand the light of criticism (see Hogarth, *Eng. Hist. Rev.* ii., 1887, p. 317 seq.; Niese, *Historische Zeitschrift*, lxxix., 1897, p. 1, seq.); even the explicit Statement in

Arrian as to Alexander and the Arabians is given as a mere report; but we have well-authenticated utterances of Attic orators when the question of the cult of Alexander came up for debate, which seem to prove that an intimation of the king's pleasure had been conveyed to Athens.

8. Intercourse and Discovery.

A new life entered the lands conquered by Alexander. Human intercourse was increased and quickened to a degree not before known. Commercial enterprise now found open roads between the Aegean and India; the new Greek cities made stations in what had been for the earlier Greek traders unknown lands; an immense quantity of precious metal had been put into circulation which the Persian kings had kept locked up in their treasuries (cf. Athen, vi. 231 e). At the same time Alexander himself made it a principal concern to win fresh geographical knowledge, to open new ways. The voyage of Nearchus from the Indus to the Euphrates was intended to link India by a waterway with the Mediterranean lands. So too Heraclides was sent to explore the Caspian; the survey, and possible circumnavigation, of the Arabian coasts was the last enterprise which occupied Alexander. The improvement of waterways in the interior of the empire was not neglected, the Babylonian canal system was repaired, the obstructions in the Tigris removed. A canal was attempted across the Mimas promontory (Plin. *N.H.* v. 116). The reports of the βηματισταί, Baeton and Diognetus, who accompanied the march of Alexander's army, gave an exacter knowledge of the geographical conformation of the empire, and were accessible for later investigators (Susemihl, *Gesch. d. griech. Litt.*, I. p. 544). Greek natural science was enriched with a mass of new material from the observations of the philosophers who went with Alexander through the strange lands (H. Bretzl, *Botanische Forschungen d. Alexanderzuges*, 1903); whilst on the other hand attempts were made to acclimatize the plants of the motherland in the foreign soil (Theophr., *Hist. Plant.* iv. 4, 1).

9. Coinage.

The accession of Alexander brought about a change in the monetary system of the kingdom. Philip's bimetallic system, which had attempted artificially to fix the value of silver in spite of the great depreciation of gold consequent upon the working of the Pangaean mines, was abandoned. Alexander's gold coinage, indeed (possibly not struck till after the invasion of Asia), follows in weight that of Philip's staters; but he seems at once to have adopted for his silver coins (of a smaller denomination than the tetradrachm) the Euboic-Attic standard, instead of the Phoenician, which had been Philip's. With the conquest of Asia, Alexander conceived the plan of issuing a uniform coinage for the empire. Gold had fallen still further from the diffusion of the Persian treasure, and Alexander struck in both metals on the Attic standard, leaving their relation to adjust itself by the state of the market. This imperial coinage was designed to break down the monetary predominance of Athens (Beloch, *Gr. Gesch.* iii. [i.], 42). None of the coins with Alexander's own image can be shown to have been issued during his reign; the traditional gods of the Greeks still admitted no living man to share their prerogative in this sphere. Athena and Nike alone figured upon Alexander's gold; Heracles and Zeus upon his silver.

See L. Müller, *Numismatique d'Alexandre le Grand* (1855); also NUMISMATICS: § I. "Greek Coins, Macedonian."

II. *After Alexander.*—The external fortunes of the Macedonian Empire after Alexander's death must be briefly traced before

1. History of the "Successors."

its inner developments be touched upon.[2] There was, at first, when Alexander suddenly died in 323, no overt disruption of the empire. The dispute between the Macedonian infantry and the cavalry (*i.e.* the commonalty and the nobles) was as to the person who should be chosen to be the king, although it is true that either candidate, the half-witted son of Philip II., Philip Arrhidaeus, or the posthumous son of Alexander by Roxana, opened the prospect of a long regency exercised by one or more of the Macedonian lords. The compromise, by which both the candidates should be kings together, was, of course, succeeded by a struggle for power among those who wished to rule in their name. The resettlement of dignities made in Babylon in 323, while it left the eastern commands practically undisturbed as well as that of Antipater in Europe, placed Perdiccas (whether as regent or as chiliarch) in possession of the kings' persons, and this was a position which the other Macedonian lords could not suffer. Hence the first intestine war among the Macedonians, in which Antipater, Antigonus, the satrap of Phrygia, and Ptolemy, the satrap of Egypt, were allied against Perdiccas, who was ultimately murdered in 321 on the Egyptian frontier (see PERDICCAS [4], EUMENES). A second settlement, made at Triparadisus in Syria in 321, constituted Antipater regent and increased the power of Antigonus in Asia. When Antipater died, in 319, a second war broke out, the wrecks of the party of Perdiccas, led by Eumenes, combining with Polyperchon, the new regent, and later on (318) with the eastern satraps who were in arms against Pithon, the satrap of Media. Cassander, the son of Antipater, disappointed of the regency, had joined the party of Antigonus. In 316 Antigonus had defeated and killed Eumenes and made himself supreme from the Aegean to Iran, and Cassander had ousted Polyperchon from Macedonia. But now a third war began, the old associates of Antigonus, alarmed by his overgrown power, combining against him—Cassander, Ptolemy, Lysimachus, the governor of Thrace, and Seleucus, who had fled before Antigonus from his satrapy of Babylonia. From 315 to 301 the war of Antigonus against these four went on, with one short truce in 311. Antigonus never succeeded in reaching Macedonia, although his son Demetrius won Athens and Megara in 307 and again (304-302) wrested almost all Greece from Cassander; nor did Antigonus succeed in expelling Ptolemy from Egypt, although he led an army to its frontier in 306; and after the battle of Gaza in 312, in which Ptolemy and Seleucus defeated Demetrius, he had to see Seleucus not only recover Babylonia but bring all the eastern provinces under his authority as far as India. Meanwhile the struggle changed its character in an important respect. King Philip had been murdered by Olympias in 317; the young Alexander by Cassander in 310; Heracles, the illegitimate son of Alexander the Great, by Polyperchon in 309. Thus the old royal house became extinct in the male line, and in 306 Antigonus assumed the title of king. His four adversaries answered this challenge by immediately doing the same. Even in appearance the empire was no longer a unity. In 301 the coalition triumphed over Antigonus in the battle of Ipsus (in Phrygia) and he himself was slain. Of the four kings who now divided the Macedonian Empire amongst them, two were not destined to found durable dynasties, while the house of Antigonus, represented by Demetrius, was after all to do so. The house of Antipater came to an end in the male line in 294, when Demetrius killed the son of Cassander and established himself on the throne of Macedonia. He was however expelled by Lysimachus and Pyrrhus in 288; and in 285 Lysimachus took possession of all the European part of the Macedonian Empire. Except indeed for Egypt and Palestine under Ptolemy, Lysimachus and Seleucus now divided the empire between them, with the Taurus in Asia Minor for their frontier. These two survivors of the forty years' conflict soon entered upon the crowning fight, and in 281 Lysimachus fell in the battle of Corupedion (in Lydia), leaving Seleucus virtually master of the empire. Seleucus' assassination by Ptolemy Ceraunus in the same year brought back confusion.

Ptolemy Ceraunus (the son of the first Ptolemy, and half-brother of the reigning king of Egypt) seized the Macedonian throne, whilst Antiochus, the son of Seleucus, succeeded in holding together the Asiatic dominions of his father. The confusion was aggravated by the incursion of the Gauls into the Balkan Peninsula in 279; Ptolemy Ceraunus perished, and a period of complete anarchy succeeded in Macedonia. In 276 Antigonus Gonatas, the son of Demetrius, after inflicting a crushing defeat on the Gauls near Lysimachia, at last won Macedonia definitively for his house. Three solid kingdoms had thus emerged from all the fighting since Alexander's death: the kingdom of the Antigonids in the original land of the race, the kingdom of the Ptolemies in Egypt, and that of the Seleucids, extending from the Aegean to India. For the next 100 years these are the three great powers of the eastern Mediterranean. But already parts of the empire of Alexander had passed from Macedonian rule altogether. In Asia Minor, Philetaerus a Greek of Tios (Tieium) in Paphlagonia, had established himself in a position of practical independence at Pergamum, and his nephew, Attalus, was the father of the line of kings who reigned in Pergamum till 133—antagonistic to the Seleucid house, till in 189 they took over the Seleucid possessions west of the Taurus. In Bithynia a native dynasty assumed the style of kings in 297. In Cappadocia two Persian houses, relics of the old aristocracy of Achaemenian days had carved out principalities, one of which became the kingdom of Pontus and the other the kingdom of Cappadocia (in the narrower sense); the former regarding Mithradates (281-266) as its founder, the latter being the creation of the second Ariarathes (?302-?281). Armenia, never effectively conquered by the Macedonians, was left in the hands of native princes, tributary only when the Seleucid court was strong enough to compel. In India, Seleucus had in 302 ceded large districts on the west of the Indus to Chandragupta, who had arisen to found a native empire which annexed the Macedonian provinces in the Panjab.

Whilst the Antigonid kingdom remained practically whole till the Roman conquest ended it in 168 B.C., and the house of

Ptolemy ruled in Egypt till the death of Cleopatra in 30 B.C., the Seleucid Empire perished by a slow process of disruption. The eastern provinces of Iran went in 240 or thereabouts, when the Greek Diodotus made himself an independent king in Bactria (*q.v.*) and Sogdiana, and Tiridates, brother of Arsaces, a "Scythian" chieftain, conquered Parthia (so Arrian, but see Parthia). Armenia was finally lost in 190, when Artaxias founded a new native dynasty there. Native princes probably ruled in Persis before 166, though the district was at least nominally subject to Antiochus IV. Epiphanes till his death in 164 (see Persis). In southern Syria, which had been won by the house of Seleucus from the house of Ptolemy in 198, the independent Jewish principality was set up in 143. About the same time Media was totally relinquished to the Parthians. Babylonia was Parthian from 129. Before 88 the Parthians had conquered Mesopotamia. Commagene was independent under a king, Mithradates Callinicus, in the earlier part of the last century B.C. Syria itself in the last days of the Seleucid dynasty is seen to be breaking up into petty principalities, Greek or native. From 83 to 69 is the transient episode of Armenian conquest, and in 64 the last shadow of Seleucid rule vanished, when Syria was made a Roman province by Pompey. From this time Rome formally entered upon the heritage of Alexander as far as the Euphrates, but many of the dynasties which had arisen in the days of Macedonian supremacy were allowed to go on for a time as client states. One of them, the royal house of Commagene, not deposed by the Romans till A.D. 72, had Seleucid blood in its veins through the marriage of a Seleucid princess with Mithradates Callinicus, and regarded itself as being a continuation of the Seleucid dynasty. Its kings bore the name of Antiochus, and were as proud of their Macedonian, as of their Persian, descent (see the Inscription of Nimrud Dagh, Michel, No. 735).

The Macedonians of Alexander were not mistaken in seeing an essential transformation of their national monarchy when Alexander adopted the guise of an Oriental great king. Transplanted into this foreign soil, the monarchy became an absolute despotism, unchecked by a proud territorial nobility and a hardy peasantry on familiar terms with their king. The principle which Seleucus is reported to have enunciated, that the king's command was the supreme law (App. *Syr.* 61), was literally the principle of the new Hellenistic monarchies in the East. But the rights belonging to the Macedonian army as Alexander inherited it did not altogether disappear. Like the old Roman people, the Macedonian people under arms had acted especially in the transference of the royal authority, conferring or confirming the right of the new chief, and in cases of the capital trials of Macedonians. In the latter respect the army came regularly into function under Alexander, and in the wars which followed his death (Diod. xviii. 4, 3; 36, 7; 37, 2, 39, 2; xix. 61, 3), and in Macedonia; although the power of life and death came *de facto* into the hands of the Antigonid king, the old right of the army to act as judge was not legally abrogated, and friction was sometimes caused by its assertion (Polyb. v. 27, 5). The right of the army to confer the royal power was still symbolized in the popular acclamation required on the accession of a new king, and at Alexandria in troubled times we hear of "the people" making its will effective in filling the throne, although it is here hard to distinguish mob-rule from the exercise of a legitimate function. Thus the people put Euergetes II. on the throne when Philometor was captured (Polyb. xxix. 23, 4); the people compelled Cleopatra III. to choose Soter II. as her associate (Just. xxxiv. 3, 2). In Syria, the usurper Tryphon bases his right upon an election by the "people" (Just. xxxvi. 1, 7) or "the army" (Jos. *Ant.* xiii. § 219). Where it is a case of delegating some part of the supreme authority, as when Seleucus I. made his son Antiochus king for the eastern provinces, we find the army convoked to ratify the appointment (App. *Syr.* 61). So too the people is spoken of as appointing the guardians of a king during his minority (Just. xxxiv. 3, 6). Nor was the power of the army a fiction. The Hellenistic monarchies rested, as all government in the last resort must, upon the loyalty of those who wielded the brute force of the state, and however unlimited the powers of the king might be in theory, he could not alienate the goodwill of the army with impunity. The right of primogeniture in succession was recognized as a general principle; a woman, however, might succeed only so long as there were no male agnates. Illegitimate children had no rights of succession. In disturbed times, of course, right yielded to might or to practical necessities.

2. Constitution of the Macedonian Kingdom.

The practice by which the king associated a son with himself, as secondary king, dates from the very beginning of the kingdoms of the Successors; Antigonus on assuming the diadem in 306 caused Demetrius also to bear the title of king. Some ten years later Seleucus appointed Antiochus as king for the eastern provinces. Thenceforth the practice is a common one. But the cases of it fall into two classes. Sometimes the subordinate or joint kingship implies real functions. In the Seleucid kingdom the territorial expanse of the realm made the creation of a distinct subordinate government for part of it a measure of practical convenience. Sometimes the joint-king is merely titular, an infant of tender years, as for instance Antiochus Eupator, the son of Antiochus Epiphanes, or Ptolemy Eupator, the son of Ptolemy Philometor. The object here is to secure the succession in the event of the supreme king's dying whilst his heir is an infant. The king's government was carried on by officials appointed by him and responsible to him alone. Government at the same time, as an Oriental despotism understands it, often has little in view but the gathering in of the tribute and compulsion of the subjects to personal service in the army or in royal works, and if satisfied in these respects will leave much independence to the local authorities. In the loosely-knit Seleucid realm it is plain that a great deal more independence was left to the various communities,—cities or native tribes,— than in Egypt, where the conditions made a bureaucratic system so easy to carry through. In their outlying possessions the Ptolemies may have suffered as much local independence as the Seleucids; the internal government of Jerusalem, for instance, was left to the high priests. In so far as the older Greek cities fell within their sphere of power, the successors of Alexander were forced to the same ambiguous policy as Alexander had been, between recognizing the cities' unabated claim to sovereign independence and the necessity of attaching them securely. In Asia Minor, the "enslavement" and liberation of cities alternated with the circumstances of the hour, while the kings all through professed themselves the champions of Hellenic freedom, and were ready on occasion to display munificence toward the city temples or in public works, such as might reconcile republicans to a position of dependence. Antiochus III. went so far as to write on one occasion to the subject Greek cities that if any royal mandate clashed with the civic laws it was to be disregarded (Plut. *Imp. et duc. apophth.*). But it was the old cry of the "autonomy of the Hellenes," raised by Smyrna and Lampsacus, which ultimately brought Antiochus III. into collision with Rome. How anxious the Pergamene kings, with their ardent Hellenism, were to avoid offence is shown by the elaborate forms by which, in their own capital, they sought to give their real control the appearance of popular freedom (Cardinali, Regno di *Pergamo*, p. 281 seq.). A similar problem confronted the Antigonid dynasty in the cities of Greece itself, for to maintain a predominant influence in Greece was a ground-principle of their policy. Demetrius had presented himself in 307 as the liberator, and driven the Macedonian garrison from the Peiraeus; but his own garrisons held Athens thirteen years later, when he was king of Macedonia, and the Antigonid dynasty clung to the points of vantage in Greece, especially Chalcis and Corinth, till their garrisons were finally expelled by the Romans in the name of Hellenic liberty.

The new movement of commerce initiated by the conquest of Alexander continued under his successors, though the break-up of the Macedonian Empire in Asia in the 3rd century and the distractions of the Seleucid court must have withheld many advantages from the Greek merchants which a strong central government might have afforded them. It was along the great trade-routes between India and the West that the main stream of riches flowed then as in later centuries. One of these routes was by sea to south-west Arabia (Yemen), and thence up the Red Sea to Alexandria. This was the route controlled and developed by the Ptolemaïc kings. Between Yemen and India the traffic till Roman times was mainly in the hands of Arabians or Indians; between Alexandria and Yemen it was carried by Greeks (Strabo ii. 118). The west coast of the Red Sea was dotted with commercial stations of royal foundation from Arsinoë north of Suez to Arsinoë in the south near the straits of Bab-el-Mandeb. From Berenice on the Red Sea a land-route struck across to the Nile at Coptos; this route the kings furnished with watering stations. That there might also be a waterway between Alexandria and the Red Sea, they cut a canal between the Delta and the northern Arsinoë. It was Alexandria into which this stream of traffic poured and made it the commercial metropolis of the world. We hear of direct diplomatic intercourse between the courts of Alexandria and Pataliputra, *i.e.* Patna (Plin. vi. § 58). An alternative route went from the Indian ports to the Persian Gulf, and thence found the Mediterranean by caravan across Arabia from the country of Gerrha to Gaza; and to control it was no doubt a motive in the long struggle of the Ptolemaic and Seleucid houses for Palestine, as well as in the attempt of Antiochus III. to subjugate the Gerrhaeans. Or from the Persian Gulf wares might be taken up the Euphrates and carried across to Antioch; this route lay altogether in the Seleucid sphere. With Iran Antioch was connected most directly by the road which crossed the

3. Commerce.

Euphrates at the Zeugma and went through Edessa and Antioch-Nisibis to the Tigris. The trade from India which went down the Oxus and then to the Caspian does not seem to have been considerable (Tarn, *Journ. of Hell. Stud.* xxi. 10 seq.). From Antioch to the Aegean the land high-road went across Asia Minor by the Cilician Gates and the Phrygian Apamea.

4. Finance. Of the financial organization of the Macedonian kingdoms we know practically nothing, except in the case of Egypt. Here the papyri and ostraca have put a large material at our disposal, but the circumstances in Egypt[3] were too peculiar for us to generalize upon these data as to the Seleucid and Antigonid realms. That the Seleucid kings drew in a principal part of their revenues from tribute levied upon the various native races, distributed in their village communities as tillers of the soil goes without saying.[4] In districts left in the hands of native chiefs these chiefs would themselves exploit their villages and pay the Seleucid court and tribute. To exact tribute from Greek cities was invidious, but both Antigonid and Seleucid kings often did so (Antigonid, Diog. Laërt. II., 140; Plut. *Dem.* 27; Seleucid, Michel, No. 37; Polyb. xxi. 43, 2). Sometimes, no doubt, this tribute was demanded under a fairer name, as the contribution of any ally (σύνταξις, not φόρος), like the Γαλατικά levied by Antiochus I. (Michel, No. 37; cf. Polyb. xxii. 27, 2). The royal domains, again, and royal monopolies, such as salt-mines, were a source of revenue.[5] As to indirect taxes, like customs and harbour dues, while their existence is a matter of course (cf. Polyb. v. 89, 8), their scale, nature and amount is quite unknown to us. Whatever the financial system of the Antigonid and Seleucid kingdoms may have been, it is clear that they were far from enjoying the affluence of the Ptolemaic. During the first Seleucid reigns indeed the revenues of Asia may have filled its treasuries (see Just. xvii. 2, 13), but Antiochus III. already at his accession found them depleted (Polyb. v. 50, 1), and from his reign financial embarrassment, coupled with extravagant expenditure, was here the usual condition of things. Perseus, the last of the Antigonid house, amassed a substantial treasure for the expenses of the supreme struggle with Rome (Polyb. xviii. 35, 4; Liv. xlv, 40), but it was by means of almost miserly economies.

Special officials were naturally attached to the service of the finances. Over the whole department in the Seleucid realm there presided a single chief (ὁ ἐπὶ τῶν προσόδων, App. *Syr.* 45). How far the financial administration was removed from the competence of the provincial governors, as it seems to have been in Alexander's system, we cannot say. Seleucus at any rate, as satrap of Babylonia, controlled the finances of the province (Diod. xix. 55, 3), and so, in the Ptolemaic system, did the governor of Cyprus (Polyb. xxvii. 13). The fact that provincial officials ἐπὶ πῶν προσόδων (in Eriza, *Bull. corr. hell.* xv. 556) are found does not prove anything, since it leaves open the question of their being subordinate to the governor.

5. Coinage. With the exception of Ptolemaic Egypt, the Macedonian kingdoms followed in their coinage that of Alexander. Money was for a long while largely struck with Alexander's own image and superscription; the gold and silver coined in the names of Antigonid and Seleucid kings and by the minor principalities of Asia, kept to the Attic standard which Alexander had established. Only in Egypt Ptolemy I. adopted, at first the Rhodian, and afterwards the Phoenician, standard, and on this latter standard the Ptolemaic money was struck during the subsequent centuries. Money was also struck in their own name by the cities in the several dynasties' spheres of power, but in most cases only bronze or small silver for local use. Corinth, however, was allowed to go on striking staters under Antigonus Gonatas; Ephesus, Cos and the greater cities of Phoenicia retained their right of coinage under Seleucid or Ptolemaic supremacy.

6. The Court. In language and manners the courts of Alexander's successors were Greek. Even the Macedonian dialect, which it was considered proper for the kings to use on occasion, was often forgotten (Plut. *Ant.* 27). The Oriental features which Alexander had introduced were not copied. There was no *proskynesis* (or certainly not in the case of Greeks and Macedonians), and the king did not wear an Oriental dress. The symbol of royalty, it is true, the *diadem*, was suggested by the head-band of the old Persian kings (Just. xii. 3, 8); but, whereas, that had been an imposing erection, the Hellenistic diadem was a simple riband. The king's state dress was the same in principle as that worn by the Macedonian or Thessalian horsemen, as the uniform of his own cavalry officers. Its features were the broad-brimmed hat (*kausia*), the cloak (*chlamys*) and the high-laced boots (*krepīdes*) (Plut. *Ant.* 54; Frontinus, iii. 2, 11). These, in the case of the king, would be of richer material, colour and adornment. The diadem could be worn round the kausia; the chlamys offered scope for gorgeous embroidery; and the boots might be crimson felt (see the description of Demetrius' chlamys and boots, Plut. *Dem.* 41). There were other traces in the Hellenistic courts of the old Macedonian tradition besides in dress. One was the honour given to prowess in the chase (Polyb. xxii. 3, 8; Diod. xxxiv. 34). Another was the fashion for the king to hold wassail with his courtiers, in which he unbent to an extent scandalous to the Greeks, dancing or indulging in routs and practical jokes.[6]

The prominent part taken by the women of the royal house was a Macedonian characteristic. The history of these kingdoms furnishes a long list of queens and princesses who were ambitious and masterful politicians, of which the great Cleopatra is the last and the most famous. The kings after Alexander, with the exception of Demetrius Poliorcetes and Pyrrhus, are not found to have more than one legitimate wife at a time, although they show unstinted freedom in divorce and the number of their mistresses. The custom of marriages between brothers and sisters, agreeable to old Persian as to old Egyptian ethics, was instituted in Egypt by the second Ptolemy when he married his full sister Arsinoë Philadelphus. It was henceforth common, though not invariable, among the Ptolemies. At the Seleucid court there seems to be an instance of it in 195, when the heir-apparent, Antiochus, married his sister Laodice. The style of "sister" was given in both courts to the queen, even when she was not the king's sister in reality (Strack, *Dynastie*, Nos. 38, 40, 43; *Archiv. f. Papyr.* i. 205). The "Friends" of the king are often mentioned. It is usual for him to confer with a council (συνέδριον) of his "Friends" before important decisions, administrative, military or judicial (*e.g.* Polyb. v. 16, 5; 22, 8). They form a definite body about the king's person (φίλων σύνταγμα, Polyb. xxxi. 3, 7); cf. οἱ φίλοι in contrast with αἱ δυνάμεις, id. v. 50, 9), admission into which depends upon his favour alone, and is accorded, not only to his subjects, but to aliens, such as the Greek refugee politicians (*e.g.* Hegesianax, Athen. iv. 155b; Hannibal and the Aetolian Thoas take part in the councils of Antiochus III. A similar body, with a title corresponding to φίλοι, is found in ancient Egypt (Erman, *Ancient Egypt*, Eng. trans., p. 72) and in Persia (Spiegel. *Eran. Alt.* iii. 626); but some such support is so obviously required by the necessities of a despot's position that we need not suppose it derived from any particular precedent. The Friends (at any rate under the later Seleucid and Ptolemaïc reigns) were distinguished by a special dress and badge of gold analogous to the stars and crosses of modern orders. The dress was of crimson (πορφύρα); this and the badges were the king's gift, and except by royal grant neither crimson nor gold might, apparently, be worn at court (1 Macc. 10, 20; 62; 89; 11, 58; Athen. v. 211b). The order of Friends was organized in a hierarchy of ranks, which were multiplied as time went on. In Egypt we find them classified as συγγενεῖς, ὁμότιμοι τοῖς συγγενέσιν, ἀρχισωματοφύλακες, πρῶτοι φίλοι, φίλοι (in the narrower sense), διάδοχοι. For the Seleucid kingdom συγγενεῖς, πρῶτοι φίλοι and φίλοι are mentioned. These classes do not appear in Egypt before the 2nd century; Strack conjectures that they were created in imitation of the Seleucid court. We have no direct evidence as to the institutions of the Seleucid court in the 3rd century. Certain σωματοφύλακες of Antiochus I. are mentioned, but we do not know whether the name was not then used in its natural sense (Strack, *Rhein. Mus.* LV., 1900, p. 161 seq.; Wilamowitz, *Archiv f. Pap.* I., p. 225; Beloch, *Gr. Gesch.* iii (i), p. 391). As to Macedonia, whatever may have been the constitution of the court, it is implied that it offered in its externals a sober plainness in comparison with the vain display and ceremonious frivolities of Antioch and Alexandria (Polyb. xvi, 22, 5; Plut. *Cleom.* 31; *Arat*, 15). The position of a Friend did not carry with it necessarily any functions; it was in itself purely honorary. The ministers and high officials were, on the other hand, regularly invested with one or other of the ranks specified. The chief of these ministers is denoted ὁ ἐπὶ τῶν πραγμάτων, and he corresponds to the *vizier* of the later East. All departments of government are under his supervision, and he regularly holds the highest rank of a kinsman. When the king is a minor, he acts as guardian or regent (ἐπίτροπος). Over different departments of state we find a state secretary (ἐπιστολογράφος or ὑπομνηματογράφος: Seleucid, Polyb. xxxi, 3, 16; Ptolemaic, Strack, *Inschriften* 103) and a minister of finance (ὁ ἐπὶ τῶν προσόδων in the Seleucid kingdom; App. *Syr.* 45; διοικήτης in Egypt, Lumbroso, *Econ. Pol.* p. 339). Under each of these great heads of departments was a host of lower officials, those, for instance, who held to the province a relation analogous to that of the head of the department of the realm. Such[5] a provincial authority is described as ἐπὶ τῶν προσόδων in

the inscription of Eriza (*Bull. corr. hell.* xv. 556). Beside the officials concerned with the work of government we have those of the royal household: (1) the chief-physician, ἀρχιατρός (for the Seleucid see App. *Syr.* 59; Polyb. v. 56, 1; Michel, No. 1158; for the Pontic, *Bull. corr. hell.* vii. 354 seq.); (2) the chief-huntsman, ἀρχικυνηγός (Dittenb. *Orient. Graec.* 99); (3) the maître-d'hôtel ἀρχεδέατρος (Dittenb. *Orient. Graec.* 169) (4) the lord of the queen's bedchamber, ὁ επὶ τοῦ κοιτῶνος τῆς βασιλίσσης (Dittenb. *Orient. Graec.* 256). As in the older Oriental courts, the high positions were often filled by eunuchs (*e.g.* Craterus, in last mentioned inscription).

It was customary, as in Persia and in old Macedonia, for the great men of the realm to send their children to court to be brought up with the children of the royal house. Those who had been so brought up with the king were styled his σύντροφοι (for the Seleucid, Polyb. v. 82, 8 and xxxi. 21, 2; *Bull. corr. hell.* i. 285; 2 Macc. ix. 29; for the Ptolemaic σύντροφοι παίδισκαι of the queen, Polyb. xv. 33, 11; for the Pontic, *Bull. corr. hell.* vii. 355; for the Pergamene. Polyb. xxxii. 27, 10, &c.; for the Herodian, Acts 13). It is perfectly gratuitous to suppose with Deissmann that "the fundamental meaning had given place to the general meaning of intimate friend." With this custom we may perhaps bring into connexion the office of τροφεύς (Polyb. xxxi. 20, 3; Michel, No. 1158). As under Alexander, so under his successors, we find a corps of βασιλικοί παῖδες. They appear as a corps, 600 strong, in a triumphal procession at Antioch (Polyb. xxxi. 3, 17; cf. v. 82, 13; Antigonid, Livy, xlv. 6; cf. Curtius, viii. 6, 6).

7. Hellenic Culture.   All the Hellenistic courts felt it a great part of prestige to be filled with the light of Hellenic culture. A distinguished philosopher or man of letters would find them bidding for his presence, and most of the great names are associated with one or other of the contemporary kings. Antigonus Gonatas, bluff soldier-spirit that he was, heard the Stoic philosophers gladly, and, though he failed to induce Zeno to come to Macedonia, persuaded Zeno's disciple, Persaeus of Citium, to enter his service. Nor was it philosophers only who made his court illustrious, but poets like Aratus. The Ptolemaic court, with the museum attached to it, is so prominent in the literary and scientific history of the age that it is unnecessary to give a list of the philosophers, the men of letters and science, who at one time or other ate at King Ptolemy's table. One may notice that the first Ptolemy himself made a contribution of some value to historical literature in his account of Alexander's campaigns; the fourth Ptolemy not only instituted a cult of Homer but himself published tragedies; and even Ptolemy Euergetes II. issued a book of memoirs. The Pergamene court was in no degree behind the Ptolemaic in its literary and artistic zeal. The notable school of sculpture connected with it is treated elsewhere (see GREEK ART); to its literary school we probably owe in great part the preservation of the masterpieces of Attic prose (Susemihl I., p. 4), and two of its kings (Eumenes I. and Attalus III.) were themselves authors. The Seleucid court did not rival either of the last named in brilliance of culture; and yet some names of distinction were associated with it. Under Antiochus I. Aratus carried out a recension of the *Odyssey*, and Berossus composed a Babylonian history in Greek; under Antiochus III. Euphorion was made keeper of the library at Antioch. Antiochus IV., of course, the enthusiastic Hellenist, filled Antioch with Greek artists and gave a royal welcome to Athenian philosophers. Even in the degenerate days of the dynasty, Antiochus Grypus, who had been brought up at Athens, aspired to shine as a poet. The values recognized in the great Hellenistic courts and the Greek world generally imposed their authority upon the dynasties of barbarian origin. The Cappadocian court admitted the full stream of Hellenistic culture under Ariarathes V. (Diod. xxxi. 19, 8). One of the kings called Nicomedes in Bithynia offered immense sums to acquire the Aphrodite of Praxiteles from the Cnidians (Plin. *N.H.* xxxvi. 21), and to a king Nicomedes the geographical poem of the Pseudo-Scymnus is dedicated. Even Iranian kings in the last century B.C. found pleasure in composing, or listening to, Greek tragedies, and Herod the Great kept Greek men of letters beside him and had spasmodic ambitions to make his mark as an orator or author (Nicol. Dam. frag. 4; *F.H.G.* III. p. 350).

8. Divine Honours.   The offering of divine honours to the king, which we saw begin under Alexander, became stereotyped in the institutions of the succeeding Hellenistic kingdoms. Alexander himself was after his death the object of various local cults, like that which centred in the shrine near Erythrae (Strabo, xiv. 644). His successors in the first years after his death recognized him officially as a divinity, except Antipater (Suïdas, *s.v.* Ἀντίπατρος), and coins began to be issued with his image. At Alexandria the state cult of him seems to have been instituted by the second Ptolemy, when his body was laid in the *Sema* (Otto, *Priester u. Tempel*, i. 139 seq.). The successors themselves received divine honours. Such worship might be the spontaneous homage of a particular Greek community, like that offered to Antigonus by Scepsis in 311 (*Journ. of Hell. Stud.* xix. 335 seq.), the Antigonus and Demetrius by Athens in 307, to Ptolemy I. by the Rhodians in 304, or by Cassandrea to Cassander, as the city's founder (Ditt. 2nd ed. 178); or it might be organized and maintained by royal authority. The first proved instance of a cult of the latter kind is that instituted at Alexandria by the second Ptolemy for his father soon after the latter's death in 283/2, in which, some time after, 279/8, he associated his mother Berenice also, the two being worshipped together as θεοὶ σωτῆρες (Theoc. xvii. 121 seq.). Antiochus I. followed the Ptolemaic precedent by instituting at Seleucia-in-Pieria a cult for his father as Seleucus Zeus Nicator. So far we can point to no instance of a cult of the living sovereign (though the cities might institute such locally) being established by the court for the realm. This step was taken in Egypt after the death of Arsinoë Philadelphus (271) when she and her still-living brother-husband, Ptolemy II., began to be worshipped together as θεοὶ ἀδελφοί. After this the cult of the reigning king and queen was regularly maintained in Greek Egypt, side by side with that of the dead Ptolemies. Under Antiochus II. (261-246) a document shows us a cult of the reigning king in full working for the Seleucid realm, with a high priest in each province, appointed by the king himself; the document declares that the Queen Laodice is now to be associated with the king. The official surname of Antiochus II., Theos, suggests that he himself had here been the innovator. Thenceforward, in the Hellenistic kingdoms of the East the worship of the living sovereign became the rule, although it appears to have been regarded as given in anticipation of an apotheosis which did not become actual till death. In the Pergamene kingdom at any rate, though the living king was worshipped with sacrifice, the title θεός was only given to those who were dead (Cardinali, *Regno di Pergamo*, p. 153). The Antigonid dynasty, simpler and saner in its manners, had no official cult of this sort. The divine honours offered on occasion by the Greek cities were the independent acts of the cities.

See Plut. *Arat.* 45; *Cleom.* 16; Kornemann, "Zur Gesch. d. antiken Herrscherkulte" in *Beiträge z. alt. Gesch.* i. 51 sqq.; Otto, *Priester u. Tempel*, pp. 138 seq.

9. Surnames.   There does not seem any clear proof that the surnames which the Hellenistic kings in Asia and Egypt bore were necessarily connected with the cult, even if they were used to describe the various kings in religious ceremonies. Some had doubtless a religious colour, *Theos, Epiphanes, Soter*; others a dynastic, *Phitopator, Philometor, Philadelphus*. Under what circumstances, and by whose selection, the surname was attached to a king, is obscure. It is noteworthy that while modern books commonly speak of the surnames as *assumed*, the explanations given by our ancient authorities almost invariably suppose them to be given as marks of homage or gratitude (*English Historical Review*, xvi. 629 (1901). The official surnames must not, of course, be confused with the popular nicknames which were naturally not recognized by the court, *e.g. Ceraunus* ("Thunder"), *Hierax* ("Hawk"), *Physcon* ("Pot-belly"), *Lathyrus* ("Chick-pea").

10. Armies.   The armies of Alexander's successors were still in the main principles of their organization similar to the army with which Alexander had conquered Asia. During the years immediately after Alexander the very Macedonians who had fought under Alexander were ranged against each other under the banners of the several chiefs. The most noted corps of veterans, Argyraspides (*i.e.* the royal Hypaspistae) played a great part in the first wars of the successors, and covered themselves with infamy by their betrayal of Eumenes. As the soldiers of Alexander died off, fresh levies of home-born Macedonians could be raised only by the chief who held the motherland. The other chiefs had to supply themselves with Macedonians from the numerous colonies planted before the break-up of the empire in Asia or Egypt, and from such Macedonians they continued for the next two centuries to form their phalanx. The breed—at least if the statement which Livy puts into the mouth of a Roman general can be relied on—degenerated greatly under Asiatic and Egyptian skies (Liv. xxxviii. 17, 10); but still old names like that of *pezetaeri* attached to the phalangites (Plut. *Tib.* 17), and they still wielded the national *sarissa*. The latter weapon in the interval between Alexander and the time of Polybius had been increased to a length of 21 ft. (Polyb. xviii. 12), a proportion inconsistent with any degree of mobility; once more indeed the phalanx of the

2nd century seems to have become a body effective by sheer weight only and disordered by unevenness of ground. The Antigonid kings were never able from Macedonian levies to put in the field a phalanx of more than 20,000 at the utmost (Liv. xlii. 51); Antigonus Doson takes with him to Greece (in 222) one of 10,000 only. The phalanx of Antiochus III. at Raphia numbered 20,000, and Ptolemy Philopator was able at the same time to form one of 25,000 men (Polyb. v. 4). As these phalangites are distinguished both from the Greek mercenaries and the native Egyptian levies, it looks (although such a fact would be staggering) as if more Macedonians could be raised for military service in Egypt than in Macedonia itself (but see Beloch, p. 353). The royal foot-guards are still described in Macedonia in 171 as the *agema* (Polyb. v. 25, 1; 27, 3; Liv. xlii. 51), when they number 2000; at the Ptolemaic court in 217 the *agema* had numbered 3000 (Polyb. v. 65, 2); and a similar corps of *hypaspistae* is indicated in the Seleucid army (Polyb. vii. 16, 2; xvi. 18, 7). So too the old name of "Companions" was kept up in the Seleucid kingdom for the Macedonian cavalry (see Polyb. v. 53, 4, &c.), and divisions of rank in it are still indicated by the terms *agema* and royal squadron (βασιλικὴ ἴλη, see Bevan, *House of Seleucus*, ii. 288). The Antigonid and Seleucid courts had much valuable material at hand for their armies in the barbarian races under their sway. The Balkan hill-peoples of Illyrian or Thracian stock, the hill-peoples of Asia Minor and Iran, the chivalry of Media and Bactria, the mounted bowmen of the Caspian steppes, the camel-riders of the Arabian desert, could all be turned to account. Iranian troops seem to have been employed on a large scale by the earlier Seleucids. At Raphia, Antiochus III. had 10,000 men drawn from the provinces, armed and drilled as Macedonians, and another corps of Iranians numbering 5000 under a native commander (Polyb. v. 79). The experiment of arming the native Egyptians on a large scale does not seem to have been made before the campaign of 217, when Ptolemy IV. formed corps of the Macedonian pattern from Egyptians and Libyans (cf. Polyb. v. 107, 2; Ptolemy I. had employed Egyptians in the army, though chiefly as carriers, Diod. xix. 80, 4). From this time native rebellions in Egypt are recurrent. To the troops drawn from their own dominions the mercenaries which the kings procured from abroad were an important supplement. These were mainly the bands of Greek *condottieri*, and even for their home-born troops Greek officers of renown were often engaged. The other class of mercenaries were Gauls, and from the time of the Gallic invasion of Asia Minor in 279 Gauls or Galatians were a regular constituent in all armies. They were a weapon apt to be dangerous to the employer, but the terror they inspired was such that every potentate sought to get hold of them. The elephants which Alexander brought back from India were used in the armies of his successors, and in 302 Seleucus procured a new supply. Thenceforward elephants, either brought fresh from India or bred in the royal stables at Apamea, regularly figured in the Seleucid armies. The Ptolemies supplied themselves with this arm from the southern coasts of the Red Sea, where they established stations for the capture and shipping of elephants, but the African variety was held inferior to the Indian. Scythed chariots such as had figured in the old Persian armies were still used by the Greek masters of Asia (Seleucus I., Diod. xx. 113, 4; Molon, Polyb. v. 53, 10; Antiochus III., Liv. xxxvii. 41), at any rate till the battle of Magnesia. The Hellenistic armies were distinguished by their external magnificence. They made a greater display of brilliant metal and gorgeous colour than the Roman armies, for instance. The description given by Justin of the army which Antiochus Sidetes took to the East in 130 B.C., boot-nails and bridles of gold, gives an idea of their standard of splendour (Just. xxxviii. 10, 1; cf. Polyb. xxxi. 3; Plut. *Eum.* 14; id. *Aemil.* 18; id. *Sulla*, 16).

During the 3rd century B.C. Egypt was the greatest sea power of the eastern Mediterranean, and maintained a large fleet (the figures in App. *Prooem*, 10 are not trustworthy, see Beloch III. [i.], 364). Its control of the Aegean was, however, contested not without success by the Antigonids, who won the two great sea-fights of Cos (*c.* 256) and Andros (227), and wrested the overlordship of the Cyclades from the Ptolemies. Of the numbers and constitution of the Antigonid fleet we know nothing.[7] At the Seleucid court in 222 the admiral (ναύαρχος) appears as a person of high consideration (Polyb. v. 43, 1); in his war with Rome Antiochus III. had 107 decked battleships on the sea at one time. By the Peace of Apamea (188) the Seleucid navy was abolished; Antiochus undertook to keep no more than 10 ships of war.

For the Hellenistic armies and fleets see A. Bauer in L. von Müller's *Handbuch*, vol. iv.; Delbrück, *Gesch. d. Kriegskunst* (1900).

To their native subjects the Seleucid and Ptolemaic kings were always foreigners. It was considered wonderful in the last Cleopatra that she learnt to speak Egyptian (Plut. *Anton.* 27). Natives were employed, as we have seen, in the army, and Iranians are found under the Seleucids holding high commands, *e.g.* Aspasianus the Mede (Polyb. v. 79, 7), Aribazus, governor of Cilicia (Flinders Petrie, *Papyri*, II., No. 45), Aribazus, governor of Sardis (Polyb. vii. 17, 9), and Omanes (Michel, No. 19, l. 104). Native cults the Hellenistic kings thought it good policy to patronize. Antiochus I. began rebuilding the temple of Nebo at Borsippa (*Keilinschr. Bibl.* iii. 2, 136 seq.) Antiochus III. bestowed favours on the Temple at Jerusalem. Even if the documents in Joseph, *Arch.* xii. §§ 138 seq. are spurious, their general view of the relation of Antiochus III. and Jerusalem is probably true. Even small local worships, like that of the village of Baetocaece, might secure royal patronage (*C.I.G.* No. 4474). Of course, financial straits might drive the kings to lay hands on temple-treasures, as Antiochus III. and Antiochus IV. did, but that was a measure of emergency.

11. Treatment of Subject Peoples.

12. Significance of Macedonian Rule.

The Macedonian kingdoms, strained by continual wars, increasingly divided against themselves, falling often under the sway of prodigals and debauchees, were far from realizing the Hellenic idea of sound government as against the crude barbaric despotisms of the older East. Yet, in spite of all corruption, ideas of the intelligent development of the subject lands, visions of the Hellenic king, as the Greek thinkers had come to picture him, haunted the Macedonian rulers, and perhaps fitfully, in the intervals of war or carousal, prompted some degree of action. Treatises "Concerning Kingship" were produced as a regular thing by philosophers, and kings who claimed the fine flower of Hellenism, could not but peruse them. Strabo regards the loss of the eastern provinces to the Parthians as their passage under a government of lower type, beyond the sphere of Hellenic ἐπιμέγεια (Strabo xi. 509). In the organization of the administrative machinery of these kingdoms, the higher power of the Hellene to adapt and combine had been operative; they were organisms of a richer, more complex type than the East had hitherto known. It was thus that when Rome became a world-empire, it found to some extent the forms of government ready made, and took over from the Hellenistic monarchies a tradition which it handed on to the later world.

AUTHORITIES.—For the general history of the Macedonian kingdoms, see Droysen, *Histoire de l'Hellénisme* (the French translation by Bouché-Leclercq, 1883-1885, represents the work in its final revision); A. Holm, *History of Greece*, vol. iv. (1894); B. Niese, *Geschichte der griechischen und makedonischen Staaten* (1893-1903); Kaerst, *Gesch. des hellenist. Zeitalters*, vol. i. (1901). A masterly conspectus of the general character of the Hellenistic kingdoms in their political, economic and social character, their artistic and intellectual culture is given by Beloch, *Griech. Gesch.* iii. (i.), 260-556; see also Kaerst, *Studien zur Entwicklung d. Monarchie*; E. Breccia, *Il Diritto dinastico helle monarchie dei successori d'Alessandro Magno* (1903). Popular sketches of the history, enlightened by special knowledge and a wide outlook, are given by J. P. Mahaffy, *Alexander's Empire* ("Stories of the Nations Series"); *Progress of Hellenism in Alexander's Empire* (1905); *The Silver Age of the Greek World* (1906). See also HELLENISM; PTOLEMIES; SELEUCID DYNASTY.

(E. R. B.)

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1   For the events which brought this empire into being see ALEXANDER THE GREAT. For the detailed accounts of the separate dynasties into which it was divided after Alexander's death, see SELEUCID DYNASTY, ANTIGONUS, PERGAMUM, &c., and for its effect on the spread of Hellenic culture see HELLENISM.

2   For details see separate articles on the chief generals.

3   For Ptolemaic Egypt, see PTOLEMIES and EGYPT.

4   A *tenth* of the produce is suggested to have been the normal tax by what the Romans found obtaining in the Attalid kingdom. The references given by Beloch (*Griech. Gesch.* iii. [i.], p. 343) to prove it for the Seleucid kingdom are questionable. Beloch refers (1) to the letter of Demetrius II. to Lasthenes in which δεκαταὶ καὶ τὰ τέλη are mentioned, 1 Macc. 11, 35 (Beloch, by an oversight, refers to the paraphrase of the documents in Joseph. *Ant.* xiii. 4, § 126 seq., in which the mention of the δεκαταί is omitted!). The authenticity of this document is, however, very doubtful. He refers (2) to Dittenb. 171 (1st ed.), line 101; but here the tax seems to be, not an imperial one, but one paid to the city of Smyrna.

5   The salt monopoly is mentioned in 1 Macc. 10, 29; 11, 35, a suspected source, but supported in this detail by the analogy of Ptolemaic Egypt and Rome. For domains in Antigonid, Attalid and Bithynian realms, see Cic. *De leg. agr.* ii. 19, 50.

6   Antiochus Epiphanes was an extreme case. For the Antigonid court see Diog. Laërt. vii. 13; Plut. *Arat.* 17; for the Seleucid, Athen. iv. 155b; v. 211a; for the Ptolemaic, Diog. L. vii. 177; Athen. vi. 246c; Plut. *Cleom.* 33; Just. xxx. 1.

7   For the Antigonid ναύαρχος or admiral, see Polyb. xvi. 6.

MACEDONIUS, (1) bishop of Constantinople in succession to Eusebius of Nicomedia, was elected by the Arian bishops in 341, while the orthodox party elected Paul, whom Eusebius had superseded. The partisans of the two rivals involved the city in a tumultuous broil, and were not quelled until the emperor Constantius II. banished Paul. Macedonius was recognized as patriarch in 342. Compelled by the intervention of Constans in 348 to resign the patriarchate in favour of his former opponent, he was reinstalled in 350. He then took vengeance on his opponents by a general persecution of the adherents of the Nicene Creed. In 359, on the division of the Arian party into Acacians (or pure Arians) and semi-Arians or Homoiousians, Macedonius adhered to the latter, and in consequence was expelled from his see by the council of Constantinople in 360. He now became avowed leader of the sect of Pneumatomachi, Macedonians or Marathonians, whose distinctive tenet was that the Holy Spirit is but a being similar to the angels, subordinate to and in the service of the Father and the Son, the relation between whom did not admit of a third. He did not long survive his deposition.

See the Church Histories of Socrates and Sozomen; Art. in *Dict. Chr. Biog.*; F. Loofs in Herzog-Hauck's *Realencyk.*; H. M. Gwatkin, *Arianism.*

Macedonius, (2) bishop of Mopsuestia, was present at the councils of Nicaea and Philippopolis, and inclined to the reactionary party who thought the Athanasians had gone too far.

Macedonius, (3) bishop of Constantinople (fl. 510), a strict Chalcedonian who vainly opposed the fanaticism of the monophysite Severus and was deposed in 513.

MACEIÓ or Maçayó, a city and port of Brazil and capital of the state of Alagôas, about 125 m. S.S.W. of Pernambuco, in lat. 9° 39′ 35″ S., long. 35° 44′ 36″ W. Pop. including a large rural district and several villages (1890), 31,498; (1908, estimate), 33,000. The city stands at the foot of low bluffs, about a mile from the shore line. The water-side village of Jaraguá, the port of Maceió, is practically a suburb of the city. South of the port is the shallow entrance to the Lagôa do Norte, of Lagôa Mundahú, a salt-water lake extending inland for some miles. Maceió is attractively situated in the midst of large plantations of coco-nut and *dendé* palms, though the broad sandy beach in front and the open sun-burned plain behind give a barren character to its surroundings. The heat is moderated by the S.E. trade winds, and the city is considered healthful. The public buildings are mostly constructed of broken stone and mortar, plastered outside and covered with red tiles, but the common dwellings are generally constructed of *tapia*—rough trellis-work walls filled in with mud. A light tramway connects the city and port, and a railway—the Alagôas Central—connects the two with various interior towns. The port is formed by a stone reef running parallel with and a half-mile from the shore line, within which vessels of light draft find a safe anchorage, except from southerly gales. Ocean-going steamers anchor outside the reef. The exports consist principally of sugar, cotton, and rum (*aguardiente*). Maceió dates from 1815 when a small settlement there was created a "villa." In 1839 it became the provincial capital and was made a city by the provincial assembly.

McENTEE, JERVIS (1828-1891), American artist, was born at Rondout, New York, on the 14th of July 1828, and was a pupil of Frederick E. Church. He was made an associate of the National Academy of Design, New York, in 1860, and a full academician in 1861. In 1869 he visited Europe, painting much in Italy. He was identified with the Hudson River School, and excelled in pictures of autumn scenery. He died at Rondout, N.Y., on the 27th of January 1891.

MACER, AEMILIUS, of Verona, Roman didactic poet, author of two poems, one on birds (*Ornithogonia*), the other on the antidotes against the poison of serpents (*Theriaca*), imitated from the Greek poet Nicander of Colophon. According to Jerome, he died in 16 B.C. It is possible that he wrote also a botanical work. The extant hexameter poem *De viribus* (or *virtutibus*) *herbarum*, ascribed to Macer, is a medieval production by Odo Magdunensis, a French physician. Aemilius Macer must be distinguished from the Macer called *Iliacus* in the Ovidian catalogue of poets, the author of an epic poem on the events preceding the opening of the Iliad. The fact of his being addressed by Ovid in one of the epistles *Ex Ponto* shows that he was alive long after Aemilius Macer. He had been identified with the son or grandson of Theophanes of Mytilene, the intimate friend of Pompey.

See Ovid, *Tristia*, iv. 10, 43; Quintilian, *Instit.* x. 1, 56, 87; R. Unger, *De Macro Nicandri imitatore* (Friedland, 1845); C. P. Schulze in *Rheinisches Museum* (1898), liii. p. 541; for Macer Iliacus see Ovid, *Ex Ponto*, ii 10, 13, iv. 16, 6; *Amores*, ii. 18.

MACERATA, a city of the Marches, Italy, the chief town of the province of Macerata and a bishop's see, 44 m. by rail S. of Ancona. Pop. (1901), 6,176 (town), 22,473 (commune). Crowning a hill 919 ft. above sea-level, with a picturesque mass of buildings enclosed by walls and towers, Macerata looks out over the Adriatic. The cathedral is modern, but some of the churches and palaces are not without interest. Besides the university, agricultural school and industrial institute, Macerata has a communal library founded by Leo XII., containing a small but choice collection of early pictures, and in the municipal buildings, a collection of antiquities from Helvia Ricina. There is an enormous amphitheatre or *sferisterio* for *pallone*, a ball game which is very popular in the district. The industries comprise the making of bricks, matches, terra-cotta and chemicals.

Macerata, as well as Recanati, was founded by the inhabitants of Ricina after the destruction of their city by Alaric in 408. During the Lombard period it was a flourishing town; but it was raised from comparative insignificance by Nicholas IV. to be the seat of the governors of the March. It was enclosed in the 13th century by a new line of walls more than 2½ m. in circuit; and in the troubles of the next two hundred years it had frequent occasion to learn their value. For the most part it remained faithful to the popes, and in return it was rewarded by a multitude of privileges. Though in 1797 the inhabitants opened their gates to the French, two years afterwards, when the country people took refuge within the walls, the city was taken by storm and delivered to pillage. The bishopric of Macerata dates from the suppression of the see of Recanati (1320).

MACFARREN, SIR GEORGE ALEXANDER (1813-1887), English composer, was born in London on the 2nd of March 1813, and entered the Royal Academy of Music in 1829. A symphony by him was played at an Academy concert in 1830; for the opening of the Queen's Theatre in Tottenham Street, under the management of his father, in 1831, he wrote an overture. His *Chevy Chase* overture, the orchestral work by which he is perhaps best known, was written as early as 1836, and in a single night. On leaving the Academy in 1836, Macfarren was for about a year a music teacher in the Isle of Man, and wrote two unsuccessful operas. In 1837 he was appointed a professor at the Academy, and wrote his *Romeo and Juliet* overture. In the following year he brought out *The Devil's Opera*, one of his best works. In 1843 he became conductor at Covent Garden, producing the *Antigone* with Mendelssohn's music; his opera on *Don Quixote* was produced under Bunn at Drury Lane in 1846; his subsequent operas include *Charles II.* (1849), *Robin Hood* (1860), *She Stoops to Conquer* (1864), and *Helvellyn* (1864). A gradual failure of his eyesight, which had been defective from boyhood, resulted in total blindness in 1865, but he overcame the difficulties by employing an amanuensis in composition, and made hardly a break in the course of his work. He was made principal of the Royal Academy of Music in succession to Sterndale Bennett in February 1875, and in March of the same year professor of music in Cambridge University. Shortly before this he had begun a series of oratorios: *St John the Baptist* (Bristol, 1873); *Resurrection* (Birmingham, 1876); *Joseph* (Leeds, 1877); and *King David* (Leeds, 1883). In spite of their solid workmanship, and the skill with which the ideas are treated, it is difficult to hear or read them through without smiling at some of the touches of quite unconscious humour often resulting from the way in which the Biblical narratives have been, as it were, dramatized. He delivered many lectures of great and lasting value, and his theoretical works, such as the *Rudiments of Harmony*, and the treatise on counterpoint, will probably be remembered longer than many of his compositions. He was knighted in 1883, and died suddenly in London on the 31st of October 1887.

An excellent memoir by H. C. Banister appeared in 1891.

McGEE, THOMAS D'ARCY (1825-1868), Irish-Canadian politician and writer, second son of James McGee, a coast-guard, was born at Carlingford, Co. Louth, on the 13th of April 1825. He early showed a remarkable aptitude for oratory. At the age of thirteen he delivered a speech at Wexford, and when four years later he emigrated to America he quickly gained a reputation as a writer and public speaker in the city of Boston. He thus attracted the attention of O'Connell, and before he was twenty years of age he returned to London to become parliamentary correspondent of the *Freeman's Journal*, and shortly afterwards London correspondent of the *Nation*, to which he also contributed a number of poems. He married in 1847 Mary Theresa Caffry, by whom he had two children. In 1846 he became one of the moving spirits in the "Young Ireland" party, and in promoting the objects of that organization he contributed two volumes to the "Library of Ireland." On the failure of the movement in 1848 McGee escaped in the disguise of a priest to the United States, where between 1848 and 1853 he established two newspapers, the *New York Nation* and the *American Celt*. His writings at first were exceedingly bitter and anti-English; but as years passed he realized that a greater measure of political freedom was possible under the British constitution than under the American. He had now become well-known as an author, and as a lecturer of unusual ability. In 1857 McGee, driven from the United States by the scurrilous attacks of the extreme Irish revolutionaries, took up his abode in Canada, and was admitted to the bar of the province of Lower Canada in 1861. At the general election in 1858 he was returned to parliament as the member for Montreal, and for four years he was regarded as a powerful factor in the house. On the formation of the Sandfield-Macdonald-Sicotte administration in 1862 he accepted the office of president of the council. When the cabinet was reconstructed a year later the Irish were left without representation, and McGee sought re-election as a member of the opposite party. In 1864 he was appointed minister of agriculture in the administration of Sir E. P. Taché, and he served the country in that capacity until his death. He actively supported the policy of federation and was elected a member of the first Dominion parliament in 1867. On the 7th of April 1868, after having delivered a notable speech in the house, he was shot by an assassin as he was about to enter his house at Ottawa. His utterances against the Fenian invasion are believed to have been the cause of the crime for which P. J. Whelan was executed. McGee's loss was keenly felt by all classes, and within a few weeks of his death parliament granted an annuity to his widow and children. McGee had great faith in the future of Canada as a part of the empire. Speaking at St John, N.B., in 1863, he said: "There are before the public men of British America at this moment but two courses: either to drift with the tide of democracy, or to seize the golden moment and fix for ever the monarchical character of our institutions. I invite every fellow colonist who agrees with me to unite our efforts that we may give our province the aspect of an empire, in order to exercise the influence abroad and at home of a state, and to originate a history which the world will not willingly let die." Sir Charles Gavan Duffy considered that as a poet McGee was not inferior to Davis, and that as an orator he possessed powers rarer than those of T. F. Meagher.

McGee's principal works are: *A Popular History of Ireland* (2 vols., New York, 1862; 1 vol., London, 1869); *Irish Writers of the Seventeenth Century* (Dublin, 1846); *Historical Sketches of O'Connell and his Friends* (Boston, 1844); *Memoirs of the Life and Conquests of Art McMurrogh, King of Leinster* (Dublin, 1847); *Memoir of C. G. Duffy* (Dublin, 1849); *A History of the Irish Settlers in North America* (Boston, 1851); *History of the Attempts to establish the Protestant Reformation in Ireland* (Boston, 1853); *Life of Edward Maginn, Coadjutor Bishop of Derry* (New York, 1857); *Catholic History of North America* (Boston, 1854); *Canadian Ballads and Occasional Pieces* (New York, 1858); *Notes on Federal Governments Past and Present* (Montreal, 1865);

Speeches and Addresses, chiefly on the Subject of the British American Union (London, 1865); *Poems*, edited by Mrs M. A. Sadleir with introductory memoir (New York, 1869). See Fennings Taylor, *The Hon. Thomas D'Arcy McGee* (Montreal, 1867); J. K. Foran, *Thomas D'Arcy McGee as an Empire Builder* (Ottawa, 1904); H. J. O'C. French, *A Sketch of the Life of the Hon. T. D. McGee* (Montreal); Appleton's *Cyclopaedia of American Biography.*, iv. 116; N. F. Dvin's *Irishman in Canada* (1887); C. G. Duffy, *Four Years of Irish History* (1883); Alfred Webb, *Compendium of Irish Biography* (Dublin, 1878).
(A. G. D.)

McGIFFERT, ARTHUR CUSHMAN (1861-   ), American theologian, was born in Sauquoit, New York, on the 4th of March 1861, the son of a Presbyterian clergyman of Scotch descent. He graduated at Western Reserve College in 1882 and at Union theological seminary in 1885, studied in Germany (especially under Harnack) in 1885-1887, and in Italy and France in 1888, and in that year received the degree of doctor of philosophy at Marburg. He was instructor (1888-1890) and professor (1890-1893) of church history at Lane theological seminary, and in 1893 became Washburn professor of church history in Union theological seminary, succeeding Dr Philip Schaff. His published work, except occasional critical studies in philosophy, dealt with church history and the history of dogma. His best known publication is a *History of Christianity in the Apostolic Age* (1897). This book, by its independent criticism and departures from traditionalism, aroused the opposition of the General Assembly of the Presbyterian Church; though the charges brought against McGiffert were dismissed by the Presbytery of New York, to which they had been referred, a trial for heresy seemed inevitable, and McGiffert, in 1900, retired from the Presbyterian ministry and entered the Congregational Church, although he retained his position in Union theological seminary. Among his other publications are: *A Dialogue between a Christian and a Jew* (1888); a translation (with introduction and notes) of Eusebius's *Church History* (1890); and *The Apostles' Creed* (1902), in which he attempted to prove that the old Roman creed was formulated as a protest against the dualism of Marcion and his denial of the reality of Jesus's life on earth.

McGILLIVRAY, ALEXANDER (*c.* 1730-1793), American Indian chief, was born near the site of the present Wetumpka, in Alabama. His father was a Scotch merchant and his mother the daughter of a French officer and an Indian "princess." Through his father's relatives in South Carolina, McGillivray received a good education, but at the age of seventeen, after a short experience as a merchant in Savannah and Pensacola, he returned to the Muscogee Indians, who elected him chief. He retained his connexion with business life as a member of the British firm of Panton, Forbes & Leslie of Pensacola. During the War of Independence, as a colonel in the British army, he incited his followers to attack the western frontiers of Georgia and the Carolinas. Georgia confiscated some of his property, and after the peace of 1783 McGillivray remained hostile. Though still retaining his British commission, he accepted one from Spain, and during the remainder of his life used his influence to prevent American settlement in the south-west. So important was he considered that in 1790 President Washington sent an agent who induced him to visit New York. Here he was persuaded to make peace in consideration of a brigadier-general's commission and payment for the property confiscated by Georgia; and with the warriors who accompanied him he signed a formal treaty of peace and friendship on the 7th of August. He then went back to the Indian country, and remained hostile to the Americans until his death. He was one of the ablest Indian leaders of America and at one time wielded great power—having 5000 to 10,000 armed followers. In order to serve Indian interests he played off British, Spanish and American interests against one another, but before he died he saw that he was fighting in a losing cause, and, changing his policy, endeavoured to provide for the training of the Muscogees in the white man's civilization. McGillivray was polished in manners, of cultivated intellect, was a shrewd merchant, and a successful speculator; but he had many savage traits, being noted for his treachery, craftiness and love of barbaric display.
(W. L. F.)

MACGILLIVRAY, WILLIAM (1796-1852), Scottish naturalist, was born at Aberdeen on the 25th of January 1796. At King's College, Aberdeen, he graduated in 1815, and also studied medicine, but did not complete the latter course. In 1823 he became assistant to R. Jameson, professor of natural history in Edinburgh University; and in 1831 he was appointed curator of the museum of the Royal College of Surgeons in Edinburgh, a post which he resigned in 1841 to become professor of natural history and lecturer on botany in Marischal College, Aberdeen. He died at Aberdeen on the 4th of September 1852. He possessed a wide and comprehensive knowledge of natural science, gained no less from personal observations in different parts of Scotland than from a study of collections and books. His industry and extensive knowledge are amply shown in his published works. He assisted J. J. Audubon in his classical works on the *Birds of America*, and edited W. Withering's *British Plants*. His larger works include biographies of A. von Humboldt, and of zoologists from Aristotle to Linnaeus, a *History of British Quadrupeds*, a *History of the Molluscous Animals of Aberdeen, Banff and Kincardine*, a *Manual of British Ornithology*, and a *History of British Birds*, in 5 vols. (1837-1852). The last work holds a high rank from the excellent descriptions of the structure, habits and haunts of birds, and from the use in classification of characters afforded by their anatomical structure. His *Natural History of Deeside*, posthumously published by command of Queen Victoria, was the result of a sojourn in the highlands of Aberdeenshire in 1850. He made large collections, alike for the instruction of his students and to illustrate the zoology, botany and geology of the parts of Scotland examined by him, especially around Aberdeen, and a number of his original water-colour drawings are preserved in the British Museum (Natural History).

His eldest son, John Macgillivray (1822-1867), published an account of the voyage round the world of H.M.S. "Rattlesnake," on board of which he was naturalist. Another son, Paul, published an *Aberdeen Flora* in 1853.

MacGREGOR, JOHN ["Rob Roy"] (1825-1892), Scottish canoeist, traveller and philanthropist, son of General Sir

Duncan MacGregor, K.C.B., was born at Gravesend on the 24th of January 1825. He combined a roving disposition with a natural taste for mechanics and for literature. In 1839 he went to Trinity College, Dublin, and in 1844 to Trinity, Cambridge, where he was a wrangler. He was called to the bar in 1851, but did not pursue his profession. He travelled a great deal in Europe, Egypt, Palestine, Russia, Algeria and America, and between 1853 and 1863 was largely occupied with researches into the history and methods of marine propulsion. He was the pioneer of British canoeing. In 1865 he started on a long canoeing cruise in his "Rob Roy" canoe, and in this way made a prolonged water tour through Europe, a record of which he published in 1866 as *A Thousand Miles in the Rob Roy Canoe*. This book made MacGregor and his canoe famous. He made similar voyages in later years in Norway, Sweden and Denmark, the North Sea and Palestine. Another voyage, in the English Channel and on French waters, was made in a yawl. He published accounts of all these journeys. He did not, however, confine his energies to travelling. He was active in charity and philanthropic work, being one of the founders of the Shoe-black Brigade. In 1870 and again in 1873 he was elected on the London school board. He died at Boscombe on the 16th of July 1892.

MACH, ERNST (1838-   ), Austrian physicist and psychologist, was born on the 18th of February 1838 at Turas in Moravia, and studied at Vienna. He was professor of mathematics at Gratz (1864-1867), of physics at Prague (1867-1895), and of physics at Vienna (1895-1901). In 1879 and 1880 as *Rector Magnificus* he fought against the introduction of Czech instead of German in the Prague University. In 1901 he was made a member of the Austrian house of peers. In philosophy he began with a strong predilection for the physical side of psychology, and at an early age he came to the conclusion that all existence is sensation, and, after a lapse into noümenalism under the influence of Fechner's *Psychophysics*, finally adopted a universal physical phenomenalism. The Ego he considers not an entity sharply distinguished from the Non-ego, but merely, as it were, a medium of continuity of sensory impressions. His whole theory appears to be vitiated by the confusion of physics and psychology.

Works.—*Kompendium der Physik für Mediziner* (Vienna, 1863); *Einleitung in die Heimholtz'sehe Musiktheorie* (Gratz, 1866); *Die Gesch. u. d. Wurzel d. Satzes von d. Erhaltung d. Arbeit* (Prague, 1872); *Grundlinien d. Lehre v. d. Bewegungsempfindungen* (Leipzig, 1875); *Die Mechanik in ihrer Entwickelung* (Leipzig, 1883; rev. ed., 1908; Eng. trans., T. J. McCormack, 1902); *Beiträge zur Analyse d. Empfindungen* (Jena, 1886), 5th ed., 1906, entitled *Die Analyse d. Empfindungen; Leitfaden d. Physik für Studierende* (Prague, 1881, in collaboration); *Populärwissenschaftliche Vorlesungen* (3rd ed., Leipzig, 1903); *Die Prinzipien d. Wärmelehre* (2nd ed., 1900); *Erkenntnis und Irrtum* (Leipzig, 1905).

MACHAERODUS, or Machairodus, the typical genus of a group of long-tusked extinct cats, commonly known as sabre-tooths. Although best regarded as a sub-family (*Machaerodontinae*) of the *Felidae*, they are sometimes referred to a separate family under the name *Nimravidae* (see Carnivora). The later forms, as well as some of the earlier ones, are more specialized as regards dentition than the modern *Felidae*, although in several other respects they exhibit more primitive features. The general type of dentition is feline, but in some instances more premolars are retained, as well as a small tubercular molar behind the lower carnassial. The characteristic feature is, however, the great development of the upper canines, which in the more specialized types reach far below the margin of the lower jaw, despite the development of a flange-like expansion of the extremity of the latter for their protection. In these extreme forms it is quite evident that the jaws could not be used in the ordinary manner; and it seems probable that in attacking prey the lower jaw was dropped to a vertical position, and the huge upper tusks used as stabbing instruments. The group is believed to be derived from a creodont allied to the Eocene *Palaeonictis* (see Creodonta).

Nimravus, of the American Oligocene, with two premolars and two molars in the lower jaw, and comparatively short upper canines, seems to be the least specialized type; next to which comes *Hoplophoneus*, another North American Oligocene genus, in which the tubercular lower molar is lost, and the upper canine is longer. It is noteworthy, however, that this genus retains the third trochanter to the femur, which is lost in *Nimravus*. *Machaerodus*, in the wider sense, includes the larger and more typical forms. In the Pliocene of France and Italy it is represented by *M. megantereon*, a species not larger than a leopard, and allied forms occur in the Pliocene of Greece, Hungary, Samos, Persia, India and China, as well as in the Middle Miocene of France and Germany. Far larger is the Pleistocene *M. cultridens* of the caverns of Europe, with serrated upper tusks several inches in length. From Europe and Asia the sabre-toothed tigers may be traced into North and thence into South America, the home of *M. (Smilodon) neogaeus*, the largest of the whole tribe, whose remains occur in the Brazilian caves and the silt of the Argentine pampas. This animal was as large as a tiger, with tusks projecting seven inches from the jaw and very complex carnassials; the feet were very short, with only four toes to the hind-pair, and the humerus has lost the foramen at the lower end. Very noteworthy is the occurrence of an imperfectly known specialized type—*Eusmilus*—in the Lower Oligocene of Europe and perhaps also North America. Unlike all other cats, it had only two pairs of lower incisors, and the large cheek-teeth were reduced to the carnassial and one premolar in advance of the same.

(R. L.*)

MACHALE, JOHN (1791-1881), Irish divine, was born on the 15th of March 1791 at Tuber-na-Fian, Mayo, and was educated at Maynooth, where after graduating in 1814 he was ordained priest and appointed lecturer in theology, succeeding to the professoriate in 1820. In 1825 he became coadjutor bishop of Killala, and in July 1834 archbishop of Tuam and metropolitan. He visited Rome in 1831, and was there again at the proclamation of the dogma of the Immaculate Conception of the Virgin (Dec. 1854) and in 1869-1870 at the Vatican council. Though he did not favour the dogma of Papal Infallibility he submitted as soon as it was defined. Machale was an intensely patriotic Irishman, who fought hard for Catholic Emancipation, for separate Roman Catholic schools, and against the Queen's Colleges. He translated part of the *Iliad* (Dublin, 1861), and made an Irish version of some of Moore's melodies and of the Pentateuch. He died at Tuam on the 7th of November 1881.

MACHAULT D'ARNOUVILLE, JEAN BAPTISTE DE (1701-1794), French statesman, was a son of Louis Charles Machault d'Arnouville, lieutenant of police. In 1721 he was counsel to the parlement of Paris, in 1728 *maître des requêtes*, and ten years later was made president of the Great Council; although he had opposed the court in the *Unigenitus* dispute, he was appointed intendant of Hainaut in 1743. From this position, through the influence at court of his old friend René Louis, Marquis d'Argenson, he was called to succeed Orry de Fulvy as controller-general of the finances in December 1745. He found, on taking office, that in the four years of the War of the Austrian Succession the economies of Cardinal Fleury had been exhausted, and he was forced to develop the system of borrowings which was bringing French finances to bankruptcy. He attempted in 1749 a reform in the levying of direct taxes, which, if carried out, would have done much to prevent the later Revolutionary movement. He proposed to abolish the old tax of a tenth, which was evaded by the clergy and most of the nobility, and substitute a tax of one-twentieth which should be levied on all without exception. The cry for exceptions, however, began at once. The clergy stood in a body by their historical privileges, and the outcry of the nobility was too great for the minister to make headway against. Still he managed to retain his office until July 1754, when he exchanged the controllership for the ministry of marine. Foreseeing the disastrous results of the alliance with Austria, he was drawn to oppose more decidedly the schemes of Mme de Pompadour, whose personal ill-will he had gained. Louis XV. acquiesced in her demand for his disgrace on the 1st of February 1757. Machault lived on his estate at Arnouville until the Revolution broke out, when, after a period of hiding, he was apprehended in 1794 at Rouen and brought to Paris as a suspect. He was imprisoned in the Madelonnettes, where he succumbed in a few weeks, at the age of ninety-three.

His son, Louis Charles Machault d'Arnouville (1737-1820), was bishop of Amiens from 1774 until the Revolution. He was famous for his charity; but proved to be a most uncompromising Conservative at the estates general of 1789, where he voted consistently against every reform. He emigrated in 1791, resigned his bishopric in 1801 to facilitate the concordat, and retired to the ancestral château of Arnouville, where he died in 1820.

MACHAUT, GUILLAUME DE (*c.* 1300-1377), French poet and musician, was born in the village of Machault near Réthel in Champagne. Machaut tells us that he served for thirty years the adventurous John of Luxembourg, king of Bohemia. He followed his master to Russia and Poland, and, though of peaceful tastes himself, saw twenty battles and a hundred tourneys. When John was killed at Crécy in 1346 Machaut was received at the court of Normandy, and on the accession of John the Good to the throne of France (1350) he received an office which enabled him to devote himself thenceforth to music and poetry. Machaut wrote about 1348 in honour of Charles III., king of Navarre, a long poem much admired by contemporaries, *Le Jugement du roi de Navarre*. When Charles was thrown into prison by his father-in-law, King John, Machaut addressed him a *Confort d'ami* to console him for his enforced separation from his young wife, then aged fifteen. This was followed about 1370 by a poem of 9000 lines entitled *La Prise d'Alexandrie*, one of the last chronicles cast in this form. Its hero was Pierre de Lusignan, king of Cyprus. Machaut is best known for the strange book telling of the love affair of his old age with a young and noble lady long supposed to be Agnes of Navarre, sister of Charles the Bad; Paulin Paris in his edition of the *Voir dit* (*Historie vraie*) identified her as Perronne d'Armentières, a noble lady of Champagne. In 1362, when Machaut must have been at least sixty-two years of age, he received a rondeau from Perronne, who was then eighteen, expressing her devotion. She no doubt wished to play Laura to his Petrarch, and the *Voir dit* contains the correspondence and the poems which they exchanged. The romance, which ended with Perronne's marriage and Machaut's desire to remain her *doux ami*, has gleams of poetry, especially in Perronne's verses, but its subject and its length are both deterrent to modern readers. But Machaut with Deschamps marks a distinct transition. The *trouvères* had been impersonal. It is difficult to gather any details of their personal history from their work. Machaut and Deschamps wrote of their own affairs, and the next step in development was to be the self-analysis of Villon. Machaut was also a musician. He composed a number of motets, songs and ballads, also a mass supposed to have been sung at the coronation of Charles V. This was translated into modern notation by Perne, who read a notice on it before the Institute of France in 1817.

Machaut's *Oeuvres choisies* were edited by P. Tarbé (Rheims and Paris, 1849); *La Prise d'Alexandrie*, by L. de Mas-Latrie (Geneva, 1877); and *Le Livre du voir-dit*, by Paulin Paris (1875). See also F. G. Fétis, *Biog. universelle des musiciens ...* (Paris, 1862), and a notice on the *Instruments de musique au xive siècle d'après Guillaume de Machaut*, by E. Travers (Paris, 1882).

MACHIAVELLI, NICCOLÒ (1469-1527), Italian statesman and writer, was born at Florence on the 3rd of May 1469. His ancestry claimed blood relationship with the lords of Montespertoli, a fief situated between Val di Pesa and Val d'Elsa, at no great distance from the city. Niccolò's father, Bernardo (b. 1428), followed the profession of a jurist. He held landed property worth something like £250 a year of our money. His son, though not wealthy, was never wholly dependent upon official income.

Of Niccolò's early years and education little is known. His works show wide reading in the Latin and Italian classics, but it is almost certain that he had not mastered the Greek language. To the defects of Machiavelli's education we may, in part at least, ascribe the peculiar vigour of his style and his speculative originality. He is free from the scholastic trifling and learned frivolity which tainted the rhetorical culture of his century. He made the world of men and things his study, learned to write his mother-tongue with idiomatic conciseness, and nourished his imagination on the masterpieces of the Romans.

The year of Charles VIII.'s invasion and of the Medici's expulsion from Florence (1494) saw Machiavelli's first entrance into public life. He was appointed clerk in the second chancery of the commune under his old master, the grammarian, Marcello Virgilio Adriani. Early in 1498 Adriani became chancellor of the republic, and Machiavelli received his vacated office with the rank of second chancellor and secretary. This post he retained till the year 1512. The masters he had to serve were the *dieci di libertà e pace*, who, though subordinate to the *signoria*, exercised a separate control over the departments of war and the interior. They sent their own ambassadors to foreign powers, transacted business with the cities of the Florentine domain, and controlled the military establishment of the commonwealth. The next fourteen years of Machiavelli's life were fully occupied in the voluminous correspondence of his bureau, in diplomatic missions of varying importance, and in the organization of a Florentine militia. It would be tedious to follow him through all his embassies to petty courts of Italy, the first of which took place in 1499, when he was sent to negotiate the continuance of a loan to Catherine Sforza, countess of Forlì and Imola. In 1500 Machiavelli travelled into France, to deal with Louis XII. about the affairs of Pisa. These embassies were the school in which Machiavelli formed his political opinions, and gathered views regarding the state of Europe and the relative strength of nations. They not only introduced him to the subtleties of Italian diplomacy, but also extended his observation over races very

different from the Italians. He thus, in the course of his official business, gradually acquired principles and settled ways of thinking which he afterwards expressed in writing.

In 1502 Machiavelli married Marietta Corsini, who bore him several children, with whom, in spite of his own infidelities, he lived on good terms, and who survived him twenty-six years. In the same year Piero Soderini was chosen gonfalonier for life, in accordance with certain changes in the constitution of the state, which were intended to bring Florence closer to the Venetian type of government. Machiavelli became intimately connected with Soderini, assisted him in carrying out his policy, suggested important measures of military reform which Soderini adopted, and finally was involved in ruin by his fall.

The year 1502 was marked by yet another decisive incident in Machiavelli's life. In October he was sent, much against his will, as envoy to the camp of Cesare Borgia, duke of Valentinois. The duke was then in Romagna, and it was Machiavelli's duty to wait upon and watch him. He was able now to observe those intricate intrigues which culminated in Cesare's murder of his disaffected captains. From what remains of Machiavelli's official letters, and from his tract upon the *Modo che tenne il duca Valentino per ammazzar Vitellozzo Vitelli*, we are able to appreciate the actual relations which existed between the two men, and the growth in Machiavelli's mind of a political ideal based upon his study of the duke's character. Machiavelli conceived the strongest admiration for Cesare's combination of audacity with diplomatic prudence, for his adroit use of cruelty and fraud, for his self-reliance, avoidance of half-measures, employment of native troops, and firm administration in conquered provinces. More than once, in letters to his friend Vettori, no less than in the pages of the *Principe*, Machiavelli afterwards expressed his belief that Cesare Borgia's behaviour in the conquest of provinces, the cementing of a new state out of scattered elements, and the dealing with false friends or doubtful allies, was worthy of all commendation and of scrupulous imitation. As he watched Cesare Borgia at this, the most brilliant period of his adventurous career, the man became idealized in his reflective but imaginative mind. Round him, as a hero, he allowed his own conceptions of the perfect prince to cluster. That Machiavelli separated the actual Cesare Borgia, whom he afterwards saw, ruined and contemptible, at Rome, from this radiant creature of his political fancy, is probable. That the Cesare of history does not exactly match the Duca Valentino of Machiavelli's writings is certain. Still the fact remains that henceforth Machiavelli cherished the ideal image of the statesman which he had modelled upon Cesare, and called this by the name of Valentino.

On his return to Florence early in January 1503, Machiavelli began to occupy himself with a project which his recent attendance upon Cesare Borgia had strengthened in his mind. The duties of his office obliged him to study the conditions of military service as they then existed in Italy. He was familiar with the disadvantages under which republics laboured when they engaged professional captains of adventure and levied mercenary troops. The bad faith of the condottiere Paolo Vitelli (beheaded at Florence in 1499) had deeply impressed him. In the war with Pisa he had observed the insubordination and untrustworthiness of soldiers gathered from the dregs of different districts, serving under egotistical and irresponsible commanders. His reading in Livy taught him to admire the Roman system of employing armies raised from the body of the citizens; and Cesare Borgia's method of gradually substituting the troops of his own duchy for aliens and mercenaries showed him that this plan might be adopted with success by the Italians. He was now determined, if possible, to furnish Florence with a national militia. The gonfalonier Soderini entered into his views. But obstacles of no small magnitude arose. The question of money was immediately pressing. Early in 1503 Machiavelli drew up for Soderini a speech, *Discorso sulla provisione del danaro*, in which the duty and necessity of liberal expenditure for the protection of the state were expounded upon principles of sound political philosophy. Between this date and the last month of 1506 Machiavelli laboured at his favourite scheme, working out memorials on the subject for his office, and suggesting the outlines of a new military organization. On the 6th of December 1506 his plan was approved by the signoria, and a special ministry, called the nove *di ordinanza e milizia*, was appointed. Machiavelli immediately became their secretary. The country districts of the Florentine dominion were now divided into departments, and levies of foot soldiers were made in order to secure a standing militia. A commander-in-chief had to be chosen for the new troops. Italian jealousy shrank from conferring this important office on a Florentine, lest one member of the state should acquire a power dangerous to the whole. The choice of Soderini and Machiavelli fell, at this juncture, upon an extremely ineligible person, none other than Don Micheletto, Cesare Borgia's cut-throat and assassin. It is necessary to insist upon this point, since it serves to illustrate a radical infirmity in Machiavelli's genius. While forming and promoting his scheme, he was actuated by principles of political wisdom and by the purest patriotism. But he failed to perceive that such a ruffian as Micheletto could not inspire the troops of Florence with that devotion to their country and that healthy moral tone which should distinguish a patriot army. Here, as elsewhere, he revealed his insensibility to the ethical element in human nature.

Meanwhile Italy had been the scene of memorable events, in most of which Machiavelli took some part. Alexander VI. had died suddenly of fever. Julius II. had ascended the papal chair. The duke of Valentinois had been checked in mid-career of conquest. The collapse of the Borgias threw Central Italy into confusion; and Machiavelli had, in 1505, to visit the Baglioni at Perugia and the Petrucci at Siena. In the following year he accompanied Julius upon his march through Perugia into the province of Emilia, where the fiery pope subdued in person the rebellious cities of the Church. Upon these embassies Machiavelli represented the Florentine dieci in quality of envoy. It was his duty to keep the ministry informed by means of frequent despatches and reports. All this while the war for the recovery of Pisa was slowly dragging on, with no success or honour to the Florentines. Machiavelli had to attend the camp and provide for levies amid his many other occupations. And yet he found time for private literary work. In the autumn of 1504 he began his *Decennali*, or *Annals of Italy*, a poem composed in rough terza rima. About the same time he composed a comedy on the model of Aristophanes, which is unfortunately lost. It seems to have been called *Le Maschere*. Giuliano de' Ricci tells us it was marked by stringent satire upon great ecclesiastics and statesmen, no less than by a tendency to "ascribe all human things to natural causes or to fortune." That phrase accurately describes the prevalent bias of its author's mind.

The greater part of 1506 and 1507 was spent in organizing the new militia, corresponding on the subject, and scouring the country on enlistment service. But at the end of the latter year European affairs of no small moment diverted Machiavelli from these humbler duties. Maximilian was planning a journey into Italy in order to be crowned emperor at Rome, and was levying subsidies from the imperial burghs for his expenses. The Florentines thought his demands excessive. Though they already had Francesco Vettori at his court, Soderini judged it advisable to send Machiavelli thither in December. He travelled by Geneva, all through Switzerland, to Botzen, where he found the emperor. This journey was an important moment in his life. It enabled him to study the Swiss and the Germans in their homes; and the report which he wrote on his return is among his most effective political studies. What is most remarkable in it is his concentrated effort to realize the exact political weight of the German nation, and to penetrate the causes of its strength and weakness. He attempts to grasp the national character as a whole, and thence to deduce practical conclusions. The same qualities are noticeable in his *Ritratti delle cose di Francia*, which he drew up after an embassy to Louis XII. at Blois in 1510. These notes upon the French race are more scattered than the report on German affairs. But they reveal no less acumen combined with imaginative penetration into the very essence of national existence.

Machiavelli returned from Germany in June 1508. The rest of that year and a large part of 1509 were spent in the affairs of the militia and the war of Pisa. Chiefly through his exertions the war was terminated by the surrender of Pisa in June 1509. Meanwhile the league of Cambray had disturbed the peace of Italy, and Florence found herself in a perilous position between Spain and France. Soderini's government grew weaker. The Medicean party lifted up its head. To the league of Cambray succeeded the Holy League. The battle of Ravenna was fought, and the French retired from Italy. The Florentines had been spectators rather than actors in these great events. But they were now destined to feel the full effects of them. The cardinal Giovanni de' Medici, who was present at the battle of Ravenna, brought a Spanish army into Tuscany. Prato was sacked in the August of 1512. Florence, in extreme terror, deposed the gonfalonier, and opened her gates to the princes of the house of Medici.

The government on which Machiavelli depended had fallen, never to rise again. The national militia in which he placed unbounded confidence had proved inefficient to protect Florence in the hour of need. He was surrounded by political and personal enemies, who regarded him with jealousy as the ex-gonfalonier's right-hand man. Yet at first it appears that he still hoped to retain his office. He showed no repugnance to a change of masters, and began to make overtures to the Medici. The *nove della milizia* were, however, dissolved; and on the 7th of November 1512 Machiavelli was deprived of his appointments. He was exiled from Florence and confined to the dominion for one year, and on the 17th of November was further prohibited from setting foot in the Palazzo Pubblico. Ruin stared him in the face; and, to make matters worse, he was implicated in the conspiracy of Pier Paolo Boscoli in February 1513. Machiavelli had taken no share in that feeble attempt against the Medici, but his name was found upon a memorandum dropped by Boscoli. This was enough to ensure his imprisonment. He was racked, and only released upon Giovanni de' Medici's election to the papacy in March 1513. When he left his dungeon he retired to a farm near San Casciano, and faced the fact that his political career was at an end.

Machiavelli now entered upon a period of life to which we owe the great works that have rendered his name immortal. But it was one of prolonged disappointment and annoyance. He had not accustomed himself to economical living; and, when the emoluments of his office were withdrawn, he had barely enough to support his family. The previous years of his manhood had been spent in continual activity. Much as he enjoyed the study of the Latin and Italian classics, literature was not his business; nor had he looked on writing as more than an occasional amusement. He was now driven in upon his books for the employment of a restless temperament; and to this irksomeness of enforced leisure may be ascribed the production of the *Principe*, the *Discorsi*, the *Arte della guerra*, the comedies, and the *Historie fiorentine*. The uneasiness of Machiavelli's mind in the first years of this retirement is brought before us by his private correspondence. The letters to Vettori paint a man of vigorous intellect and feverish activity, dividing his time between studies and vulgar dissipations, seeking at one time distraction in low intrigues and wanton company, at another turning to the great minds of antiquity for solace. It is not easy to understand the spirit in which the author of the *Principe* sat down to exchange obscenities with the author of the *Sommario della storia d'Italia*. At the same time this coarseness of taste did not blunt his intellectual sagacity. His letters on public affairs in Italy and Europe, especially those which he meant Vettori to communicate to the Medici at Rome, are marked by extraordinary fineness of perception, combined, as usual in his case, with philosophical breadth. In retirement at his villa near Percussina, a hamlet of San Casciano, Machiavelli completed the *Principe* before the end of 1513. This famous book is an analysis of the methods whereby an ambitious man may rise to sovereign power. It appears to have grown out of another scarcely less celebrated work, upon which Machiavelli had been engaged before he took the *Principe* in hand, and which he did not finish until some time afterwards. This second treatise is the *Discorsi sopra la prima deca di Tito Livio*.

Cast in the form of comments on the history of Livy, the *Discorsi* are really an inquiry into the genesis and maintenance of states. The *Principe* is an offshoot from the main theme of the *Discorsi*, setting forth Machiavelli's views at large and in detail upon the nature of principalities, the method of cementing them, and the qualities of a successful autocrat. Being more limited in subject and more independent as a work of literary art, this essay detaches itself from the main body of the *Discorsi*, and has attracted far more attention. We feel that the *Principe* is inspired with greater fervency, as though its author had more than a speculative aim in view, and brought it forth to serve a special crisis. The moment of its composition was indeed decisive. Machiavelli judged the case of Italy so desperate that salvation could only be expected from the intervention of a powerful despot. The unification of Italy in a state protected by a national army was the cherished dream of his life; and the peroration of the *Principe* shows that he meant this treatise to have a direct bearing on the problem. We must be careful, however, not to fall into the error of supposing that he wrote it with the sole object of meeting an occasional emergency. Together with the *Discorsi*, the *Principe* contains the speculative fruits of his experience and observation combined with his deductions from Roman history. The two works form one coherent body of opinion, not systematically expressed, it is true, but based on the same principles, involving the same conclusions, and directed to the same philosophical end. That end is the analysis of the conception of the state, studied under two main types, republican and monarchical. Up to the date of Machiavelli, modern political philosophy had always presupposed an ideal. Medieval speculation took the Church and the Empire for granted, as divinely appointed institutions, under which the nations of the earth must flourish for the space of man's probation on this planet. Thinkers differed only as Guelfs and Ghibellines, as leaning on the one side to papal, on the other to imperial supremacy. In the revival of learning, scholarship supplanted scholasticism, and the old ways of medieval thinking were forgotten. But no substantial philosophy of any kind emerged from humanism; the political lucubrations of the scholars were, like their ethical treatises, for the most part rhetorical. Still the humanists effected a delivery of the intellect from what had become the bondage of obsolete ideas, and created a new medium for the speculative faculty. Simultaneously with the revival, Italy had passed into that stage of her existence which has been called the age of despots. The yoke of the Empire had been shaken off. The Church had taken rank among Italian tyrannies. The peninsula was, roughly speaking, divided into principalities and sovereign cities, each of which claimed autocratic jurisdiction. These separate despotisms owned no common social tie, were founded on no common *jus* or right, but were connected in a network of conflicting interests and changeful diplomatic combinations. A keen and positive political intelligence emerged in the Italian race. The reports of Venetian and Florentine ambassadors at this epoch contain the first germs of an attempt to study politics from the point of view of science.

At this moment Machiavelli intervenes. He was conscious of the change which had come over Italy and Europe. He was aware that the old strongholds of medieval thought must be abandoned, and that the decaying ruins of medieval institutions furnished no basis for the erection of solid political edifices. He felt the corruption of his country, and sought to bring the world back to a lively sense of the necessity for reformation. His originality consists in having extended the positive intelligence of his century from the sphere of contemporary politics and special interests to man at large regarded as a political being. He founded the science of politics for the modern world, by concentrating thought upon its fundamental principles. He began to study men, not according to some preconception, but as he found them—men, not in the isolation of one century, but as a whole in history. He drew his conclusions from the nature of mankind itself, "ascribing all things to natural causes or to fortune." In this way he restored the right method of study, a method which had been neglected since the days of Aristotle. He formed a conception of the modern state, which marked the close of the middle ages, and anticipated the next phase of European development. His prince, abating those points which are purely Italian or strongly tinctured with the author's personal peculiarities, prefigured the monarchs of the 16th and 17th centuries, the monarchs whose motto was *L'état c'est moi!* His doctrine of a national militia foreshadowed the system which has given strength in arms to France and Germany. His insight into the causes of Italian decadence was complete; and the remedies which he suggested, in the perorations of the *Principe* and the *Arte della guerra*, have since been applied in the unification of Italy. Lastly, when we once have freed ourselves from the antipathy engendered by his severance of ethics from the field of politics, when we have once made proper allowance for his peculiar use of phrases like *frodi onorevoli* or *scelleratezze gloriose*, nothing is left but admiration for his mental attitude. That is the attitude of a patriot, who saw with open eyes the ruin of his country, who burned above all things to save Italy and set her in her place among the powerful nations, who held the duty of self-sacrifice in the most absolute sense, whose very limitations and mistakes were due to an absorbing passion for the state he dreamed might be reconstituted. It was Machiavelli's intense preoccupation with this problem—what a state is and how to found one in existing circumstances— which caused the many riddles of his speculative writings. Dazzled, as it were, with the brilliancy of his own discovery, concentrated in attention on the one necessity for organizing a powerful coherent nation, he forgot that men are more than political beings. He neglected religion, or regarded it as part of the state machinery. He was by no means indifferent to private virtue, which indeed he judged the basis of all healthy national existence; but in the realm of politics he postponed morals to political expediency. He held that the people, as distinguished from the nobles and the clergy, were the pith and fibre of nations; yet this same people had to become wax in the hands of the politician—their commerce and their comforts, the arts which give a dignity to life and the pleasures which make life liveable, neglected—their very liberty subordinated to the one tyrannical conception. To this point the segregation of politics from every other factor which goes to constitute humanity had brought him; and this it is which makes us feel his world a wilderness, devoid of atmosphere and vegetation. Yet some such isolation of the subject matter of this science was demanded at the moment of its birth, just as political economy, when first started, had to make a rigid severance of wealth from other units. It is only by a gradual process that social science in its whole complexity can be evolved. We have hardly yet discovered that political economy has unavoidable points of contact with ethics.

From the foregoing criticism it will be perceived that all the questions whether Machiavelli meant to corrupt or to instruct the world, to fortify the hands of tyrants or to lead them to their ruin, are now obsolete. He was a man of science—one who by the vigorous study of his subject matter sought from that subject-matter itself to deduce laws. The difficulty which remains in judging him is a difficulty of statement, valuation, allowance. How much shall we allow for his position in Renaissance Italy, for the corruption in the midst of which he lived, for his own personal temperament? How shall we state his point of departure from the middle ages, his sympathy with prevalent classical enthusiasms, his divination of a new period? How shall we estimate the permanent worth of his method, the residuum of value in his maxims?

After finishing the *Principe*, Machiavelli thought of dedicating it to one of the Medicean princes, with the avowed hope that he might thereby regain their favour and find public employment. He wrote to Vettori on the subject, and Giuliano de' Medici, duke of Nemours, seemed to him the proper person. The choice was reasonable. No sooner had Leo been made pope than he formed schemes for the aggrandizement of his family. Giuliano was offered and refused the duchy of Urbino. Later on, Leo designed for him a duchy in Emilia, to be cemented out of Parma, Piacenza, Reggio and Modena. Supported by the power of the papacy, with the goodwill of Florence to back him, Giuliano would have found himself in a position somewhat better than that of Cesare Borgia; and Borgia's creation of the duchy of Romagna might have served as his model. Machiavelli therefore was justified in feeling that here was an opportunity for putting his cherished schemes in practice, and that a prince with such alliances might even advance to the grand end of the unification of Italy. Giuliano, however, died in 1506. Then Machiavelli turned his thoughts towards Lorenzo, duke of Urbino. The choice of this man as a possible Italian liberator reminds us of the choice of Don Micheletto as general of the Florentine militia. To Lorenzo the *Principe* was dedicated, but without result. The Medici, as yet at all events, could not employ Machiavelli, and had not in themselves the stuff to found Italian kingdoms.

Machiavelli, meanwhile, was reading his *Discorsi* to a select audience in the Rucellai gardens, fanning that republican enthusiasm which never lay long dormant among the Florentines. Towards the year 1519 both Leo X. and his cousin, the cardinal Giulio de' Medici, were much perplexed about the management of the republic. It seemed necessary, if possible, in the gradual extinction of their family to give the city at least a semblance of self-government. They applied to several celebrated politicians, among others to Machiavelli, for advice in the emergency. The result was a treatise in which he deduced practical conclusions from the past history and present temper of the city, blending these with his favourite principles of government in general. He earnestly admonished Leo, for his own sake and for Florence, to found a permanent and free state system for the republic, reminding him in terms of noble eloquence how splendid is the glory of the man who shall confer such benefits upon a people. The year 1520 saw the composition of the *Arte della guerra* and the *Vita di Castruccio*.

The first of these is a methodical treatise, setting forth Machiavelli's views on military matters, digesting his theories respecting the superiority of national troops, the inefficiency of fortresses, the necessity of relying upon infantry in war, and the comparative insignificance of artillery. It is strongly coloured with his enthusiasm for ancient Rome; and specially upon the topic of artillery it displays a want of insight into the actualities of modern warfare. We may regard it as a supplement or appendix to the *Principe* and the *Discorsi*, since Machiavelli held it for a fundamental axiom that states are powerless unless completely armed in permanence. The peroration contains a noble appeal to the Italian liberator of his dreams, and a parallel from Macedonian history, which, read by the light of this century, sounds like a prophecy of Piedmont.

The *Vita di Castruccio* was composed at Lucca, whither Machiavelli had been sent on a mission. This so-called biography of the medieval adventurer who raised himself by personal ability and military skill to the tyranny of several Tuscan cities must be regarded in the light of an historical romance. Dealing freely with the outline of Castruccio's career, as he had previously dealt with Cesare Borgia, he sketched his own ideal of the successful prince. Cesare Borgia had entered into the *Principe* as a representative figure rather than an actual personage; so now conversely the theories of the *Principe* assumed the outward form and semblance of Castruccio. In each case history is blent with speculation in nearly the same proportions. But Castruccio, being farther from the writer's own experience, bears weaker traits of personality.

In the same year, 1520, Machiavelli, at the instance of the cardinal Giulio de' Medici, received commission from the officers of the *Studio pubblico* to write a history of Florence. They agreed to pay him an annual allowance of 100 florins while engaged upon the work. The next six years were partly employed in its composition, and he left a portion of it finished, with a dedication to Clement VII., when he died in 1527. In the *Historie fiorentine* Machiavelli quitted the field of political speculation for that of history. But, having already written the *Discorsi* and the *Principe*, he carried with him to this new task of historiography the habit of mind proper to political philosophy. In his hands the history of Florence became a text on which at fitting seasons to deliver lessons in the science he initiated. This gives the work its special character. It is not so much a chronicle of Florentine affairs, from the commencement of modern history to the death of Lorenzo de' Medici in 1492, as a critique of that chronicle from the point of view adopted by Machiavelli in his former writings. Having condensed his doctrines in the *Principe* and the *Discorsi*, he applies their abstract principles to the example of the Florentine republic. But the *History of Florence* is not a mere political pamphlet. It is the first example in Italian literature of a national biography, the first attempt in any literature to trace the vicissitudes of a people's life in their logical sequence, deducing each successive phase from passions or necessities inherent in preceding circumstances, reasoning upon them from general principles, and inferring corollaries for the conduct of the future. In point of form the *Florentine History* is modelled upon Livy. It contains speeches in the antique manner, which may be taken partly as embodying the author's commentary upon situations of importance, partly as expressing what he thought dramatically appropriate to prominent personages. The style of the whole book is nervous, vivid, free from artifice and rhetoric, obeying the writer's thought with absolute plasticity. Machiavelli had formed for himself a prose style, equalled by no one but by Guicciardini in his minor works, which was far removed from the emptiness of the latinizing humanists and the trivialities of the Italian purists. Words in his hands have the substance, the self-evidence of things. It is an athlete's style, all bone and sinew, nude, without superfluous flesh or ornament.

It would seem that from the date of Machiavelli's discourse to Leo on the government of Florence the Medici had taken him into consideration. Writing to Vettori in 1513, he had expressed his eager wish to "roll stones" in their service; and this desire was now gratified. In 1521 he was sent to Carpi to transact a petty matter with the chapter of the Franciscans, the chief known result of the embassy being a burlesque correspondence with Francesco Guicciardini. Four years later, in 1525, he received a rather more important mission to Venice. But Machiavelli's public career was virtually closed; and the interest of his biography still centres in his literary work. We have seen that already, in 1504, he had been engaged upon a comedy in the manner of Aristophanes, which is now unfortunately lost. A translation of the *Andria* and three original comedies from his pen are extant, the precise dates of which are uncertain, though the greatest of them was first printed at Rome in 1524. This is the *Mandragola*, which may be justly called the ripest and most powerful play in the Italian language.

The plot is both improbable and unpleasing. But literary criticism is merged in admiration of the wit, the humour, the vivacity, the satire of a piece which brings before us the old life of Florence in a succession of brilliant scenes. If Machiavelli had any moral object when he composed the *Mandragola*, it was to paint in glaring colours the corruption of Italian society. It shows how a bold and plausible adventurer, aided by the profligacy of a parasite, the avarice and hypocrisy of a confessor, and a mother's complaisant familiarity with vice, achieves the triumph of making a gulled husband bring his own unwilling but too yielding wife to shame. The whole comedy is a study of stupidity and baseness acted on by roguery. About the power with which this picture of domestic immorality is presented there can be no question. But the perusal of the piece obliges us to ask ourselves whether the author's radical conception of human nature was not false. The same suspicion is forced upon us by the *Principe*. Did not Machiavelli leave good habit, as an essential ingredient of character, out of account? Men are not such absolute fools as Nicia, nor such compliant catspaws as Ligurio and Timoteo; women are not such weak instruments as Sostrata and Lucrezia. Somewhere, in actual life, the stress of craft and courage acting on the springs of human vice and weakness fails, unless the hero of the comedy or tragedy, Callimaco or Cesare, allows for the revolt of healthier instincts. Machiavelli does not seem to have calculated the force of this recoil. He speculates a world in which *virtù*, unscrupulous strength of character, shall deal successfully with frailty. This, we submit, was a deep-seated error in his theory of life, an error to which may be ascribed the numerous stumbling-blocks and rocks of offence in his more serious writings.

Some time after the *Mandragola*, he composed a second comedy, entitled *Clizia*, which is even homelier and closer to the life

of Florence than its predecessor. It contains incomparable studies of the Florentine housewife and her husband, a grave business-like citizen, who falls into the senile folly of a base intrigue. There remains a short piece without title, the *Commedia in prosa*, which, if it be Machiavelli's, as internal evidence of style sufficiently argues, might be accepted as a study for both the *Clizia* and the *Mandragola*. It seems written to expose the corruption of domestic life in Florence, and especially to satirize the friars in their familiar part of go-betweens, tame cats, confessors and adulterers.

Of Machiavelli's minor poems, sonnets, *capitoli* and carnival songs there is not much to say. Powerful as a comic playwright, he was not a poet in the proper sense of the term. The little novel of *Belfagor* claims a passing word, if only because of its celebrity. It is a good-humoured satire upon marriage, the devil being forced to admit that hell itself is preferable to his wife's company. That Machiavelli invented it to express the irritation of his own domestic life is a myth without foundation. The story has a medieval origin, and it was almost simultaneously treated in Italian by Machiavelli, Straparola and Giovanni Brevio.

In the spring of 1526 Machiavelli was employed by Clement VII. to inspect the fortifications of Florence. He presented a report upon the subject, and in the summer of the same year received orders to attend Francesco Guicciardini, the pope's commissary of war in Lombardy. Guicciardini sent him in August to Cremona, to transact business with the Venetian *provveditori*. Later on in the autumn we find him once more with Guicciardini at Bologna. Thus the two great Italian historians of the 16th century, who had been friends for several years, were brought into relations of close intimacy.

After another visit to Guicciardini in the spring of 1527, Machiavelli was sent by him to Civita Vecchia. It seemed that he was destined to be associated in the papal service with Clement's viceroy, and that a new period of diplomatic employment was opening for him. But soon after his return to Florence he fell ill. His son Piero said that he took medicine on the 20th of June which disagreed with him; and on the 22nd he died, having received the last offices of the Church.

There is no foundation for the legend that he expired with profane sarcasms upon his lips. Yet we need not run into the opposite extreme, and try to fancy that Machiavelli, who had professed Paganism in his life, proved himself a believing Christian on his death-bed. That he left an unfavourable opinion among his fellow citizens is very decidedly recorded by the historian Varchi. The *Principe*, it seems, had already begun to prejudice the world against him; and we can readily believe that Varchi sententiously observes, that "it would have been better for him if nature had given him either a less powerful intellect or a mind of a more genial temper." There is in truth a something crude, unsympathetic, cynical in his mental attitude toward human nature, for which, even after the lapse of more than three centuries, we find it difficult to make allowance. The force of his intellect renders this want of geniality repulsive. We cannot help objecting that one who was so powerful could have been kindlier and sounder if he willed. We therefore do him the injustice of mistaking his infirmity for perversity. He was colour-blind to commonplace morality; and we are angry with him because he merged the hues of ethics in one grey monotone of politics.

In person Machiavelli was of middle height, black-haired, with rather a small head, very bright eyes and slightly aquiline nose. His thin, close lips often broke into a smile of sarcasm. His activity was almost feverish. When unemployed in work or study he was not averse to the society of boon companions, gave himself readily to transient amours, and corresponded in a tone of cynical bad taste. At the same time he lived on terms of intimacy with worthy men. Varchi says that "in his conversation he was pleasant, obliging to his intimates, the friend of virtuous persons." Those who care to understand the contradictions of which such a character was capable should study his correspondence with Vettori. It would be unfair to charge what is repulsive in their letters wholly on the habits of the times, for wide familiarity with the published correspondence of similar men at the same epoch brings one acquainted with little that is so disagreeable.

(J. A. S.)

Among the many editions of Machiavelli's works the one in 8 vols., dated Italia, 1813, may be mentioned, and the more comprehensive ones published by A. Parenti (Florence, 1843) and by A. Usigli (Florence, 1857). P. Fanfani and L. Passerini began another, which promised to be the most complete of all; but only 6 vols. were published (Florence, 1873-1877); the work contains many new and important documents on Machiavelli's life. The best biography is the standard work of Pasquale Villari, *La Storia di Niccolò Machiavelli e de' suoi tempi* (Florence, 1877-1882; latest ed., 1895; Eng. trans. by Linda Villari, London, 1892); in vol. ii. there is an exhaustive criticism of the various authors who have written on Machiavelli. See also T. Mundt, *Niccolò Machiavelli und das System der modernen Politik* (3rd ed., Berlin, 1867); E. Feuerlein, "*Zur Machiavelli-Frage*" in H. von Sybel's *Histor. Zeitschrift* (Munich, 1868); P. S. Mancini, *Prelezioni con un saggio sul Machiavelli*; F. Nitti, *Machiavelli nella vita e nelle opere* (Naples, 1876); O. Tomasini, *La Vita e gli scritti di Niccolò Machiavelli* (Turin, 1883); L. A. Burd, *Il Principe, by Niccolò Machiavelli* (Oxford, 1891); Lord Morley, *Machiavelli* (Romanes lecture, Oxford, 1897). *The Cambridge Modern History*, vol. i. (Cambridge, 1903), contains an essay on Machiavelli by L. A. Burd, with a very full biography.

MACHICOLATION (from Fr. *machicoulis*), an opening between a wall and a parapet, formed by corbelling out the latter, so that the defenders might throw down stones, melted lead, &c., upon assailants below.

MACHINE (through Fr. from Lat. form *machina* of Gr. μηχανή), any device or apparatus for the application or modification of force to a specific purpose. The term "simple machine" is applied to the six so-called mechanical powers—the lever, wedge, wheel and axle, pulley, screw, and inclined plane. For machine-tools see Tools. The word machine was formerly applied to vehicles, such as stage-coaches, &c., and is still applied to carriages in Scotland; a survival of this use is in the term "bathing machine." Figuratively, the word is used of persons whose actions seem to be regulated according to a rigid and unchanging system. In politics, especially in America, machine is synonymous with party organization. A stage device of the ancient Greek drama gave rise to the proverbial expression, "the god from the machine," Lat. *deus ex machina*, for the disentangling and conclusion of a plot by supernatural interference or by some accident extraneous to the natural development of the story. When a god had to be brought on the stage he was floated down from above by a γέρανος (crane) or other machine (μηχανή). Euripides has been reproached with an excessive use of the device, but it has been pointed out (A. E. Haigh, *Tragic Drama of the Greeks*, p. 245 seq.) that only in two plays (*Orestes* and *Hippolytus*) is the god brought on for the solution of the plot. In the others the god comes to deliver a kind of epilogue, describing the future story of the characters, or to introduce some account of a legend, institution, &c.

MACHINE-GUN, a weapon designed to deliver a large number of bullets or small shells, either by volleys[1] or in very quick succession, at a high rate of fire. Formerly the mechanism of machine-guns was hand operated, but all modern weapons are automatic in action, the gas of the explosion or the force of recoil being utilized to lock and unlock the breech mechanism, to load the weapon and to eject the fired cartridge cases. The smaller types approximate to the "automatic rifle," which is expected to replace the magazine rifle as the arm of the infantryman. The large types, generically called "pompoms," fire a light artillery projectile, and are considered by many artillery experts as "the gun of the future." The medium type, which takes the ordinary rifle ammunition but is fired from various forms of carriage, is the ordinary machine-gun of to-day, and the present article deals mainly with this.

<div style="text-align:center">Historical Sketch</div>

Machine-guns of a primitive kind are found in the early history of gunpowder artillery, in the form of a grouping or binding of several small-calibre guns for purposes of a volley or a rapid succession of shots. The earliest field artillery (*q.v.*) was indeed chiefly designed to serve the purpose of a modern machine-gun, *i.e.* for a mechanical concentration of musketry. Infantry fire (till the development of the Spanish arquebus, about 1520) was almost ineffective, and the disintegration of the masses of pikes, preparatory to the decisive cavalry charge, had to be effected by guns of one sort or another (see also INFANTRY). Hence the "cart with gonnes," although the prototype of the field gun of to-day was actually a primitive *mitrailleuse*.

Weapons of this sort were freely employed by the Hussites, who fought in laager formation (*Wagenburg*), but the fitting of two or more hand-guns or small culverins to a two-wheeled carriage garnished with spikes and scythe blades (like the ancient war-chariots) was somewhat older, for in 1382 the men of Ghent put into the field 200 "chars de canon" and in 1411 the Burgundian army is said to have had 2000 "ribaudequins" (meaning probably the weapons, not the carts, in this case). These were of course hardly more than carts with hand-gun men; in fact most armies in those days moved about in a hollow square or lozenge of wagons, and it was natural to fill the carts with the available gunners or archers. The method of breaking the enemy's "battles" with these carts was at first, in the ancient manner, to drive into and disorder the hostile ranks with the scythes. But they contained at least the germ of the modern machine-gun, for the tubes (*cannes, canons*) were connected by a train of powder and fired in volleys. As however field artillery improved (latter half of 15th century), and a cannon-ball could be fired from a mobile carriage, the ribaudequin ceased to exist, its name being transferred to heavy hand-guns used as rampart pieces. The idea of the machine-gun reappeared however in the 16th century. The weapons were now called "organs" (*orgues*), from the number of pipes or tubes that they contained. At first used (defensively) in the same way as the ribaudequins, *i.e.* as an effective addition to the military equipment of a war-cart, they were developed, in the early part of the 16th century, into a really formidable weapon for breaking the masses of the enemy, not by scythes and spikes but by fire. Fleurange's memoirs assign the credit of this to the famous gunner and engineer Pedro Navarro, who made two hundred weapons of a design of his own for Louis XII. These "were not more than two feet long, and fired fifty shots at a round," but nevertheless "organs" were relatively rare in the armies of the 16th century, for the field artillery, though it grew in size and lost in mobility, had discovered the efficacy of case shot (then called "perdreaux") against uncovered animate targets, and for work that was not sufficiently serious for the guns heavy arquebuses were employed. Infantry fire, too, was growing in power and importance. In 1551 a French army contained 21 guns and 150 arquebuses *à croc* and one *pièce façon d'orgue*. By about 1570 it had been found that when an "organ" was needed all that was necessary was to mount some heavy arquebuses on a cart, and the organ, as a separate weapon, disappeared from the field, although under the name of "mantelet" (from the shield which protected the gunners), it was still used for the defence of breaches in siege warfare. Diego Ufano, who wrote in the early years of the 17th century, describes it as a weapon consisting of five or six barrels fired simultaneously by a common lock, and mentions as a celebrated example the "Triquetraque of Rome" which had five barrels. Another writer, Hanzelet, describes amongst other devices a mitrailleuse of four barrels which was fired from the back of an ass or pony. But such weapons as these were more curious than useful. For work in the open field the musket came more and more to the front, its bullet became at least as formidable as that of an "organ," and when it was necessary to obtain a concentrated fire on a narrow front arquebuses *à croc* were mounted for the nonce in groups of four to six. The "organ" maintained a precarious existence, and is described by Montecucculi a century later, and one of twelve barrels figures in the list of military Stores at Hesdin in 1689. But its fatal defect was that it was neither powerful enough to engage nor mobile enough to evade the hostile artillery.

Ribaudequins.

"Organs."]

Enthusiastic inventors, of course, produced many models of machine-gun in the strict sense of the word—*i.e.* a gun firing many charges, in volleys or in rapid succession, by a mechanical arrangement of the lock. Wilhelm Calthoff, a German employed by Louis XIII., produced arquebuses and muskets that fired six to eight shots per round, but his invention was a secret, and it seems to have been more of a magazine small arm than a machine-gun (1640). In 1701 a Lorrainer, Beaufort de Mirecourt, proposed a machine-gun which had as its purpose the augmentation of infantry-fire power, so as to place an inferior army on an equality with a superior. At this time inventors were so numerous and so embarrassing that the French grand master of artillery, St Hilaire, in 1703 wrote that he would be glad to have done with "ces sortes de gens à secrets," some of whom demanded a grant of compensation even when their experiments had failed. The machine-gun of the 17th and 18th centuries in fact possessed no advantage over contemporary field artillery, and the battalion gun in particular, which possessed the long ranging and battering power that its rival lacked, and was moreover more efficacious against living targets with its case-shot or grape. As compared with infantry fire, too, it was less effective and slower than the muskets of a well-drilled company. Rapid fire was easily arranged, but the rapid *loading* which would have compensated for other defects was unobtainable in the then existing state of gun-making.

Thus a satisfactory machine-gun was not forthcoming until breech-loading had been, so to speak, rediscovered, that is until about 1860. At that time the tactical conditions of armament were peculiar. As regards artillery, the new (muzzle-loading) long-range rifle sufficed, in the hand of determined infantry, to keep guns out of case-shot range. This made the Napoleonic artillery attack an impossibility. At the same time the infantry rifle was a slow loader, and the augmentation of the volume of infantry fire attracted the attention of several inventors. The French, with their artillery traditions, regarded the machine-gun therefore as a method of restoring the lost superiority of the gunner, while the Americans, equally in accordance with traditions and local circumstances, regarded it as a musketry machine. The representative weapons evolved by each were the *canon à balles*, more commonly called *mitrailleuse*, and the Gatling gun.

The declared purpose of the *canon à balles* was to replace the old artillery case-shot attack. Shrapnel, owing to the defects of the time-fuzes then available, had proved disappointing in the Italian War of 1859, and the gun itself, of the existing model, was not considered satisfactory. Napoleon III., a keen student of artillery, maintained a private arsenal and workshop at the château of Meudon[2] and in 1866, in the alarm following upon Königgrätz, he ordered Commandant Reffye (1821-1880), the artillery officer he had placed in charge of it, to produce a machine-gun. Reffye held that the work of a mitrailleuse should only begin where that of the infantry rifle ceased. The handbook to his gun issued to the French army in 1870 stated that it was "to carry balls to distances that the infantry, and the artillery firing case, could not reach." The most suitable range was given as 1500-2000 yards against infantry in close order, 2000-2700 against artillery. As the French shrapnel (*obus à balles*) of these days was only used to give its peculiar case-shot effect between 550 and 1350 yards, and even so sparingly and without much confidence in its efficacy, it is clear that the *canon à balles* was intended to do the field-gun's work, except at (what were then) extreme field artillery ranges (2800 and above), in which case the ordinary gun with common shell (time or percussion) alone was used.

The Canon à Balles, 1866-1870.

Constructed to meet these conditions, the Reffye machine-gun in its final form resembled outwardly an ordinary field gun, with wheeled carriage, limber and four-horse team. The gun barrel was in reality a casing for 25 rifle barrels disposed around

a common axis (the idea of obtaining sweeping effect by disposing the barrels slightly fan-wise had been tried and abandoned). The barrels were held together at intervals by wrought-iron plates. They were entirely open at the breech, a removable false breech containing the firing mechanism (the cartridge cases were of brass, solid-drawn, like those of the American and unlike those of the British Gatlings). This false breech, held in the firing position by a strong screw—resembling roughly those of contemporary B.L. ordnance such as the Armstrong R. B. L.—consisted of a plate with 25 holes, which allowed the points of the strikers to pass through and reach the cartridges. The plate was turned by hand so that one striker was admitted at a time, the metal of the plate holding back the rest. To avoid any deflection of the bullet by the gases at an adjoining muzzle the barrels were fired in an irregular order. Each gun was provided with four chambers, which were loaded with their 25 cartridges apiece by a charger, and fixed to the breech one after the other as quickly as the manipulation of the powerful retaining screw permitted. The rates of fire were "slow," 3 rounds or 75 shots a minute, and "rapid," 5 rounds or 125 shots per minute. One advantage as against artillery that was claimed for the new weapon was rapidity of ranging. Any ordinary target, such as a hostile gun, would, it was expected, be accurately ranged by the mitrailleuse before it was ready to open fire for effect. The ordinary rifle bullet was employed, but to enhance the case-shot effect a heavy bullet made up in three parts, which broke asunder on discharge, was introduced in 1870 in the proportion of one round in nine. The weapon was sighted to 3000 metres (3300 yds.). The initial velocity was 1558 f.s.; and the weight of the gun 350 kg. (6.45 cwt.), of the carriage 371 kg. (6.86 cwt.); total behind the team, 1,485 kg. (27.1 cwt.).

For an artillery effect, dispersion had to be combined with accuracy. The rifle-barrels when carefully set gave a very close grouping of shots on the target, and dispersion was obtained by traversing the gun during the firing of a round. When this was skilfully performed a front of 18 metres (about 20 yds.) at l,000 metres range was thoroughly swept by the cone of bullets.

The design and manufacture of these mitrailleuses under the personal orders and at the expense of the emperor enabled the French authorities to keep their new weapon most secret. Even though, after a time, mitrailleuses were constructed by scores, and could therefore no longer be charged to a "sundry" or "petty cash" account in the budget, secrecy was still maintained. The pieces were taken about, muffled in tarpaulins, by by-ways and footpaths. In 1869, two years after the definitive adoption of the weapon, only a few artillery captains were instructed in its mechanism; the non-commissioned officers who had to handle the gun in war were called up for practice in July 1870, when Major Reffye's energies were too much absorbed in turning out the material so urgently demanded to allow him to devote himself to their instruction. The natural consequence was that the mitrailleuses were taken into battle by officers and men of whom nine-tenths had never seen them fire one round of live cartridges. The purpose of this fatal secrecy was the maintenance of prestige. No details were given, but it was confidently announced that war would be revolutionized. One foreign officer only, Major Fosbery, R.A. (see *R.U.S.I. Journal*, v. xiii.), penetrated the secret, and he felt himself bound in honour to keep it to himself, not even communicating it to the War Office. But public attention was only too fully aroused by these mysterious prophecies. "The mitrailleuse paid dearly for its fame." The Prussians, who had examined mitrailleuses of the Gatling or infantry type, were well aware that the artillery machine-gun was at the least a most formidable opponent. They therefore ostentatiously rejected the Gatling gun, taught their troops that the new weapons were in the nature of scientific toys, and secretly made up their minds to turn the whole weight of their guns on to the mitrailleuse whenever and wherever it appeared on the field, and so to overwhelm it at once. This policy they carried into effect in the War of 1870; and although on occasions the new weapon rendered excellent service, in general it cruelly disappointed the over-high hopes of its admirers. And thus, although the Gatling and similar types of gun were employed to a slight extent by both sides in the later stage of the war, machine-guns, as a class of armament for civilized warfare, practically disappeared.

As a good deal of criticism—after the event—has been levelled at the French for their "improper use of the machine-gun as a substitute for artillery," it is necessary to give some summary of the ideas and rules which were inspired by the inventor or dictated by the authorities as to its tactical employment. The first principle laid down was that the gun should not be employed within the zone of the infantry fight. Officers commanding batteries were explicitly warned against infantry divisional generals who would certainly attempt to put the batteries, by sections, amongst the infantry. The second principle was that the mitrailleuses were to share the work of the guns, the latter battering obstacles with common shell, and the former being employed against troops in the open, and especially to cover and support the infantry advance. This tendency to classify the rôles of the artillery and to tell off the batteries each in its special task has reappeared in the French, and to a more limited extent in the British, field artillery of to-day (the Germans alone resolutely opposing the idea of subdivision). The mitrailleuse of 1870 was, in fact, intended to do what the perfected Shrapnel of 1910 does, to transfer the case-shot attack to longer ranges. But, as we have seen, secrecy had prevented any general spread of knowledge as to the uses to which the *canon à balles* was to be put, and consequently, after a few weeks of the war, we find Reffye complaining that the machine-guns were being used by their battery commanders "in a perfectly idiotic fashion. They are only good at a great distance and when used in masses, and they are being employed at close quarters like a rifle." The officers in the field, however, held that it was foolish to pit the mitrailleuse against the gun, which had a longer range, and exerted themselves to use it as an infantry weapon, a concentrated company, for which, unlike the Gatlings of 1870 and the machine-guns of to-day, it was never designed. As to which was right in the controversy it is impossible to dogmatize and needless to argue.

Very different was the Gatling gun, the invention of Richard Jordan Gatling (1818-1903), which came into existence and was to a slight extent used in the field in the latter years of the American Civil War,[3] and also to a still slighter extent by the Bavarians and the French in the latter part of the war of 1870. This was distinctively an infantry type weapon, a sort of revolving rifle, the ten barrels of which were set around an axis, and fired in turn when brought into position by the revolving mechanism. This weapon had a long reign, and was used side by side with the latest automatic machine gun in the Spanish-American War of 1898. The following account of the old British service Gatling (fig. 1), as used in the Egyptian and Sudanese campaigns, is condensed from that in the article "Gun-making," *Ency. Brit.* 9th ed.

Gatling Gun.

A block of ten barrels is secured round an axis, which is fixed in a frame *a a*. On turning the handle *h* (fig. 2) the spindle *g g* causes the worm *f* to act on the pinion *w,* making the axis and barrels revolve. A drum T (figs. 1 and 4) is placed on the top at the breech end of the barrels over a hopper, through a slot in which the cartridges drop into the carrier (fig. 3). The construction of the lock is shown in fig. 4. A A A A is a cam, sloping as in the drawing, which, it must be understood, represents the circular construction opened out and laid flat. As the barrels, carrier and locks revolve the slope of the cam forces the locks forward and backward alternately. At position I. the cartridge has just fallen into the carrier, the lock and bolt are completely withdrawn. At positions II., III., IV., the cam is forcing them forward, so that the bolt pushes the cartridge into the barrel. At IV. the cocking cam R begins to compress the spiral spring, releasing it at V. Position VI. shows the cartridge just after firing; the extractor is clutching the base of the cartridge case, which is withdrawn as the locks retreat down the slope of the cam, till at X it falls through an aperture to the ground. The drum consists of a number of vertical channels radiating from the centre. The cartridges are arranged horizontally, one above the other, in these channels, bullet ends inwards. The drum revolves on the pivot *b* (fig. 3). and the cartridges fall through the aperture B. When all the channels are emptied, a full drum is brought from the limber, and substituted for the empty one. Each barrel fires in turn as it comes to a certain position, so that by turning the handle quickly an almost continuous stream of bullets can be ejected. Experimental Gatlings were constructed which could be made to fire nearly 1000 shots a minute, and an automatic traversing arrangement was also fitted.
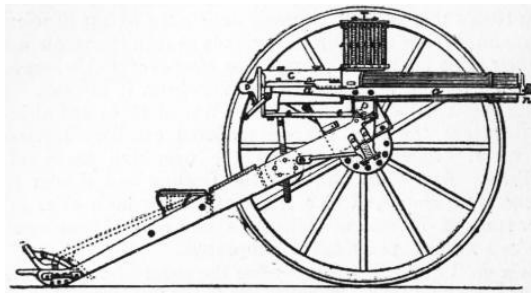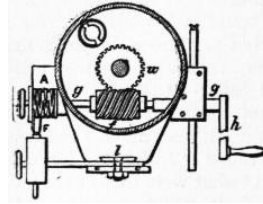
FIG. 1.—Gatling Gun.

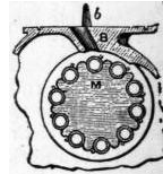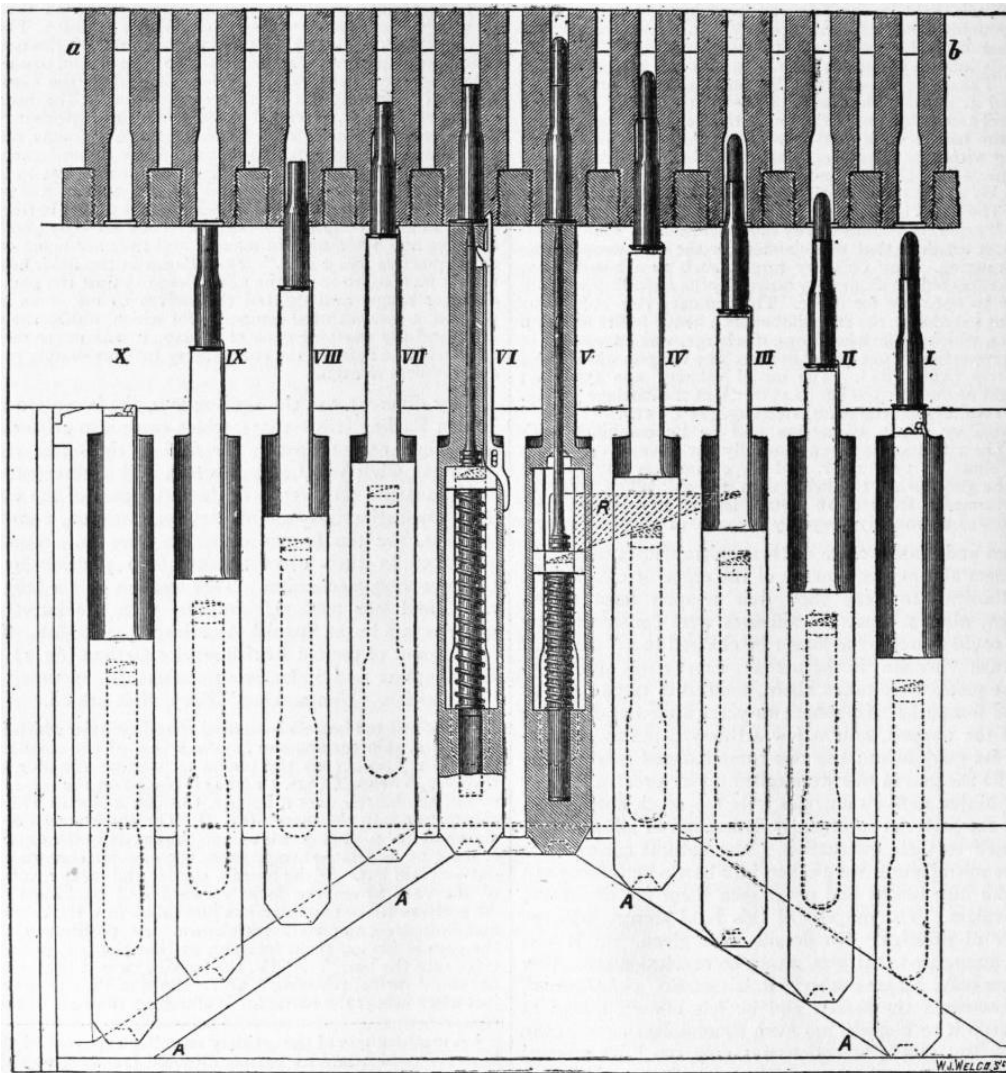

FIG. 2.   FIG. 3.

FIG. 4.—Lock of Gatling Gun.

As has been said, this weapon had a long reign. It was used with great effect in the Zulu War at Ulundi and in the Sudan. But a grave disadvantage of the English pattern was that it had to be used with the Boxer coiled cartridge supplied for the Martini-Henry rifle, and until this was replaced by a solid-drawn cartridge case it was impossible to avoid frequent "jams." The modern, fully automatic, machine gun suffers from this to a considerable extent, and it was an even more serious defect with a hand-operated weapon, as the British troops found in their campaigns against the Mahdists. But the Gatling had many advantages over its newer rivals as regards simplicity and strength. Theodore Roosevelt, who commanded sections of both types in the Spanish-American War, speaks with enthusiasm of the old-fashioned weapon[4] while somewhat disparaging the Colt automatic.
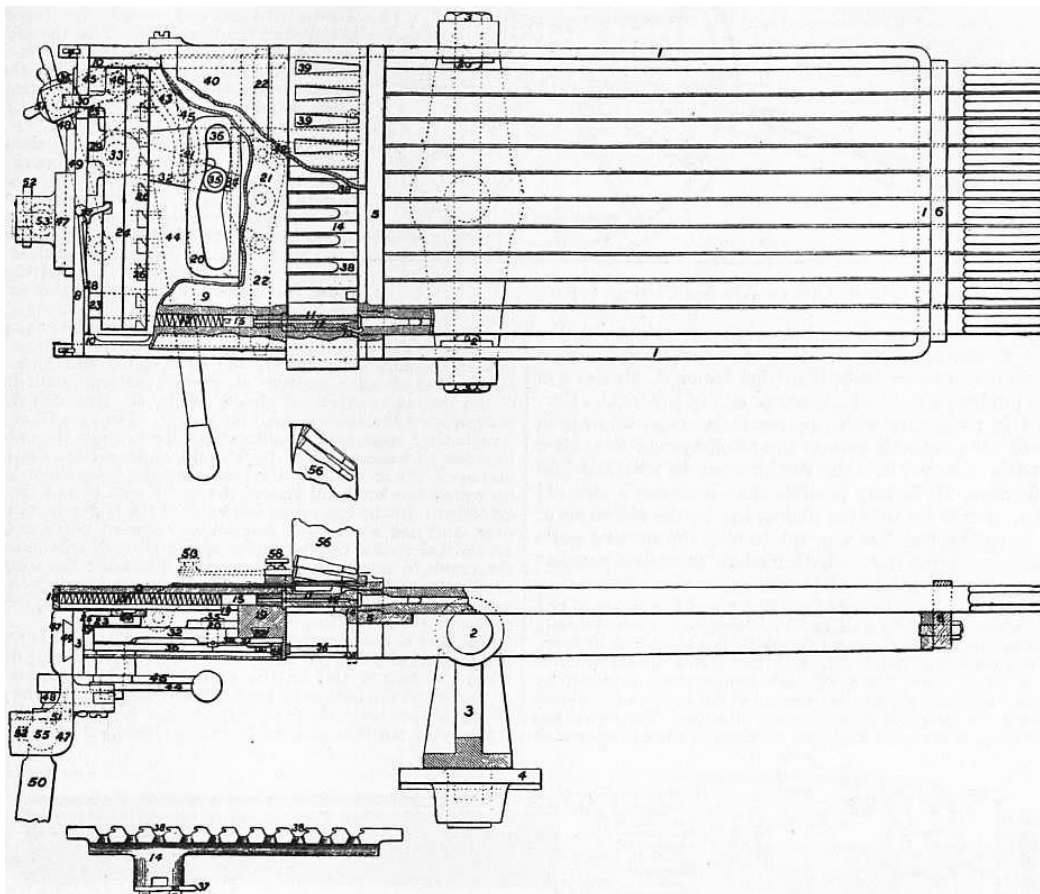
FIG. 5.—Nordenfeldt Machine-Gun.

1-10, Parts of frame;	36-39, Cartridge receiver;
11, Breech plug;	40, Cover;
12, Striker;	41-44, Parts of hand-lever,
13, Extractor;	45-49, Traversing action,
14, Cartridge receiver;	50-55, Elevating and trailing action;
15-18, 23-31, Lock and trigger parts;	56, 57, Hopper and slide.
19-22, Locking action;	
32-35, Loading action;	

The Gardner was another type which had a certain vogue[5] and was used by the British in savage warfare. But, next to the Gatling, the most important of the hand-operated machine guns was the Nordenfeldt, which was principally designed for naval use about the time when torpedo-boats were beginning to be regarded as dangerous antagonists.

Nordenfeldt Gun.

In this weapon the barrels are placed horizontally, and have no movement. A box containing the locks, bolts, strikers and spiral springs, one of each corresponding to each barrel, moves straight backwards and forwards when worked by the handle of the lever on the right. When the box is drawn back the cartridges fall from the holder on the top into the carriers simultaneously. When the box is pushed forward the bolts push the cartridges into the barrel, cocking-catches compress the spiral springs, the lever releases the catches one after the other at very minute intervals of time, and the cartridges are fired in rapid succession. In this piece, careful aim can be taken from a moving platform, and at the right moment the barrels can be fired at the object almost simultaneously.

PRESENT DAY MACHINE-GUNS.

Hitherto we have been dealing with weapons worked by hand-power applied to a lever or winch-handle, the motion of this lever being translated by suitable mechanism into those by which the cartridges are loaded, fired, extracted and ejected—the cycle continuing as long as the lever is worked and there are cartridges in the "hoppers" which feed the gun. In the modern "automatic" machine-gun, moreover, the loading, firing, extracting and ejecting are all performed automatically by the gun itself, either by the recoil of its barrel, or by a small portion of the gases of explosion being allowed to escape through a minute hole in the barrel near the muzzle. The following details of the British Maxim, Hotchkiss and Colt types are reproduced from the article "Machine-guns," *Ency. Brit.* 10th ed.

The idea of using the recoil, or a portion of the gases of explosion, for the working of the breech mechanism is by no means new, the latter system having been proposed and patented (certainly in a very crude and probably unworkable form) by (Sir) Henry Bessemer in 1854; but whatever might be discovered by a search in old patent and other records or in museums, there can be no doubt that (Sir) Hiram S. Maxim was the first to produce a finished automatic gun of practical value. His patents in connexion with this particular class of weapon date back to 1884, and his gun on the recoil system was, after extensive trials, adopted into the British army in 1889 and into the navy in 1892. It is very possible that Bessemer's idea did not bear fruit earlier because the fouling left by the old forms of "black" or smoky powders was apt to clog the moving parts and to choke any small port. With modern smokeless powders this difficulty does not arise.

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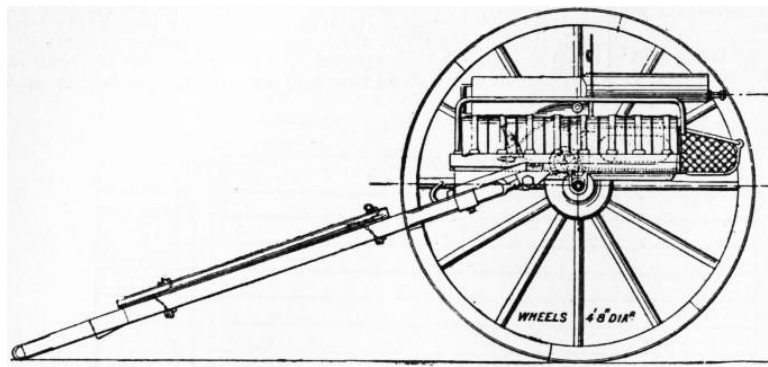
Fɪɢ. 6.—Maxim Gun on Wheeled Carriage (1900).
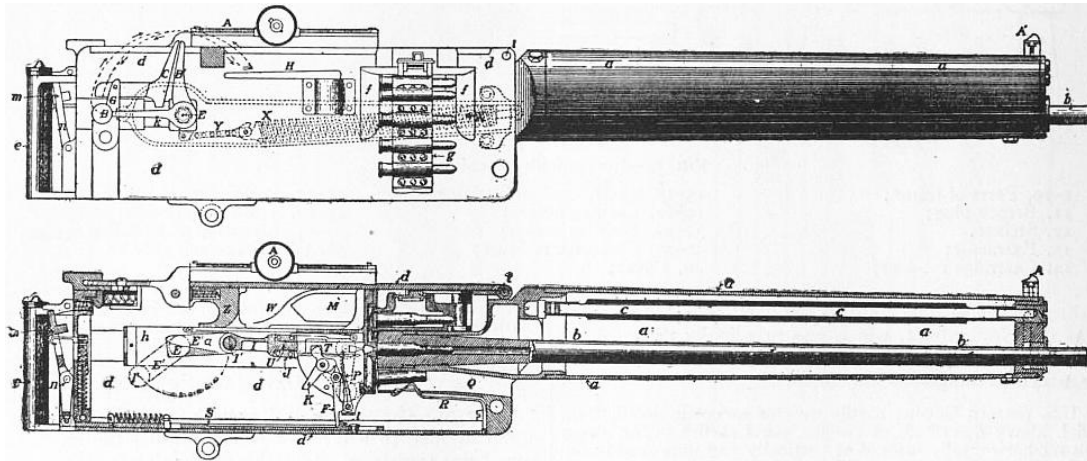
Fɪɢs. 7 and 8.—Mechanism of Maxim Gun.

The Maxim gun,[6] as will be seen from figs. 7 and 8, consists of two parts, the barrel casing (*a*) and breech casing (*d*), secured firmly together. The former (*a*), which is cylindrical in form, contains the barrel (*b*), and the water surrounding it to keep down the very high temperature attained by rapid fire, and the steam tube (*c*), which by the action of a sliding valve allows of the escape of steam but not of water. The barrel has asbestos packings at its front and rear bearings in the casing, which allow of its sliding in recoil without the escape of water. The breech casing (*d*) is a rectangular oblong box, and contains the lock and firing mechanism. At its rear end it has handles (*e*) by which the gun is directed, and the thumb-piece (*m*) by which the trigger is actuated. Its top is closed by a lid, hinged at (*i*). At its front is a recess holding the feed-block (*f*) through which the belt of cartridges (*g*) is fed to the gun.

Maxim Gun.

Attached to the rear of the barrel (*b*) on either side are two side plates (*h*), between which in guides O works the aggregation of parts D, F, J, K, L, P, T and V, which constitute the lock, and (in bearings) the crank axle E, crank E′, and connecting rod I (see figs. 7 to 11).

The connecting rod I joins the lock and crank, being attached to the side levers J of the former by means of the interrupted screw U; the latter enables the lock to be detached and removed.

The crank axle E extends through both sides of the breech casing (*d*), slots (*k*, fig. 7), allowing it a longitudinal movement of about an inch. To its left-hand end, outside the breech casing, is attached the fusee chain Y of the recoil spring X (see dotted lines in fig. 7), and to its right-hand end a bell trunk lever, B B′; the arm B, which terminates in a knob, being turned by the crank handle, the arm B′ working against the buffer stop C.

In figs. 8, 9 and 11 the breech is shown closed, and it will be noticed that the crank pin I′ is *above* the straight line joining the axis of the barrel, the striker T, and the crank axle E. As the crank is prevented from further movement *upwards* by the crank handle B taking against the check-lever G (fig. 7), it is clear that the pressure on discharge of the cartridge cannot cause the crank axle to rotate, and so open the breech as shown in figs. 10 and 12.

The withdrawal of the lock and opening of the breech are effected as follows: The *total* travel in recoil of the barrel is about one inch, but on discharge the barrel, the side plates and lock all recoil *together* for about a quarter of an inch without any disturbance of the locking as explained above, and by the time this short travel is completed the *bullet has left the muzzle*. The arm B′ of the crank handle then engages the buffer stop C and causes the crank axle E to rotate and the crank E′ to fall and so draw back the lock from, and open, the breech. At the same time the fusee chain Y is wound up round the left-hand end of the crank axle E and the spring X extended. In the meantime the knob of the buffer handle B swings over, and just as the lock reaches its rearmost position (as in figs. 10 and 12) strikes the flat buffer spring H, and, rebounding, assists the crank in revolving in the reverse direction; the spring X also contracts, and, unwinding the fusee chain, draws back the lock again and closes the breech, a fresh cartridge having been placed in the barrel as explained below.

The gun is fired by means of the trigger F, which is actuated by the projection (*l*) on the trigger bar (S), the latter being drawn back when the button (*m*) on the push lever (*n*) is pressed forwards. If, therefore, the button he kept permanently pressed, the projection (*l*) will always lie in the path of the trigger F just as the lock reaches its forward position and the breech is closed, and the gun will fire automatically, and continue to do so as long as there are cartridges in the belt.

The loading, extraction and ejection of the cartridges are effected as follows: The left-hand side-plate is extended forwards a little beyond the breech, and communicates the reciprocating motion of the barrel to a lever on the feed-block, which causes the cartridges in the belt to be fed forward one by one by a "step-by-step" pawl action, the cartridge which is next to be taken from the belt being arrested exactly above the breech, the ejector-tube Q being below in the same vertical plane.

The extractor D (see figs. 9 to 12) which performs the operations of inserting, extracting and ejecting the cartridges, travels vertically in guides on the face of the lock. Projecting outwards from each side of its top are horns N (figs. 9 and 10). These travel round the edges of the cams M (fig. 8) situated on each side of the breech casing, and in conjunction with the spring W (fig. 8), compel the top of the extractor to take the path shown by the dotted lines and arrows in figs. 9 to 12.
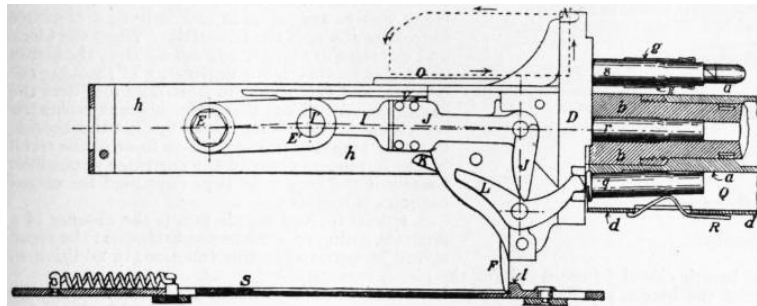
F<small>IG</small>. 9.—Maxim Gun Mechanism.

The extractor (figs. 11 and 12) is recessed to take a movable plate (*u*) termed a "gib," behind which is a spring (*v*). In the face of the gib is a recess (*w*) into which the base of a cartridge can just enter. On either side of the gib the face of the extractor has undercut flanges, open at the top and bottom, between which the base of a cartridge can fit the rim, being held in the undercuts (figs. 9 and 10).

It is clear from this arrangement that the base of the cartridge having been introduced between the flanges at the top of the extractor, can be pushed down, the spring (*v*) yielding, till arrested at the recess (*w*); and, as the lower edges of this recess are slightly sloped, further pressure will make it leave the recess (*w*) and slide over the face of the gib, leave it, and take up a position in front of the hole for the point of the striker (*x*), being now only prevented from slipping out of the extractor by the extractor spring (*y*). If this last be clear of the extractor stop (*z*) it will yield to pressure and the cartridge will be free. This is the action in the gun except that the cartridge is held firm and the extractor pushed against it.

In fig. 10 the extractor holds a cartridge (*r*) and a fired case (*q*) ready to be pushed into the empty breech and ejector-tube Q respectively. In the latter there is already a fired case (*p*), which will be driven by the fired case (*q*) beyond the ejector spring R. As soon as the lock reaches the face of the breech, the cartridge (*r*) and case (*q*) are deposited in the breech and ejector-tube respectively, and the extractor D *rises* under the action of the levers L and J, slides, as already explained, by the bases of the cartridges (*r*) and case (*q*), and then over the base of the cartridge (*s*) in the belt (*g*). Assuming the push-lever (*n*) to be pressed, the gun fires immediately this has occurred, and the bullet of the cartridge (*r*) is expelled. The position is now that shown in fig. 9. The barrel now recoils and the lock is withdrawn, taking with it the fresh cartridge (*s*) from the belt and the now fired case (*r*). The extractor travels horizontally for a time and then drops (as shown by the dotted line and arrows), assuming the position shown in fig. 12, which is exactly similar to that in fig. 10 but with different cartridges; continuing the action, the position shown in fig. 11 is arrived at. It will thus be seen that each cartridge makes two complete journeys with the extractor; the first as a live cartridge from the belt to the breech, the second from the breech to the ejector-tube, the forward journey being always on a lower level than that of the backward one. The sections in figs. 11 and 12 clearly show the cocking and firing mechanism and the safety arrangement. The lock is cocked, after firing, by the arm of the "tumbler" K, being pressed down by the side lever J as it swings down when following the crank E'. Safety against firing before the breech is closed is provided by the projection on the safety lever V, which does not clear the striker T until lifted by the side lever J at the top of its travel, that is, when the crank E' has passed the axial line as already explained.
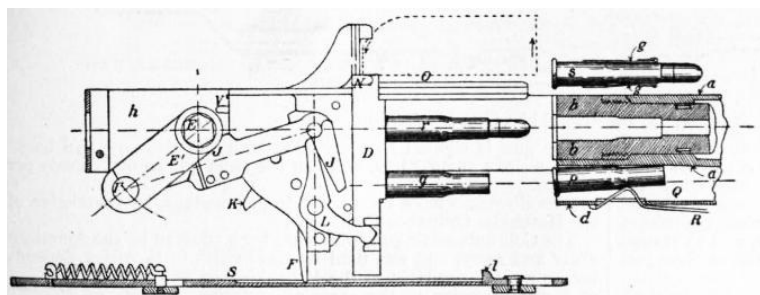
F<small>IG</small>. 10.—Maxim Gun Mechanism.

The lock in its rearmost position is kept in place by the block Z on the under side of the cover of the breech casing. When in this position it is clear of the guides O on the side-plates, and if the cover be opened it can be turned up, unscrewed by a turn through an eighth of a circle (the screw-thread U being interrupted in four places) and removed. To prepare the gun for firing, the crank handle is pushed over by hand to the buffer-spring, thus withdrawing the extractor, and held in this position; the tongue on the end of a filled belt is then pushed through the feed-block from the left and pulled as far as it will go from the opposite side. This places a cartridge above the breech ready to be seized by the extractor. The crank handle is now released and the lock flies forwards. The crank handle is now again pushed over and let go, and the first cartridge thus taken from the belt and placed in the breech. The gun is ready to fire.

To remove a partially filled belt, the crank handle must be pushed over, thus freeing the extractor from the belt, and the latter withdrawn after pressing a spring catch under the feed block which releases the pawls. The gun now has *two* live cartridges in it—both in the extractor. Letting go the crank handle, one of them is deposited in the ejector-tube, and again pushing over and letting go the crank handle does the same with the second.
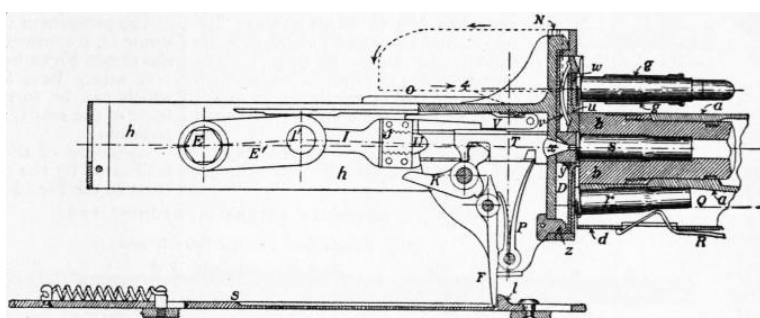
F<small>IG</small>. 11.—Maxim Gun Mechanism.

Fig. 13 shows the feed-block and the cartridge belts. The greatest number usually carried in a belt is 250.

The gun is sighted to 2,500 yds. and has a folding tangent sight as shown. Its weight varies from 50 to 60 ℔, and it can fire about 450 rounds per minute.

The Hotchkiss gun, figs. 14 to 16, which has been adopted by the French army and navy and elsewhere, depends for its action on the use of a small portion of the gases of the cartridge itself. The barrel A is firmly attached to the receiver or frame B, the latter containing the breech and firing mechanism. Under the barrel A, and communicating with it by a port (*c*) near the muzzle is a cylinder or tube C. When the gun is fired, and the bullet has passed the port (*c*), a portion of the gases of explosion passes into the cylinder C and drives back the piston F contained in it, a lug on the under part of the piston compressing the spring M, the latter, when the trigger N is pulled, driving back the piston again. The reciprocating motion of piston performs all the processes of loading and firing the gun, and the action is continuous as long as the trigger is kept pressed back.

Hotchkiss Gun.

The piston F, enlarged and suitably shaped at the rear, actuates the breech-block H and firing pin or striker J; and, by suitable cam grooves (*f*) at about the centre of its length, works the larger feed-wheel U of the feed-box S; the smaller wheel U on the same axis in turn imparting a step-by-step motion to the metal feed-strips, each containing 30 cartridges, so that fresh cartridges are placed one by one before the face of the breech block ready to be pushed into the breech when the fired cartridge has been extracted and ejected.

On the under surface of the piston F, in rear, is a recess or sear (*f*) in which the nose of the trigger N engages, holding back the piston when it has been driven back by the gases. As already stated, a lug on the under surface just in rear of the cam (*f*) engages with the front of the mainspring.

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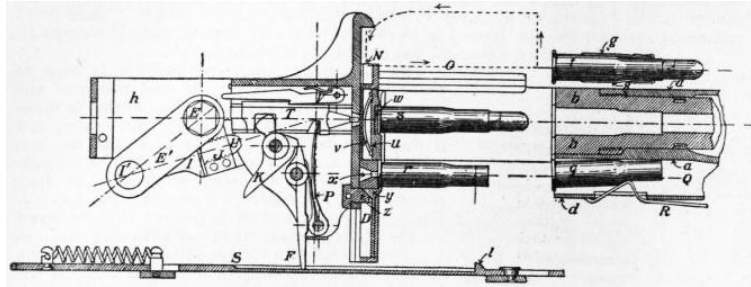
Fɪɢ. 12.—Maxim Gun Mechanism.
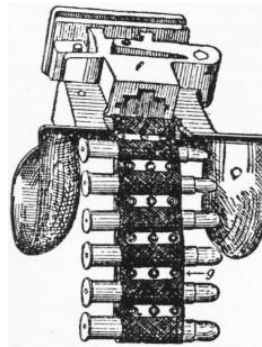
Fɪɢ. 13.—Maxim Feed-block.

Taking first the position shown in fig. 15 with the breech closed and locked and the cartridge fired, it will be seen that the breech is locked by the *upper* cam (*f*), on the end of the piston, F, having caused the movable locking-dog (*h*) to fall and bear against the recoil blocks Z (see fig. 14 also) on the walls of the *receiver* or frame B. Consequently the breech is not unlocked until the piston has moved sufficiently to the rear for the *lower* cam (*f*) to lift the locking-dog (*h*) clear of the recoil blocks Z. As the piston F is not actuated by the gases until the bullet has passed the port (*c*), and then has to move a short distance before the locking-dog is raised, the bullet is clear of the muzzle *before* the breech is unlocked.

As the piston continues to recoil it draws back the striker J and then the breech-block H, and is then caught and retained by the engagement of the sear (*f*) with the trigger N, and the position assumed is that shown in fig. 14.
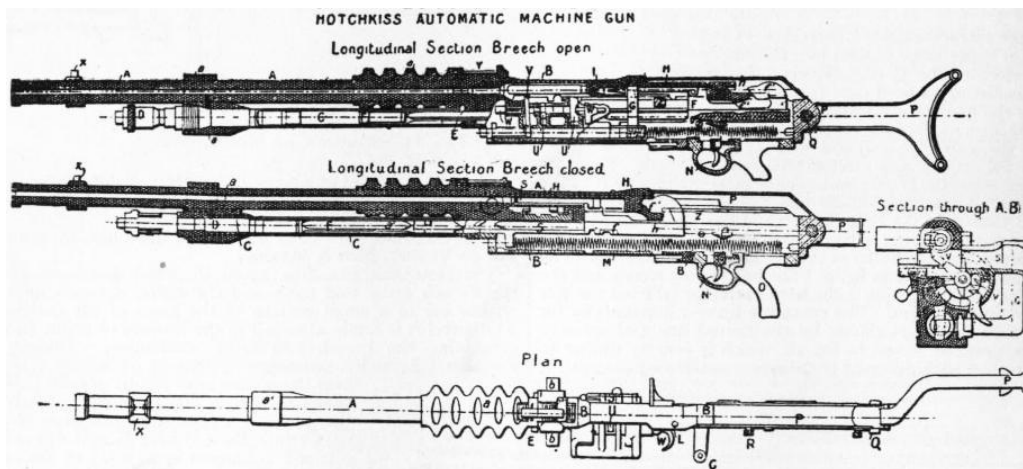
Fɪɢs. 14, 15, 16.—Hotchkiss Gun Mechanism.

From the head or nose-piece I of the breech-block projects the claw K of a spring extractor which, as the cartridge is pushed home by the breech-block, seizes it, extracting the fired case when the breech-block is withdrawn. Ejection of the fired case is effected by means of the ejector L (fig. 16) which catches against the base of the case, on the opposite side to the extractor claw, and so throws it sideways through the oblong-pointed opening in the receiver just in rear of the breech (see fig. 14).

The platform on the top of the feed-box through which the teeth of the smaller feed-wheel U project, and on which the feed-strips rest, lies *below* the axial line of the breech-block H, so that the face or nose-piece I of the latter only engages a *portion* of the base of the cartridge in the feed-strip as it pushes the cartridge into the breech, the bullet of the cartridge being guided

into the breech by the incline at the opening of the latter. This point should be specially noted, the object of the arrangement being to enable the under surface of the breech-block to clear the clips which hold the cartridges in the feed-strips. The cartridge therefore, being extracted in the line of the axis of the block, is ejected through an opening *above* its plane of entry in the feed-strip.

Returning to the position shown in fig. 16, if the trigger be pulled, the compressed spring M reacts and drives the piston forwards, carrying the breech-block with it, the latter in turn driving a cartridge in front of it out of the feed-strip. When the block and cartridge are home, *and not till then*, the piston completes its travel, the upper cam (*f*) locking the dog (*h*), and the firing-pin protrudes and fires the cartridge. Anything, therefore, which prevents the breech-block from being home against the breech, or the locking-dog from falling in front of the recoil blocks Z, renders firing of the cartridge impossible. Clearly if the trigger be kept depressed the action becomes automatic.

A special feature of this gun is the absence of a separate spring to actuate the firing-pin; the recoil spring M performing this function, in addition to that of driving the piston forwards.

The feed-strips have holes in them in which the teeth of the smaller feed-wheel U engage. The engagement of this feed with the piston F can be released by pulling out the feed arbor W, so that the strips can be removed at any time.

When the last shot in a feed-strip has been fired a stop (V) holds the piston and block ready for a fresh feed-strip to be inserted. As the stop V acts quite independently of the trigger, this action takes place even if the trigger be still depressed after the last cartridge in a strip has been fired.

To cock the gun, when in the locked position, a cocking handle G is provided. This has a long arm projecting to the front with a catch which takes against the front of the lug on the under side of the piston. To prepare the gun for action the gun is cocked, and a feed-strip is pushed into the feed-block.

The pressure of the gas on the piston is regulated by the regulator screw D, by means of which the space in the cylinder C in front of the piston F can be reduced or increased.

A safety lock R is furnished, which is a "half round" pin which can be turned so as to enter the semicircular slot just in front of the sear (*f*), and so hold back the piston when in the cocked position.

Radiation of the heat, generated in the barrel by rapid fire, is facilitated by the radiator (*a*), which consists of rings on the barrel close to the breech, which offer an increased surface to the air.

The gun is sighted to 2000 yds., with the ordinary flap back-sight, weighs about 53 ℔, and can fire from 500 to 600 rounds per minute.

[The diagrams have been made from drawings, by permission of the Hotchkiss Ordnance Company.]

The Colt automatic gun, which has been adopted by the American army and navy, and was used by the British in S. Africa, depends for its action, similarly to the Hotchkiss, on the escape of a small portion of the gases of explosion through a port in **Colt Gun.** the barrel a short distance from the muzzle. Figs. 17 and 18 give a plan, and side elevation with the left side plate removed, respectively. Into the recess in the barrel (92) just below the port fits the piston (35), capable of slight motion round the pivot (36), by which it is attached to the gas lever (29). The latter is a bell-crank lever pivoted at (34), its short arm being attached at (46) by a pivot to a long link with a cross head, termed the retracting connexion (45). This link extends from a point close to the figures (44), where the arms of the cross head bear against the ends of two long spiral retracting springs, (37) and (38), contained in two tubes, (39) and (40), which are slotted for a few inches of their length to allow the cross head to follow up and compress the springs. (Only (38) and (40) are shown, (37) and (39) lying in the same plane of projection.)

When the gun fires, and the bullet has passed the port, the gases drive the piston (35) and gas lever (29) downwards, and the momentum imparted causes them to swing back round the pivot (36), as shown by the dotted circle. The gas lever is brought up now by the bottom plate (91); and the retracting springs, compressed by the cross head of the long link (45) owing to the *forward* motion of the short arm of the gas lever, react and drive the gas lever into its forward position again.
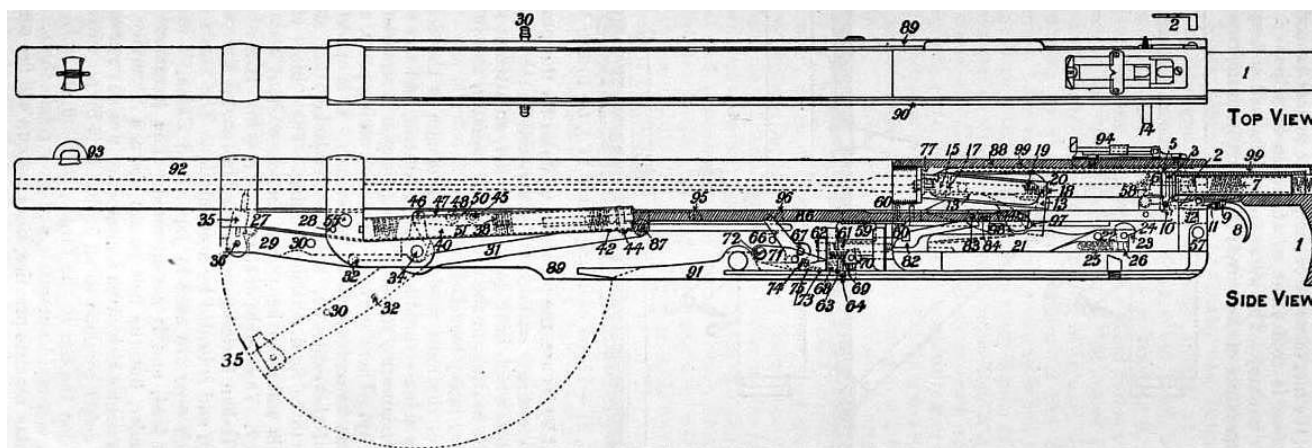
FIGS. 17 and 18.—Colt Automatic Gun Mechanism.

The rotary movement of the gas lever is converted into a reciprocating movement of the slide (86) by means of the gas lever connexion rod (31) pivoted at (32) to the gas lever, and at (87) to the slide.

The slide (86) is a nearly flat bar, travelling in guides in the receiver, extending from (14) to (87). It is slotted completely through longitudinally for nearly the whole of its length, this slot affording an opening through which work the cartridge extractor (82) and carrier (21). At its rear end it engages by means of a pin (14) in a cam slot (97) in the bottom rib of the bolt (13), and at (83) it bears the pivot of the cartridge extractor (82). Its rear end is enlarged below to form a cam lug (98), and on its right side are two projections (95) and (96), which work the feed lever (66).
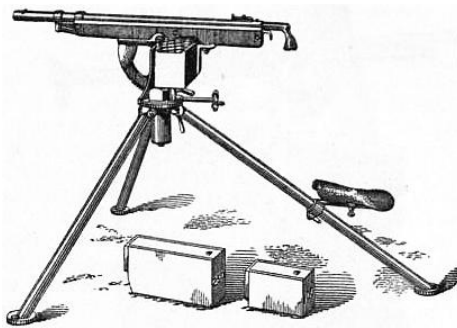
Fig. 19.—Colt Gun mounted.

The feed wheel (61), over which passes the belt containing the cartridges, is actuated by a pawl "step-by-step" gear by means of the feed lever (66).

The carrier (21) is a long trip lever pivoted at (22), and provided with a spring dog (23) pivoted at (24).

The bolt (13) is a cylinder with a guide rib extending from its under surface. It is actuated by the slide by means of the pin (14) and cam slot (97) as already stated, and is bored through to take the striker or firing pin (18). The rear end of the latter projects slightly beyond the rear face of the bolt, being retained in this position by the spring (19). When this projecting end is pushed into the bolt, the point protrudes from the front of the bolt and fires the cartridge. The bolt, when the breech is locked, is held firm by two recoil blocks on the receiver (not shown), as is explained later. At the front of the bolt is an extractor (15) with a spring claw for extracting the fired case. (This is of course quite distinct from the cartridge extractor (82).) Ejection is effected by means of an ejector projecting into the path of the fired case.

The firing of the gun is performed by the cylindrical hammer (6) hollowed out in rear to contain the mainspring (7). When pushed back and cocked as shown in fig. 18, it is held during a *portion* of the operations of the mechanism by two detents working independently of each other—the sear (10) and the nose of the trigger (8). The former is automatically released by a trip lever (not shown) as soon as the breech is locked, leaving the hammer held by the trigger only. This is the position shown in fig. 18. The necessity for the two detents is explained later.

The hammer, when cocked, can also be permanently locked by the handle lock (2) actuated by a thumb-piece on the outside of the receiver. The air compressed in rear of the hammer, as the latter is driven back, passes through the tube (99) to the breech; and a puff of air is therefore blown through the barrel after every shot, clearing out fouling and unconsumed powder, and assisting to an appreciable extent to keep down the temperature of the barrel.

Taking the position shown in fig. 18, the hammer is only held back by the trigger nose, the sear (10) having been released as stated above. A belt of cartridges (not shown) has been placed on the feed-wheel, and the cartridge next to be used after the one (not shown) now in the breech has its rim (or base with rimless cartridges) just above the hook on the extractor (82). If now the trigger be pulled, the hammer flies forwards, strikes the protruding end of the firing pin, and the cartridge fires; the gases cause the gas lever to swing round and drive back the slide. The pin (14) working in the cam groove (97) causes the rear of the bolt to *rise* and clear itself from the recoil blocks (not shown) on the receiver, and then to move rearwards horizontally, driving the hammer back until the latter is caught and held by the sear and trigger. In the meantime the extractor (82) has pulled a cartridge from the belt, and, assisted by two spring cartridge guides (80 and 81), of which only (80) is shown, deposits it on the carrier (21); the projection (95) strikes the feed-lever (66), and moves the feed mechanism so as to prepare to revolve the feed-wheel and place a fresh cartridge ready for the next round; and as the slide completes its travel backwards, the cam (98) strikes the dog (23) and slightly depresses it (the spring (25) yielding), the carrier and cartridge on it consequently rising a little and falling again (this latter action is incidental only to the form of the parts, and is not a necessity).
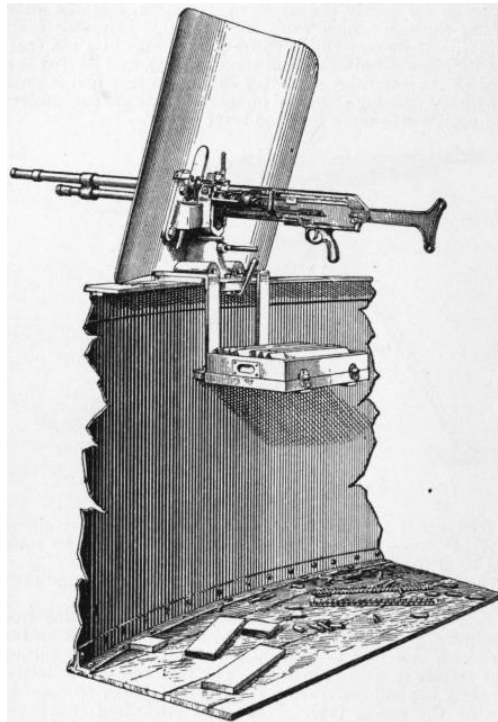
Fig. 20.—Hotchkiss Gun mounted.

The retracting springs now react and pull the slide forwards; the cam (98) strikes the dog (23), which, as the spring arrangement is of the "non-return" class, does not yield but is depressed, and the front of the carrier and the cartridge on it are therefore raised sharply, and the latter placed in the path of the bolt. The bolt being now pulled forwards, the cartridge is driven off the carrier into the breech, and the bolt locked by the pin (14), causing the bolt to drop in front of the recoil blocks; the carrier is pushed down flat by the advance of the cam lug (98), the trip releases the sear (10), and the projection (96) pushes back the feed lever, completing the action of feeding a fresh cartridge forward. The position shown in fig. 17 is now resumed.

It is clear that were the trigger kept permanently pulled the gun would fire immediately the bolt was locked and the sear (10) depressed, and the action would become automatic.

The object of two detents, though now probably obvious, may here be explained. The whole action of the gun depends upon the hammer after it is pushed back by the bolt being *held* back until the bolt has gone completely forwards and locked the breech. If only the trigger detent existed, and that were kept pressed down, the hammer, after being pushed back by the bolt, would immediately *follow up* the latter, and might fire the cartridge prematurely, or fail to fire it at all; hence the use of the sear in addition to the trigger.

To cock the lock, or work the mechanism by hand, the gas lever is pulled round by the pin (30) provided for the purpose, and by this means the gun is prepared for firing. A brass tongue on the end of the belt is pushed through the opening above the feed-wheel and then pulled from the other side of the gun as far as it will go. This places a cartridge in front of the extractor, and if the gas lever be now pulled right back and let go, this cartridge is placed in the breech as already described, and the gun is ready for firing. If it be desired to remove a belt from the feed, a button (68) is pressed and the feed-wheel is then free to revolve backwards.

The gun is sighted with the ordinary rifle-pattern sights, up to 2000 yds. or more if required. It weighs about 40 ℔, and can fire about 400 rounds per minute as usually adjusted, though this rate can be increased. There is no means of altering the gas pressure in the field as with the Hotchkiss.

[The diagrams have been made from drawings, by permission of the Colt Arms Company.]

Comparing the principle of employing a recoiling barrel with that of using a portion of the gas, the advantages of the former are that the recoil is made to do useful work instead of straining the gun and mounting in its absorption; the latter system, however, has undoubtedly the advantage in simplicity of mechanism (the Hotchkiss is extraordinarily simple in construction for an automatic gun), and in the large margin of power for working the mechanism with certainty in all conditions of exposure to climate, dust, and dirt. While inferior in this respect, it is nevertheless the fact that the Maxim has proved itself in the field even in savage warfare in the roughest country to be a very efficient and powerful weapon.

The great difficulty which has to be met in all single-barrel machine guns is the heating of the barrel. The 7½ pints of water in the water-jacket of the Maxim gun are raised to boiling point by 600 rounds of rapid fire—*i.e.* in about 1½ minutes—and if firing be continued, about 1½ pints of water are evaporated for every 1000 rounds. Assuming that the operation is continuous, the rate of waste of energy due to heat expended on the water *alone* is equivalent to about 20 horse-power (294 foot tons per minute). The water-jacket acts well in keeping down the temperature of the barrel; but apart from the complications entailed by its use, the provision of water for this purpose is at times exceedingly troublesome on service. In the Hotchkiss and Colt guns, which have no water-jacket, an attempt is made to meet the heating, in the one by the radiator, and in the other by a very heavy barrel.
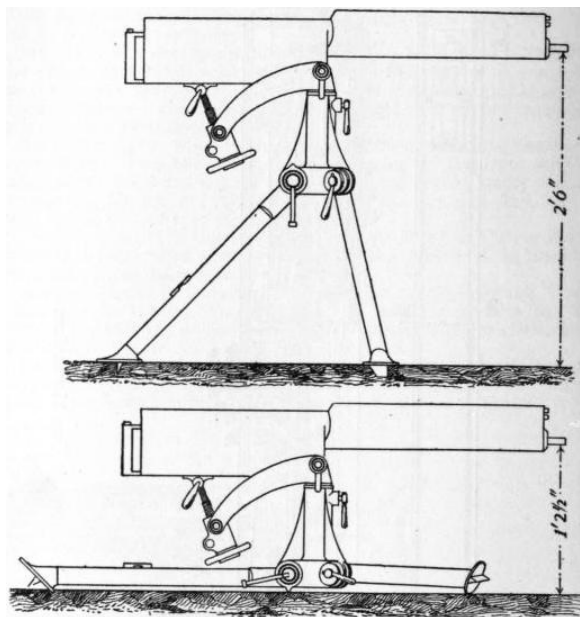
Fig. 21.—Tripod mounting (Mark IV.), for British Maxim.

One of the most modern types of gun is the Schwarzlose, which is manufactured at Steyr in Austria, and was adopted by the Austrian army in 1907. This weapon is remarkable for its simplicity. There are only 10 main working parts, and any of these can be replaced in a few seconds. It is operated by the gases of the explosion, has a water-jacket that allows 3000 rounds to be fired without refilling. The "life" of the gun-barrel is stated to be 35,000 rounds without serious loss of accuracy. The weight of the gun is 37.9 ℔. It is a belt loader.

The Italian Perino gun, adopted in 1907, is a recoil-operated weapon, and is loaded by a metal clip. The Skoda gun, some of which type are used in Japan and China, is loaded by a hopper feed, and is gas-operated. The Bergmann gun is a belt loader, but the belt passes down a "gravity feed" an arrangement which saves a number of working parts.

One defect common to all is that it is by no means easy to proportion the fire to the target, as there are only two rates of fire, viz. rapid automatic and slow single shots. To fire a single shot requires practice, since the gun will fire some 7 shots in one *second*, and to press the trigger and remove the finger or thumb instantly, and at the same time be ready to traverse to a fresh target, requires considerable skill. The result of these difficulties is that the target when struck is often riddled with bullets when one would have sufficed. The aiming of the gun, when rapid fire is taking place, may also be difficult even on firmly fixed mountings, owing to vibration. The greater delicacy of the modern machine gun has been alluded to above.[7] Nevertheless the advantages of safety, steadiness and lightness which the automatic weapon possesses, have ensured its victory over the older type of weapon, and although the simple strong and well-tried Gatling still has its advocates, every civilized army has adopted one or more of the automatic types.

ORGANIZATION AND TACTICAL EMPLOYMENT[8]

Although machine-gun tactics are still somewhat indefinite, at least there are well-marked tendencies which have a close relation to the general tactical scheme or doctrine adopted by each of the various armies as suited to its own purposes and conditions. For many years before the South African and Manchurian wars, the machine-gun had been freely spoken of as "a diabolical weapon before which nothing could live," but this did not contribute much to the science of handling it. Most military powers, indeed, distrusted it—actuated perhaps by the remembrance of the vain hopes excited by the *canon à balles*.

It was not until the second half of the war of 1904-05 that the Japanese, taught by the effective handling of the Russian machine-guns at Liao-Yang, introduced it into their field armies, and although Great Britain had provided every regular battalion with a Maxim-gun section some years before the Boer War, and a Volunteer corps, the Central London Rangers (now 12th bn. London Regiment) had maintained a (Nordenfeldt) gun section since 1882, instruction in the tactics of the weapon was confined practically to the simple phrase "the machine-gun is a weapon of opportunity." More than this, at any rate, is attempted in the drill-books of to-day.

One important point is that, whether the guns are used as an arm, in numbers, or as auxiliaries, in sections, they should be free to move without having to maintain their exact position relatively to some other unit. It was in following the infantry firing lines of their own battalion over the open that the British Maxims suffered most heavily in South Africa. Another of equal importance is that the machine guns must co-operate with other troops of their side in the closest possible way; more, in this regard, is demanded of them than of artillery, owing to their mobility and the relative ease of obtaining cover. A third factor, which has been the subject of numerous experiments, is the precise value of a machine-gun, stated in terms of infantry, *i.e.* how many rifles would be required to produce the fire-effect of a machine-gun. A fourth—and on this the teaching of military history is quite definite—is the need of concealment and of evading the enemy's shrapnel. These points, once the datum of efficiency of fire has been settled, resolve themselves into two conclusions—the necessity for combining independence and co-operation, and the desirability of Mercury's winged feet and cap of darkness for the weapon itself. It is on the former that opinions in Europe vary most. Some armies ensure co-operation by making the machine-gun section an integral part of the infantry regimental organization, but in this case the officer commanding it must be taught and allowed to shake himself free from his comrades and immediate superiors when necessary. Others ensure co-operation of the machine-guns as an arm by using them, absolutely free of infantry control, on batteries; but this brings them face to face with the risks of showing, not one or two low-lying gun-barrels, but a number of carriages, limbers and gun teams, within range of the enemy's artillery.

French experiments are said to show that the fire-power of a machine-gun is equal to that of 150-200 rifles at exactly known range, and to 60-80 rifles at ranges judged by the French "instantaneous range-finder." The German drill-book gives it as equal approximately to that of 80 rifles on an average. The distinction of known and unknown ranges is due to the fact that the "cone of dispersion" of a large number of bullets in collective infantry fire is deeper than that of machine-gun fire. The latter

Fire Effect. therefore groups its bullets much more closely about the target if the latter is in the centre of the cone—viz. at known ranges—but if the distance be misjudged not only the close central group of 50% of the shots, but even the outlying rounds may fall well away from the target. At 1500 yards range the "50 per cent. zone" with the Maxim gun is only 34 yards deep as compared with the 60 yards of a half-company of rifles.[9] The accuracy of the gun is more marked when the breadth of the cone of dispersion is taken into account. The "75 per cent." zone is in the case of the machine-gun about as broad at 2000 yards as that of collective rifle fire at 500. At the School of Musketry, South Africa, a trial between 42 picked marksmen and a Maxim at an unknown range at service targets resulted in 408 rounds from the rifles inflicting a loss of 54% on the enemy's firing line represented by the targets, and 228 rounds from the Maxim inflicting one of 64%. Another factor is rapidity of fire. It is doubtful if infantry can keep up a rate of 12 rounds a minute for more than two or three minutes at a time without exhaustion and consequent wild shooting. The machine-gun, with all its limitations in this respect,

Ranging. can probably, taking a period of twenty or thirty minutes, deliver a greater volume of fire than fifty rifles, and assuming that, by one device or another (ranging by observing the strike of the bullets, the use of a telemeter, or the employment of "combined sights") the 75% cone of bullets has been brought on to the target, that fire will be more effective. The serious limiting condition is the need of accurate ranging. If this is unsatisfactory the whole (and not, as with infantry, a part) of the fire effect may be lost, and if the safe expedient of "combined sights"[10] be too freely resorted to, the consumption of ammunition may be out of all proportion.

The vulnerability of machine-guns is quite as important as is their accuracy. At a minimum, that is when painted a "service"

Vulnerability. colour, manœuvred with skill, and mounted on a low tripod—in several armies even the shield has been rejected as tending to make guns more conspicuous—the vulnerability of one gun should be that of one skirmisher lying down. At a maximum, vulnerability is that of a small battery of guns and wagons limbered up.

Mobility comes next. The older patterns of hand-operated guns weighed about 90 ℔ at least, without carriage, the earlier patterns of Maxims (such as that described in detail above) about 60 ℔. But the most modern Maxims weigh

Mobility. no more than 35 ℔. Now, such weapons with tripods can be easily carried to and fro by one or two men over ground that is impracticable for wheeled carriages. Nevertheless, wheeled carriages are often used for the ordinary transport of the gun and its equipment, especially with the heavier models. The simplest machine-gun has a number of accessories—tools, spare parts, &c.—that must be conveyed with it, and at the least a pack-animal is indispensable.

Reducing these conditions to a phrase—the fire effect that can be reasonably expected of machine-guns is that of fifty or sixty rifles, the space it takes up in the line can be made to equal that occupied by two men, and it possesses by turns the speed of a mounted man and the freedom of movement of an infantryman.

The use of the machine-gun (apart from savage warfare) that first commended itself in Europe was its use as a *mobile reserve of fire*. Now, the greatest difficulty attending the employment of a reserve of any sort is the selection

Machine-Guns as a Reserve of Fire. of the right moment for its intervention in the struggle, and experience of manœuvres of all arms in Germany, where "machine-gun detachments" began to be formed in 1902, appears to have been that the machine-guns always came into action too late. On the other hand, the conditions of the cavalry *versus* cavalry combat were more favourable. Here there was every inducement to augment fire-power without dismounting whole regiments for the purpose. Moreover, vulnerability was not a fatal defect as against a battery or two of the enemy's horse artillery, whose main task is to fire with effect into the closed squadrons of mounted men on the verge of their charge, and above all to avoid a meaningless duel of projectiles. The use of wheeled carriages was therefore quite admissible (although in fact the equipment was detachable from the carriage) and, given the rapidity and sudden changes of cavalry

Machine-Guns with Cavalry. fighting, both desirable and necessary. Thus, thanks to the machine-gun, the eternal problem of increasing the fire-power of mounted troops is at last partially solved, and the solution has appealed strongly both to armies exceptionally strong in cavalry, as for example the German, and to those exceptionally weak in that arm—Denmark, for instance, having two or three light machine-guns *per squadron*. The object of the weaker cavalry may be to cause the onset of the stronger to dwindle away into a dismounted skirmish, and this is most effectually brought about by a fire concentrated enough and heavy enough to discourage mounted manœuvres; on the other hand, the stronger party desires to avoid dismounting a single squadron that can be kept mounted; and this too may be effected by the machine-guns. What the result of such a policy on both sides may be, it would be hard to prophesy, but it is clear at any rate that, whether on the offensive or on the defensive, skilfully handled machine-guns may enable a cavalry commander to achieve the difficult and longed-for result—to *give the law* to his opponent. The principal difference between the tactics of the stronger and those of the weaker cavalry in this matter is, that it is generally advantageous for the former to act by batteries and for the latter to disperse his machine guns irregularly in pairs.

It is not merely in cavalry tactics that the question of "section or battery" arises. It deeply affects the machine-gun tactics in the battle of all arms, and it is therefore decided in each service by the use to which the guns are intended to be put. One powerful current of opinion is in favour of employing them as a mobile reserve of fire. This opinion was responsible for the creation of the German machine-gun batteries or "detachments"; and in the drill regulations issued in 1902 for their guidance it was stated that the proper use of machine-guns required a comprehensive and accurate knowledge of the general situation, and that therefore only the superior leaders could employ them to advantage. Manœuvre experience, as mentioned above, has caused considerable modification in this matter, and while the large machine-gun "detachments" are now definitely told off to the cavalry, new and smaller units have been formed, with the title "companies" to indicate their attachment to the infantry

arm. A recent official pronouncement as to the rôle of the "companies" (Amendments to *Exerzierreglement für die Infanterie*, 1909) is to the effect that the companies are an integral part of the infantry, that their mission is to augment directly the fire of the infantry, and that their employment is in the hands of the infantry regimental commander, who keeps the guns at his own disposition or distributes them to the battalions as he sees fit. It must be remembered that the regiment is a large unit, 3000 strong, and the idea of a "mobile reserve of fire" is tacitly maintained, although it has been found necessary to depart from the extreme measure of massing the guns and holding them at the disposal of a general officer. The Japanese regulations state

Machine-Guns in Combined Tactics.

that in principle the machine-gun battery fights as a unit; that although it may be advantageously employed with the advanced guard to assure the possession of supporting points, its true function is to intervene with full effect in the decisive attack, its use in the delaying action being "a serious error." In France, on the other hand, the system of independent sections is most rigidly maintained; when in barracks, the three sections belonging to an infantry regiment are combined for drill, but in the field they seem to be used exclusively as sections. They are not, however, restricted to the positions of their own battalions; taught probably by the experiences of the British in South Africa, they co-operate with instead of following the infantry. In Great Britain, *Field Service Regulations*, part i., 1909, lay down that "machine-guns are best used in pairs[11] in support of the particular body of troops to which they belong" (*i.e.* battalions). "The guns of two or more units may, if required,[12] be placed under a specially selected officer and employed as a special reserve of fire in the hands of a brigade commander" (corresponding to German regimental commander), but "if an overwhelming fire on a particular point is required, it can be obtained by concentrating the fire of dispersed pairs of guns." More explicitly still, "the movements and fire action of these weapons should be *regulated so as to enable them to open fire immediately a favourable opportunity arises.*"

Contrasting the German system with the French and English, we may observe that it is German tactics *as a whole* that impose a method of using machine-guns which the Germans themselves recognize as being in many respects disadvantageous. A German force in action possesses little depth, *i.e.* reserves, except on the flanks where the enveloping attack is intended to be made. Consequently, a German commander needs a reserve of fire in a mechanical, concentrated form more than a British or a French commander, and, further, as regards the decisive attack on the flanks, it is intended not merely to be sudden but even more to be powerful and overwhelming. These considerations tend to impose both the massing and the holding in reserve of machine-guns. The French and British doctrine (see Tactics) is fundamentally different. Here, whether the guns be massed or not, there is rarely any question of using the machine-guns as a special reserve. In the decisive attack, and especially at the culmination of the decisive attack, when concealment has ceased and power is everything, the machine-guns can render the greatest services when grouped and boldly handled. Above all, they must reach the captured crest in a few minutes, so as to crush the inevitable offensive return of the enemy's reserves. The decisive attack, moreover, is not a prearranged affair, as in Germany, but the culmination, "at a selected point, of gradually increasing pressure relentlessly applied to the enemy at all points" (*F. S. Regulations*). The holding attack, as this "pressure" is called, is not a mere feint. It is launched and developed as a decisive attack, though not completed as such, as it lacks the necessary reserve strength. Here, then, the machine-gun is best employed in enabling relatively small forces to advance—not to assault—without undue loss, that is, in economizing rifles along the non-decisive front.[13]

Withal, there are certain principles, or rather details of principle, that find general acceptance. One of these is the employment of machine-guns with the advanced guard. In this case the value of the weapon lies in its enabling the advanced guard both to seize favourable ground and points of support without undue effort and to hold the positions gained against the enemy's counter-attack. This applies, further, to the preliminary stages of an action.[14] Another point is that as a rule the most favourable range for the machine-gun is "effective infantry," *i.e.* 600-1400 yards (which is, *mutatis mutandis*, the principle of Reffye's mitrailleuse). Its employment at close infantry range depends entirely on conditions of ground and circumstances—even supposing that the handiest and most inconspicuous type of weapon is employed. Thirdly—and this has a considerable bearing on the other points—the machine-gun both concentrates many rifles on a narrow front, and concentrates the bullets of many rifles on a narrow front. The first clause implies that it can be used where there is no room (physically or tactically) for the fifty or eighty riflemen it represents (as, for instance, in some slight patch of cover whence the gun can give effective cross-fire in support of the infantry attack, or in front of an advanced post, or can watch an exposed flank), and, further, that it can be swung round laterally on to a fresh target far more easily than a line of excited and extended infantry can be made to change front. The second means that the exit of a defile, an exposed turn in a lane or on a bridge, can be beaten by closely grouped fire at greater distances and with greater accuracy than is attainable with riflemen.

Further, the waste of ammunition and the strain on the weapon caused by unnecessarily prolonged firing at the rate for which its mechanism is set—varying between 350 and 700 rounds a minute—have caused it to be laid down as an axiom in all armies that machine-guns shall deliver their fire by "bursts" and only on favourable targets.

Lastly, the reports, both of observers and combatants, are unanimous as to the immense moral effect produced on the combatants by the unmistakable drumming sound of the machine-guns, an effect comparable even at certain stages of the fight to the boom of the artillery itself.

Equipments in Use.—Practically all nations have abandoned the simple wheeled carriage for machine-guns, or rather have adopted the tripod or table mounting, reserving the wheeled vehicle for the mere transport of the equipment. Since the Russo-Japanese War the tendency has been to sacrifice the slight protection afforded by the shield in order to reduce visibility. The Japanese, who had unprotected field guns and protected machine-guns in the war, found it advisable to reverse this procedure, for reasons that can easily be guessed in the cases of both weapons.

Great Britain.—The service machine-gun is the Maxim .303 in., adjusted to a rate of 450 rounds per minute and sighted (except in a few weapons) to 2900 yards. The original patterns weighed 60 ℔, and were mounted on wheeled carriages. In the latest pattern, however, the weight of the gun has been reduced to 36 ℔. The old Mark I. cavalry Maxim carriage, complete with gun, ammunition, &c., weighed 13 cwt. behind the traces, and the gun was 5 ft. above the ground. It had no limber. The Mark III. cavalry carriage is much lower (3′ 6″ from the ground to the gun), and the gun carriage and limber together only weigh 13 cwt. Of infantry carriages there were various marks, one of which is shown in fig. 6. Now, however, all mountings for infantry are of the tripod type, transported on wheels or on pack animals, but entirely detachable from the travelling mounting, and in action practically never used except on the tripod. The Mark IV. tripod mounting, of which a sketch is given in fig. 21, weighs 48 ℔. The total weight of the fighting equipment is thus 84 ℔ only—an important consideration now that in action the gun is man-carried. The gun can be adjusted to fire at heights varying from 2′ 6″ to 1′ 2½″ only from the ground; in its lowest position, then, it is a little lower than the head of a man firing lying. All the later infantry machine-gun equipments are for pack transport and have no shields.

The organization of the machine-gun arm is regimental. Each cavalry regiment and each infantry battalion has a section of 2 guns under an officer.

France.—The guns in use are the Puteaux and the Hotchkiss. The unit is the regimental 2-gun section. Four-horsed carriages with limbers are used with cavalry, tripods with the infantry sections. No shields. Weight of the Hotchkiss in use, 50 ℔; of the tripod, 70 ℔. The Puteaux was lightened and improved in 1909.

Germany.—As already mentioned the German machine-gun units are classed as cavalry "detachments" and infantry "companies." The "detachment" or battery consists of 6 guns and 4 wagons, the vehicles being of a light artillery pattern and drawn by four horses. The gun (Maxim) weighs 61 ℔, and its fighting carriage 110 ℔. The "companies" have also 6 guns and 4 wagons, but the equipment is lighter (two-horse), and is not constructed on artillery principles, nor are the guns fired from their carriages as are those of the "detachments." The weight of the gun is 38 ℔, and that of the fighting carriage 75 (some accounts give 53 for the latter), the difference between these weights and those of the mounted equipments, affording a good illustration of the difference in the tactical requirements of the cavalry and of the infantry types of gun. The fighting carriage is a sort of sledge, which is provided with four legs for fire in the highest position, but can of course be placed on the ground; the

height of the gun, therefore, can be varied from 3′ 6″ to 1′ 6″. The sledges can be dragged across country or carried by men stretcher fashion, and sometimes several sledges are coupled and drawn by a horse.

Japan.—The Japanese Hotchkiss, as modified since the war with Russia, is said to weigh 70 ℔, and its tripod mounting 40. Each regiment of infantry has a six-gun battery and each cavalry brigade one of eight guns. Pack transport is used.

Russia.—Since the war eight-gun companies have been formed in the infantry regiments, and each cavalry regiment has been provided with two guns. The var organization is, however, unknown. Both wheel and pack transport are employed for travelling, but the guns are fought from tripods. Early and somewhat heavy patterns of Maxim (with shield) are chiefly used, but a great number of very light guns of the Madsen type have been issued.

The *Austrian* gun is the Schwarzlose, of which some details are given above. Pack transport is used, one mule taking the whole equipment with 1000 rounds. Weight of the gun 37.9 ℔, of the tripod 41 ℔. The height of the tripod can be varied from 9¾ in. to 2 ft. above the ground. It is proposed that each cavalry regiment should have four guns, and each infantry regiment two. Switzerland adopted the Maxim in 1902. It is used principally as a substitute for horse artillery. *Denmark* and other small states have adopted the Madsen or Rexer light-type guns in relatively large numbers, especially for cavalry. In the *United States* the British organization was after many trials adopted, and each infantry and cavalry regiment has a two-gun section of Maxims, with tripod mounting and pack transport.

See P. Azan, *Les premières mitrailleuses* ("Revue d'Histoire de l'Armée," July 1907); *Le Canon à balles, 1870-1871* ("Revue d'Hist. de l'Armée", 1909); Lieut-Colonel E. Rogers in "Journal R. United Service Institution" of 1905; Capt. R. V. K. Applin, *Machine-gun Tactics* (London, 1910) and paper in "J. R. United Service Inst." (1910); War Office Handbook to the Maxim gun (1907); Capt. Cesbron Lavau, *Mitrailleuses de cavalerie*; Lieut. Buttin, *L'emploi des mitrailleuses d'infanterie*; Major J. Goots, *Les Mitrailleuses* (Brussels, 1908); and Merkatz, *Unterrichtsbuch für die Masch.-Gewehrabteilungen* (Berlin, 1906); Korzen & Kühn, *Waffenlehre*, &c.

(C. F. A.)

1   The French term *mitrailleuse*, made famous by the War of 1870, reappears in other Latin tongues (*e.g.* Spanish *ametralladora*). It signifies a weapon which delivers a shower of small projectiles (*mitraille*—grape or case shot), and has no special reference to its mechanical (hand or automatic) action.

2   Meudon Château had long been used for military experiments. The peasantry credited it with mysterious and terrible secrets, asserting even that it contained a tannery of human skins, this tradition perhaps relating to the war balloon constructed there before the battle of Fleurus (1794). Reffye had also many non-military tasks, such as the reproduction of a famous set of bas-reliefs, construction of aeroplanes, and the reconstruction of triremes and balistas.

3   A machine-gun of the artillery or volley type, called the "Requa battery," which had its barrels disposed fan-wise, was also used in the Civil War.

4   The U.S. pattern Gatling hardly differed except in details from the model, above described, of twenty years earlier. The drum had been set horizontally instead of vertically and improved in details, and a "gravity feed," a tall vertical charger, was also used. The barrels were surrounded with a light casing. Tests made of the improved Gatling showed that the use of only one barrel at a time prevented overheating. On one trial 63,000 rounds were fired without a jam, and without stopping to clean the barrels. Smokeless powder and the modern cartridge case were of course used.

5   The following particulars may be given of the 2-barrelled Gardner and 3-barrelled Nordenfeldt (land service) converted to take the .303 cartridge: Weight, 92 and 110 ℔ respectively; parapet mounting in each case 168 ℔; rate of fire of Gardner about 250 rounds per minute, of the Nordenfeldt about 350. A few of these guns are still used in fortresses and coast defences.

6   Modern improvements in mechanical details are only slight, as may be found by reference to the official handbooks of the gun, editions of 1903 and 1907.

7   At San-de-pu 1905 the Japanese machine-guns (Hotchkiss) sustained damage averaging, 1 extractor broken per gun, 1 jam in every 300 rounds. It should be mentioned, however, that the machine-gun companies were only formed shortly before the battle.

8   In field operations only. For siege warfare see Fortification and Siegecraft.

9   For practical purposes in the field, the "effective" beaten zone, containing 75% of the bullets, is the basis of fire direction both for the machine-gun and the rifle. The depths of these "effective" zones are on an average:—

At	500 yds.	1,000 yds.	1,500 yds.	2,000 yds.
S.L.E. Rifle	220 yds.	120 yds.	100 yds.	—
Maxim Gun	150 yds.	70 yds.	60 yds.	50 yds.

10   "Combined sights" implies firing with the sights set for two different ranges, the usual difference being 50 yds. With grouped machine guns, "progressive fire" with elevations increasing by 25 yds. is used. This artificially disperses the fire, and therefore lessens the chance of losing the target through ranging errors. One ingenious inventor has produced a two-barrelled automatic, in which the barrels are permanently set to give combined elevations. The British memorandum of August 1909 seems to regard the facility of employing combined sights as the principal advantage of the battery over the section.

11   The use of single guns facilitates concealment, but this is outweighed by the objection that when a jam or other breakdown occurs the fire ceases altogether. The use of guns in pairs not only obviates this, but admits of each gun in turn ceasing fire to economize ammunition, to cool down, &c. This is the old artillery principle—"one gun is no gun."

12   In the instructions issued in August 1909 one of the principal advantages of grouped sections is stated to be the neutralization of ranging errors at ranges over 1000 yards. At a less range, it is laid down, grouped guns form too visible a target, unless the ground is very favourable.

13   The British instructions of August 1909 direct the grouping of guns in the *decisive* attack (if circumstances and ground favour this course) and their use by sections "if the brigade is deployed on a wide front," *i.e.* on the *non-decisive* front; further, that it is often advisable to disperse the sections of the leading battalions and to group those of units in reserve. In any case, while the 2, 4 or 8 guns must be ready to act independently as a special "arm," their normal work is to give the closest support to the neighbouring infantry (battalion in the holding, brigade in the decisive, attack).

14   In Germany, however, the tendency is not to make holding attacks but to keep the troops out of harm's way (*i.e.* too far away for the enemy to counter-attack) until they can strike effectively.

MACÍAS [*O NAMORODO*] (*fl.* 1360-1390), Galician *trovador*, held some position in the household of Enrique de Villena. He is represented by five poems in the *Cancianero de Baena*, and is the reputed author of sixteen others. Macías lives by virtue of the romantic legends which have accumulated round his name. The most popular version of his story is related by Hernán Nuñez. According to this tradition, Macías was enamoured of a great lady, was imprisoned at Arjonilla, and was murdered by the jealous husband while singing the lady's praises. There may be some basis of fact for this narrative, which became a favourite subject with contemporary Spanish poets and later writers. Macías is mentioned in Rocaberti's *Gloria de amor* as the Castillan equivalent of Cabestanh; he afforded a theme to Lope de Vega in *Porfiar hasta morir*; in the 19th century, at the

outset of the romantic movement in Spain, he inspired Larra (*q.v.*) in the play *Macías* and in the historical novel entitled *El doncel de Don Enrique el doliente*.

> See H. A. Rennert, *Macias, o namorado; a Galician trobador* (Philadelphia, 1900); Théodore J. de Puymaigre, *Les vieux auteurs castillans* (1889-1890), i. 54-74; *Cancioneiro Gallego-Castelhano* (New York and London, 1902), ed. H. R. Lang; Christian F. Bellermann, *Die alten Liederbücher der Portugiesen* (Berlin, 1840).

MACINTOSH, CHARLES (1766-1843), Scottish chemist and inventor of waterproof fabrics, was born on the 29th of December 1766 at Glasgow, where he was first employed as a clerk. He devoted all his spare time to science, particularly chemistry, and before he was twenty resigned his clerkship to take up the manufacture of chemicals. In this he was highly successful, inventing various new processes. His experiments with one of the by-products of tar, naphtha, led to his invention of waterproof fabrics, the essence of his patent being the cementing of two thicknesses of india-rubber together, the india-rubber being made soluble by the action of the naphtha. For his various chemical discoveries he was, in 1823, elected F.R.S. He died on the 25th of July 1843.

> See George Macintosh, *Memoir of C. Macintosh* (1847).

MACKAY, CHARLES (1814-1889), Scottish writer, was born at Perth, on the 27th of March 1814, and educated at the Caledonian Asylum, London, and in Brussels. In 1830, being then private secretary to a Belgian ironmaster, he began writing verses and articles for local newspapers. Returning to London, he devoted himself to literary and journalistic work, and was attached to the *Morning Chronicle* (1835-1844). He published *Memoirs of Extraordinary Public Delusions* (1841), and gradually made himself known as an industrious and prolific journalist. In 1844 he was made editor of the Glasgow *Argus*. His literary reputation was made by the publication in 1846 of a volume of verses, *Voices from the Crowd*, some of which were set to music by Henry Russell and became very popular. In 1848 Mackay returned to London and worked for the *Illustrated London News*, of which he became editor in 1852. In it he published a number of songs, set to music by Sir Henry Bishop and Henry Russell, and in 1855 they were collected in a volume; they included the popular "Cheer, Boys! Cheer!" After his severance from the *Illustrated London News*, in 1859, Mackay started two unsuccessful periodicals, and acted as special correspondent for *The Times* in America during the Civil War. He edited *A Thousand and One Gems of English Poetry* (1867). Mackay died in London on the 24th of December 1889. Marie Corelli (*q.v.*) was his adopted daughter. His son, Eric Mackay (1851-1899), was known as a writer of verse, particularly by his *Love Letters of a Violinist* (1886).

MACKAY, HUGH (*c.* 1640-1692), Scottish general, was the son of Hugh Mackay of Scourie, Sutherlandshire, and was born there about 1640. He entered Douglas's (Dumbarton's) regiment of the English army (now the Royal Scots) in 1660, accompanied it to France when it was lent by Charles II. to Louis XIV., and though succeeding, through the death of his two elder brothers, to his father's estates, continued to serve abroad. In 1669 he was in the Venetian service at Candia, and in 1672 he was back with his old regiment, Dumbarton's, in the French army, taking part under Turenne in the invasion of Holland. In 1673 he married Clara de Bie of Bommel in Gelderland. Through her influence he became, as Burnet says, "the most pious man that I ever knew in a military way," and, convinced that he was fighting in an unjust cause, resigned his commission to take a captaincy in a Scottish regiment in the Dutch service. He had risen to the rank of major-general in 1685, when the Scots brigade was called to England to assist in the suppression of the Monmouth rebellion. Returning to Holland, Mackay was one of those officers who elected to stay with their men when James II., having again demanded the services of the Scots brigade, and having been met with a refusal, was permitted to invite the officers individually into his service. As major-general commanding the brigade, and also as a privy councillor of Scotland, Mackay was an important and influential person, and James chose to attribute the decision of most of the officers to Mackay's instigation. Soon after this event the Prince of Orange started on his expedition to England, Mackay's division leading the invading corps, and in January 1688-89 Mackay was appointed major-general commanding in chief in Scotland. In this capacity he was called upon to deal with the formidable insurrection headed by Graham of Claverhouse, Viscount Dundee. In the battle of Killiecrankie Mackay was severely defeated, but Dundee was killed, and the English commander, displaying unexpected energy, subdued the Highlands in one summer. In 1690 he founded Fort William at Inverlochy, in 1691 he distinguished himself in the brilliant victory of Aughrim, and in 1692, with the rank of lieutenant-general, he commanded the British division of the allied army in Flanders. At the great battle of Steinkirk Mackay's division bore the brunt of the day unsupported and the general himself was killed.

Mackay was the inventor of the ring bayonet which soon came into general use, the idea of this being suggested to him by the failure of the plug-bayonet to stop the rush of the Highlanders at Killiecrankie. Many of his despatches and papers were published by the Bannatyne Club in 1883.

> See *Life* by John Mackay of Rockville (1836); and J. W. Fortescue, *History of the British Army*, vol. i.

MACKAY, JOHN WILLIAM (1831-1902), American capitalist, was born in Dublin, Ireland, on the 28th of November 1831. His parents brought him in 1840 to New York City, where he worked in a ship-yard. In 1851 he went to California and worked in placer gold-mines in Sierra county. In 1852 he went to Virginia City, Nevada, and there, after losing all he had made in California, he formed with James G. Fair, James C. Flood and William S. O'Brien the firm which in 1873 discovered the great Bonanza vein, more than 1200 ft. deep, in the Comstock lode (yielding in March of that year as much as $632 per ton, and in

1877 nearly $19,000,000 altogether); and this firm established the Bank of Nevada in San Francisco. In 1884, with James Gordon Bennett, Mackay formed the Commercial Cable Company—largely to fight Jay Gould and the Western Union Telegraph Company—laid two transatlantic cables, and forced the toll-rate for transatlantic messages down to twenty-five cents a word. In connexion with the Commercial Cable Company he formed the Postal Telegraph Company. Mackay died on the 20th of July 1902 in London. He gave generously, especially to the charities of the Roman Catholic Church, and endowed the Roman Catholic orphan asylum in Virginia City, Nevada. In June 1908 a school of mines was presented to the University of Nevada, as a memorial to him, by his widow and his son, Clarence H. Mackay.

MACKAY, a seaport of Carlisle county, Queensland, Australia, on the Pioneer river, 625 m. direct N.N.W. Pop. (1901), 4091. The harbour is not good. Sugar, tobacco and coffee thrive in the district. There are several important sugar mills, one of which, the largest in Queensland, is capable of an annual output of 8000 tons. Rum is distilled, and there are a brewery and a factory for tinning butter for export. Workable coal is found in the district. This is the port of the Mt Orange and Mt Gotthart copper mines, and the Mt Britten and Eungella gold-fields. It is a calling-station for the Queensland royal mail steamers. The town is named after Captain John Mackay, who discovered the harbour in 1860.

McKEESPORT, a city of Allegheny county, Pennsylvania, U.S.A., at the confluence of the Monongahela and Youghiogheny rivers (both of which are navigable), 14 m. S.E. of Pittsburg. Pop. (1890), 20,741; (1900), 34,227, of whom 9349 were foreign-born and 748 were negroes; (1910 census) 42,694. It is served by the Baltimore & Ohio, the Pittsburg & Lake Erie and the Pennsylvania railways. The city has a Carnegie library, a general hospital, and two business schools. Bituminous coal and natural gas abound in the vicinity, and iron, steel, and tin and terne plate are extensively manufactured in the city, the tin-plate plant being one of the most important in the United States. The total value of the city's factory products was $36,058,447 in 1900 and $23,054,412 in 1905. The municipality owns and operates its water-works. The first white settler was David McKee, who established a ferry here in 1769. In 1795 his son John laid out the town, which was named in his honour, but its growth was very slow until after the discovery of coal in 1830. McKeesport was incorporated as a borough in 1842 and chartered as a city in 1890.

McKEES ROCKS, a borough of Allegheny county, Pennsylvania, U.S.A., on the Ohio river, about 3 m. N.W. of Pittsburg. Pop. (1890) 1687; (1900) 6352 (1264 foreign-born); (1910) 14,702. McKees Rocks is served by the Pittsburg & Lake Erie and the Pittsburg, Chartiers & Youghiogheny railways, the latter a short line extending (13 m.) to Beechmont. Bituminous coal and natural gas are found in the vicinity, and the borough ships coal and lumber, and has various important manufactures. There is an ancient Indian mound here. The first settlement was made in 1830, and the borough incorporated in 1892.

MACKENNAL, ALEXANDER (1835-1904), English Nonconformist divine, was born at Truro in Cornwall, on the 14th of January 1835, the son of Patrick Mackennal, a Scot, who had settled in Cornwall. In 1848 the family removed to London, and at sixteen he went to Glasgow University. In 1854 he entered Hackney College to prepare for the Congregational ministry, and in 1857 he graduated B.A. at London University. After holding pastorates at Burton-on-Trent (1856-1861), Surbiton (1862-1870), Leicester (1870-1876), he finally accepted the pastorate of the Congregational Church at Bowdon, Cheshire, in 1877, in which he remained till his death. In 1886 he was chairman of the Congregational Union, which he represented in 1889 at the triannual national council of the American Congregational churches. The first international council of Congregationalists held in London in 1891 was partly cause, partly consequence, of his visit, and Mackennal acted as secretary. In 1892 he became definitely associated in the public mind with a movement for free church federation which grew out of a series of meetings held to discuss the question of home reunion. When the Lambeth articles put forward as a basis of union were discussed, it was evident that all the free churches were agreed in accepting the three articles dealing with the Bible, the Creed and the Sacraments as a basis of discussion, and were also agreed in rejecting the fourth article, which put the historic episcopate on the same level as the other three. Omitting the Anglicans, the representatives of the remaining churches resolved to develop Christian fellowship by united action and worship wherever possible. Out of this grew the Free Church Federation, which secures a measure of co-operation between the Protestant Evangelical churches throughout England. Mackennal's public action brought him into association with many well-known political and religious leaders. He was a lifelong advocate of international peace, and made a remarkable declaration as to the Christian standard of national action when the Free Church Federation met at Leeds during the South African War in 1900.

Besides a volume of sermons under the title *Christ's Healing Touch*, Mackennal published *The Biblical Scheme of Nature and of Man, The Christian Testimony, the Letters to the Seven Churches of Asia, The Kingdom of the Lord Jesus* and *The Eternal God and the Human Sonship*. These are contributions to exegetical study or to theological and progressive religious thought, and have elements of permanent value. He also made some useful contributions to religious history. In 1893 he published the *Story of the English Separatists*, and later the *Homes and Haunts of the Pilgrim Fathers*; he also wrote the life of Dr J. A. Macfadyen of Manchester. In 1901 he delivered a series of lectures at Hartford Theological Seminary, Connecticut, U.S.A., published under the title *The Evolution of Congregationalism*. He died at Highgate on the 23rd of June 1904.

See D. Macfadyen, *Life and Letters of Alexander Mackennal* (1905).

(D. Mn.)

MACKENZIE, SIR ALEXANDER (*c.* 1755-1820), Canadian explorer, was probably a native of Inverness, Emigrating to North America at an early age, he was for several years engaged in the fur trade at Fort Chippewyan, at the head of Lake Athabasca, and it was here that his schemes of travel were formed. His first journey, made in 1789, was from Fort Chippewyan along the Great Slave Lake, and down the river which now bears his name to the Arctic Ocean; and his second, made in 1792 and 1793, from Fort Chippewyan across the Rocky Mountains to the Pacific coast near Cape Menzies. He wrote an account of these journeys, *Voyages on the River St Lawrence and through the Continent of North America to the Frozen and Pacific Oceans* (London, 1801), which is of considerable interest from the information it contains about the native tribes. It is prefaced by an historical dissertation on the Canadian fur trade. Amassing considerable wealth, Mackenzie was knighted in 1802, and later settled in Scotland. He died at Mulnain, near Dunkeld, on the 11th of March 1820.

MACKENZIE, ALEXANDER (1822-1892), Canadian statesman, was born in Perthshire, Scotland, on the 28th of January, 1822. His father was a builder, and young Mackenzie emigrated to Canada in 1842, and worked in Ontario as a stone-mason, setting up for himself later as a builder and contractor at Sarnia with his brother. In 1852 his interest in questions of reform led to his becoming the editor of the *Lambton Shield*, a local Liberal paper. This brought him to the front, and in 1861 he became a member of the Canadian parliament, where he at once made his mark and was closely connected with the liberal leader, George Brown. He was elected for Lambton to the first Dominion house of commons in 1867, and soon became the leader of the liberal opposition; from 1871 to 1872 he also sat in the Ontario provincial assembly, and held the position of provincial treasurer. In 1873 the attack on Sir John Macdonald's ministry with regard to the Pacific Railway charter resulted in its defeat, and Mackenzie formed a new government, taking the portfolio of public works and becoming the first liberal premier of Canada. He remained in power till 1878, when industrial depression enabled Macdonald to return to office on a protectionist programme. In 1875 Mackenzie paid a visit to Great Britain, and was received at Windsor by Queen Victoria; he was offered a knighthood, but declined it. After his defeat he suffered from failing health, gradually resulting in almost total paralysis, but though in 1880 he resigned the leadership of the opposition, he retained a seat in parliament till his death at Toronto on the 17th of April 1892. While perhaps too cautious to be the ideal leader of a young and vigorous community, his grasp of detail, indefatigable industry, and unbending integrity won him the respect even of his political opponents.

His *Life and Times* by William Buckingham and the Hon. George W. Ross (Toronto, 1892) contains documents of much interest. See also George Stewart, *Canada under the Administration of the Earl of Dufferin* (Toronto, 1878).

MACKENZIE, SIR ALEXANDER CAMPBELL (1847-   ), British composer, son of an eminent Edinburgh violinist and conductor, was born on the 22nd of August 1847. On the advice of a member of Gung'l's band who had taken up his residence in Edinburgh, Mackenzie was sent for his musical education to Sondershausen, where he entered the conservatorium under Ulrich and Stein, remaining there from 1857 to 1861, when he entered the ducal orchestra as a violinist. At this time he made Liszt's acquaintance. On his return home he won the King's Scholarship at the Royal Academy of Music, and remained the usual three years in the institution, after which he established himself as a teacher of the piano, &c., in Edinburgh. He appeared in public as a violinist, taking part in Chappell's quartette concerts, and starting a set of classical concerts. He was appointed precentor of St George's Church in 1870, and conductor of the Scottish vocal music association in 1873, at the same time getting through a prodigious amount of teaching. He kept in touch with his old friends by playing in the orchestra of the Birmingham Festivals from 1864 to 1873. The most important compositions of this period of Mackenzie's life were the Quartette in E flat for piano and strings. Op. 11, and an overture, *Cervantes*, which owed its first performance to the encouragement and help of von Bülow. On the advice of this great pianist, he gave up his Edinburgh appointments, which had quite worn him out, and settled in Florence in order to compose. The cantatas *The Bride* (Worcester, 1881) and *Jason* (Bristol, 1882) belong to this time, as well as his first opera. This was commissioned for the Carl Rosa Company, and was written to a version of Merimée's *Colomba* prepared by Franz Hueffer. It was produced with great success in 1883, and was the first of a too short series of modern English operas; Mackenzie's second opera, *The Troubadour*, was produced by the same company in 1886; and his third dramatic work was *His Majesty*, an excellent comic opera (Savoy Theatre, 1897). In 1884 his *Rose of Sharon* was given with very great success at the Norwich Festival; in 1885 he was appointed conductor of Novello's oratorio concerts; *The Story of Sayid* came out at the Leeds Festival of 1886; and in 1888 he succeeded Macfarren as principal of the Royal Academy of Music. *The Dream of Jubal* was produced at Liverpool in 1889, and in London very soon afterwards. A fine setting of the hymn "Veni, Creator Spiritus" was given at Birmingham in 1891, and the oratorio *Bethlehem* in 1894. From 1892 to 1899 he conducted the Philharmonic Concerts, and was knighted in 1894. Besides the works mentioned he has written incidental music to plays, as, for instance, to *Ravenswood*, *The Little Minister*, and *Coriolanus*; concertos and other works for violin and orchestra, much orchestral music, and many songs and violin pieces. The romantic side of music appeals to Mackenzie far more strongly than any other, and the cases in which he has conformed to the classical conventions are of the rarest. In the orchestral ballad, *La Belle Dame sans Merci*, he touches the note of weird pathos, and in the nautical overture *Britannia* his sense of humour stands revealed. In the two "Scottish Rhapsodies" for orchestra, in the music to *The Little Minister*, and in a beautiful fantasia for pianoforte and orchestra on Scottish themes, he has seized the essential, not the accidental features of his native music.

MACKENZIE, SIR GEORGE (1636-1691), of Rosehaugh, Scottish lawyer, was the grandson of Kenneth, first Lord Mackenzie of Kintail, and the nephew of Colin and George, first and second earls of Seaforth; his mother was a daughter of

Andrew Bruce, principal of St Leonard's College, St Andrews. He was born at Dundee in 1636, educated at the grammar school there and at Aberdeen, and afterwards at St Andrews, graduating at sixteen. He then engaged for three years in the study of the civil law at Bourges; on his return to Scotland he was called to the bar in 1659, and before the Restoration had risen into considerable practice. Immediately after the Restoration he was appointed a "justice-depute," and it is recorded that he and his colleagues in that office were ordained by the parliament in 1661 "to repair, once in the week at least, to Musselburgh and Dalkeith, and to try and judge such persons as are there or thereabouts delate of witchcraft." In the same year he acted as counsel for the marquis of Argyll; soon afterwards he was knighted, and he represented the county of Ross during the four sessions of the parliament which was called in 1669. He succeeded Sir John Nisbet as king's advocate in August 1677, and in the discharge of this office became implicated in all the worst acts of the Scottish administration of Charles II., earning for himself an unenviable distinction as "the bloody Mackenzie." His refusal to concur in the measures for dispensing with the penal laws against Catholics led to his removal from office in 1686, but he was reinstated in February 1688. At the Revolution, being a member of convention, he was one of the minority of five in the division on the forfeiture of the crown. King William was urged to declare him incapacitated for holding any public office, but refused to accede to the proposal. When the death of Dundee (July 1689) had finally destroyed the hopes of his party in Scotland, Mackenzie betook himself to Oxford, where, admitted a student by a grace passed in 1690, he was allowed to spend the rest of his days in the enjoyment of the ample fortune he had acquired, and in the prosecution of his literary labours. One of his last acts before leaving Edinburgh had been to pronounce (March 15, 1689), as dean of the faculty of advocates, the inaugural oration at the foundation of the Advocates' library. He died at Westminster on the 8th of May 1691, and was buried in Greyfriars churchyard, Edinburgh.

While still a young man Sir George Mackenzie appears to have aspired to eminence in the domain of pure literature, his earliest publication having been *Aretina, or a Serious Romance* (anon., 1661); it was followed, also anonymously, by *Religio Stoici, a Short Discourse upon Several Divine and Moral Subjects* (1663); *A Moral Essay, preferring Solitude to Public Employment* (1665); and one or two other disquisitions of a similar nature. His most important legal works are entitled *A Discourse upon the Laws and Customs of Scotland in Matters Criminal* (1674); *Observations upon the Laws and Customs of Nations as to Precedency, with the Science of Heraldry* (1680); *Institutions of the Law of Scotland* (1684); and *Observations upon the Acts of Parliament* (1686); of these the last-named is the most important, the *Institutions* being completely overshadowed by the similar work of his great contemporary Stair. In his *Jus Regium: or the Just and Solid Foundations of Monarchy in general, and more especially of the Monarchy of Scotland, maintained* (1684), Mackenzie appears as an uncompromising advocate of the highest doctrines of prerogative. His *Vindication of the Government of Scotland during the reign of Charles II.* (1691) is valuable as a piece of contemporary history. The collected *Works* were published at Edinburgh (2 vols. fol.) in 1716-1722; and *Memoirs of the Affairs of Scotland from the Restoration of King Charles II.*, from previously unpublished MSS., in 1821.

See A. Lang, *Sir George Mackenzie of Rosehaugh* (1909).

MACKENZIE, HENRY (1745-1831), Scottish novelist and miscellaneous writer, was born at Edinburgh in August 1745. His father, Joshua Mackenzie, was a distinguished physician, and his mother, Margaret Rose, belonged to an old Nairnshire family. Mackenzie was educated at the high school and the university of Edinburgh, and was then articled to George Inglis of Redhall, who was attorney for the crown in the management of exchequer business. In 1765 he was sent to London to prosecute his legal studies, and on his return to Edinburgh became partner with Inglis, whom he afterwards succeeded as attorney for the crown. His first and most famous work, *The Man of Feeling*, was published anonymously in 1771, and met with instant success. The "Man of Feeling" is a weak creature, dominated by a futile benevolence, who goes up to London and falls into the hands of people who exploit his innocence. The sentimental key in which the book is written shows the author's acquaintance with Sterne and Richardson, but he had neither the humour of Sterne nor the subtle insight into character of Richardson. One Eccles of Bath claimed the authorship of this book, bringing in support of his pretensions a MS. with many ingenious erasures. Mackenzie's name was then officially announced, but Eccles appears to have induced some people to believe in him. In 1773 Mackenzie published a second novel, *The Man of the World*, the hero of which was as consistently bad as the "Man of Feeling" had been "constantly obedient to his moral sense," as Sir Walter Scott says. *Julia de Roubigné* (1777), a story in letters, was preferred to his other novels by "Christopher North," who had a high opinion of Mackenzie (see *Noctes Ambrosianae*, vol. i. p. 155, ed. 1866). The first of his dramatic pieces, *The Prince of Tunis*, was produced in Edinburgh in 1773 with a certain measure of success. The others were failures. At Edinburgh Mackenzie belonged to a literary club, at the meetings of which papers in the manner of the *Spectator* were read. This led to the establishment of a weekly periodical called the *Mirror* (January 23, 1779-May 27, 1780), of which Mackenzie was editor and chief contributor. It was followed in 1785 by a similar paper, the *Lounger*, which ran for nearly two years and had the distinction of containing one of the earliest tributes to the genius of Robert Burns. Mackenzie was an ardent Tory, and wrote many tracts intended to counteract the doctrines of the French Revolution. Most of these remained anonymous, but he acknowledged his *Review of the Principal Proceedings of the Parliament of 1784*, a defence of the policy of William Pitt, written at the desire of Henry Dundas. He was rewarded (1804) by the office of comptroller of the taxes for Scotland. In 1776 Mackenzie married Penuel, daughter of Sir Ludovick Grant of Grant. He was, in his later years, a notable figure in Edinburgh society. He was nicknamed the "man of feeling," but he was in reality a hard-headed man of affairs with a kindly heart. Some of his literary reminiscences were embodied in his *Account of the Life and Writings of John Home, Esq.* (1822). He also wrote a *Life of Doctor Blacklock*, prefixed to the 1793 edition of the poet's works. He died on the 14th of January 1831.

In 1807 *The Works of Henry Mackenzie* were published surreptitiously, and he then himself superintended the publication of his *Works* (8 vols., 1808). There is an admiring but discriminating criticism of his work in the *Prefatory Memoir* prefixed by Sir Walter Scott to an edition of his novels in Ballantyne's *Novelist's Library* (vol. v., 1823).

McKENZIE, SIR JOHN (1838-1901). New Zealand statesman, was born at Ard-Ross, Scotland, in 1838, the son of a crofter. He emigrated to Otago, New Zealand, in 1860. Beginning as a shepherd, he rose to be farm manager at Puketapu near Palmerston South, and then to be a farmer in a substantial way in Shag Valley. In 1865 he was clerk to the local road board and school committee; in 1871 he entered the provincial council of Otago; and on the 11th of December 1881 was elected member of the House of Representatives, in which he sat till 1900. He was also for some years a member of the education board and of the land board of Otago, and always showed interest in the national elementary school system. In the House of Representatives he soon made good his footing, becoming almost at once a recognized spokesman for the smaller sort of rural settlers and a person of influence in the lobbies. He acted as government whip for the coalition ministry of Sir Robert Stout and Sir Julius Vogel, 1884-1887, and, while still a private member, scored his first success as a land reformer by carrying the

"McKenzie clause" in a land act limiting the area which a state tenant might thenceforth obtain on lease. He was still, however, comparatively unknown outside his own province when, in January 1891, his party took office and he aided John Ballance in forming a ministry, in which he himself held the portfolio of lands, immigration and agriculture. From the first he made his hand felt in every matter connected with land settlement and the administration of the vast public estate. Generally his aim was to break up and subdivide the great freehold and leasehold properties which in his time covered four-sevenths of the occupied land of the colony. In his Land Act of 1892 he consolidated, abolished or amended, fifty land acts and ordinances dealing with crown lands, and thereafter amended his own act four times. Though owing to a preference for state tenancy over freehold, he never stopped the selling of crown land, and was satisfied to give would-be settlers the option of choosing freehold or leasehold under tempting terms as their form of tenure. As a compromise he introduced the lease in perpetuity or holding for 999 years at a quit rent fixed at 4%; theoretical objections have since led to its abolition, but for fifteen years much genuine settlement took place under its conditions. Broadly, however, McKenzie's exceptional success as lands minister was due rather to unflinching determination to stimulate the occupation of the soil by working farmers than to the solution of the problems of agrarian controversy. His best-known experiment was in land repurchase. A voluntary law (1892) was displaced by a compulsory act (1894), under which between £5,000,000 and £6,000,000 had by 1910 been spent in buying and subdividing estates for closer settlements, with excellent results. McKenzie also founded and expanded an efficient department of agriculture, in the functions of which inspection, grading, teaching and example are successfully combined. It has aided the development of dairying, fruit-growing, poultry-farming, bee-keeping and flax-milling, and done not a little to keep up the standard of New Zealand products. After 1897 McKenzie had to hold on in the face of failing health. An operation in London in 1899 only postponed the end. He died at his farm on the 6th of August 1901, soon after being called to the legislative council, and receiving a knighthood.

MACKENZIE, SIR MORELL (1837-1892), British physician, son of Stephen Mackenzie, surgeon (d. 1851), was born at Leytonstone, Essex, on the 7th of July 1837. After going through the course at the London Hospital, and becoming M.R.C.S. in 1858, he studied abroad at Paris, Vienna and Pesth; and at Pesth he learnt the use of the newly-invented laryngoscope under J. N. Czermak. Returning to London in 1862, he worked at the London Hospital, and took his degree in medicine. In 1863 he won the Jacksonian prize at the Royal College of Surgeons for an essay on the "Pathology of the Larynx," and he then devoted himself to becoming a specialist in diseases of the throat. In 1863 the Throat Hospital in King Street, Golden Square, was founded, largely owing to his initiative, and by his work there and at the London Hospital (where he was one of the physicians from 1866 to 1873) Morell Mackenzie rapidly became recognized throughout Europe as a leading authority, and acquired an extensive practice. So great was his reputation that in May 1887, when the crown prince of Germany (afterwards the emperor Frederick III.) was attacked by the affection of the throat of which he ultimately died, Morell Mackenzie was specially summoned to attend him. The German physicians who had attended the prince since the beginning of March (Karl Gerhardt, and subsequently Tobold, E. von Bergmann, and others) had diagnosed his ailment on the 18th of May as cancer of the throat; but Morell Mackenzie insisted (basing his opinion on a microscopical examination by R. Virchow of a portion of the tissue) that the disease was not demonstrably cancerous, that an operation for the extirpation of the larynx (planned for the 21st of May) was unjustifiable, and that the growth might well be a benign one and therefore curable by other treatment. The question was one not only of personal but of political importance, since it was doubted whether any one suffering from an incapacitating disease like cancer could, according to the family law of the Hohenzollerns, occupy the German throne; and there was talk of a renunciation of the succession by the crown prince. It was freely hinted, moreover, that some of the doctors themselves were influenced by political considerations. At any rate, Morell Mackenzie's opinion was followed: the crown prince went to England, under his treatment, and was present at the Jubilee celebrations in June. Morell Mackenzie was knighted in September 1887 for his services, and decorated with the Grand Cross of the Hohenzollern Order. In November, however, the German doctors were again called into consultation, and it was ultimately admitted that the disease really was cancer; though Mackenzie, with very questionable judgment, more than hinted that it had become malignant since his first examination, in consequence of the irritating effect of the treatment by the German doctors. The crown prince (see FREDERICK III.) became emperor on the 9th of March 1888, and died on the 15th of June. During all this period a violent quarrel raged between Sir Morell Mackenzie and the German medical world. The German doctors published an account of the illness, to which Mackenzie replied by a work entitled *The Fatal Illness of Frederick the Noble* (1888), the publication of which caused him to be censured by the Royal College of Surgeons. After this sensational episode in his career, the remainder of Sir Morell Mackenzie's life was uneventful, and he died somewhat suddenly in London, on the 3rd of February 1892. He published several books on laryngoscopy and diseases of the throat.

MACKENZIE, WILLIAM LYON (1795-1861), Canadian politician, was born near Dundee, Scotland, on the 12th of March 1795. His father died before he was a month old, and the family were left in poverty. After some six years' work in a shop at Alyth, in April 1820 he emigrated with his mother to Canada. There he became a general merchant, first at York, then at Dundas, and later at Queenston. The discontented condition of Upper Canada drew him into politics, and on the 18th of May 1824 he published at Queenston the first number of the *Colonial Advocate*, in which the ruling oligarchy was attacked with great asperity. Most of the changes which he advocated were wise and have since been adopted; but the violence of Mackenzie's attacks roused great anger among the social and political set at York (Toronto), which was headed by John Beverley Robinson. In November 1824 Mackenzie removed to Toronto, but he had little capital; his paper appeared irregularly, and was on the point of suspending publication when his office was attacked and his type thrown into the bay by a number of the supporters of his opponents. In an action against the chief rioters he was awarded £625 and costs, was thus enabled to set up a much larger and more efficient plant, and the *Colonial Advocate* ran till the 4th of November 1834.

In 1828 he was elected member of parliament for York, but was expelled on the technical ground that he had published in his newspaper the proceedings of the house without authorization. Five times he was expelled and five times re-elected by his constituents, till at last the government refused to issue a writ, and for three years York was without one of its representatives. In May 1832 he visited England, where he was well received by the colonial office. Largely as the result of his representations, many important reforms were ordered by Lord Goderich, afterwards earl of Ripon, the colonial secretary. While in England, he published *Sketches of Canada and the United States*, in which, with some exaggeration, many of the Canadian grievances were exposed. On his return in March 1834 he was elected mayor of Toronto. During his year of office, the heroism with which he worked hand in hand with his old enemy, Bishop Strachan, in fighting an attack of cholera, did not prevent him from winning much unpopularity by his officiousness, and in 1835 he was not re-elected either as mayor or alderman. In October 1834 he was elected member of parliament for York, and took his seat in January 1835, the Reformers being now in the majority. A committee on grievances was appointed, as chairman of which Mackenzie presented the admirable *Seventh Report*

on Grievances, largely written by himself, in which the case for the Reformers was presented with force and moderation, and the adoption of responsible government advocated as the remedy.

In the general election of June 1836 the Tory party won a complete victory, Mackenzie and almost all the prominent Reformers being defeated at the polls. This totally unexpected defeat greatly embittered him. On the 4th of July 1836, the anniversary of the adoption of the American Declaration of Independence, he began the publication of the *Constitution*, which openly advocated a republican form of government. Later in the year he was appointed "agent and corresponding secretary" of the extreme wing of the Reform party, and more and more openly, in his speeches throughout the province, advocated armed revolt. He was also in correspondence with Papineau and the other leaders of the Reformers in Lower Canada, who were already planning a rising. Early in December 1837 Mackenzie gathered a mob of his followers, to the number of several hundred, at Gallows Hill, some miles to the north of Toronto, with the intention of seizing the lieutenant-governor and setting up a provisional government. Misunderstandings among the leaders led to the total failure of the revolt, and Mackenzie was forced to fly to the United States with a price on his head. In the town of Buffalo he collected a disorderly rabble, who seized and fortified Navy Island, in the river between the two countries, and for some weeks troubled the Canadian frontier. After the failure of this attempt he was put to the most pitiful shifts to make a living. In June 1839 he was tried in the United States for a breach of the neutrality laws, and sentenced to eighteen months' imprisonment, of which he served over eleven. While in gaol at Rochester he published the *Caroline Almanac*, the tone of which may be judged from its references to "Victoria Guelph, the bloody queen of England," and by the title given to the British cabinet of "Victoria Melbourne's bloody divan." He returned to Canada in consequence of the Amnesty Act 1849. A closer inspection had cured him of his love for republican institutions.

In 1851 he was elected to parliament for Haldimand, defeating George Brown. He at once allied himself with the Radicals (the "Clear Grits"), and, on the leadership of that party being assumed by Brown, became one of his lieutenants. He was still miserably poor, but refused all offers to accept a government position. In 1858 he resigned his seat in the house, owing to incipient softening of the brain, of which he died on the 29th of August 1861.

Turbulent, ungovernable, vain, often the dupe of schemers, Mackenzie united with much that was laughable not a little that was heroic. He could neither be bribed, bullied, nor cajoled. Perhaps the best instance of this is that in 1832 he refused from Lord Goderich an offer of a position which would have given him great influence in Canada and an income of £1,500. He was a born agitator, and as such tended to exaggeration and misrepresentation. But the evils against which he struggled were real and grave; the milder measures of the Constitutional Reformers might have taken long to achieve the results which were due to his hot-headed advocacy.

The *Life and Times* by his son-in-law, Charles Lindsey (Toronto, 2 vols., 1862), is moderate and fair, though tending to smooth over his anti-British gasconnade while in the United States. An abridgment of this work was edited by G. G. S. Lindsey for the "Makers of Canada" series (1909). In *The Story of the Upper Canadian Rebellion* by J. C. Dent (2 vols., Toronto, 1885), a bitter attack is made on him, which drew a savage reply from another son-in-law, John King, K.C., called *The Other Side of the Story*. The best short account of his career is given by J. C. Dent in *The Canadian Portrait Gallery*, vol. ii. (Toronto, 1881).
(W. L. G.)

MACKENZIE, a river of the North-West Territories, Canada, discharging the waters of the Great Slave Lake into the Arctic Ocean. It was discovered and first navigated by Sir Alexander Mackenzie in 1789. It has an average width of 1 m., an average fall of 6 in. to the mile; an approximate discharge, at a medium stage, of 500,000 cub. ft. per second; and a total length, including its great tributary the Peace, of 2,350 m. The latter rises, under the name of the Finlay, in the mountains of British Columbia, and flows north-east and then south-east in the great intermontane valley that bounds the Rocky Mountains on the west, to its confluence with the Parsnip. From the confluence the waters of the combined rivers, now called the Peace, flow east through the Rocky Mountains, and then north-east to unite with the river which discharges the waters of Lake Athabasca; thence to Great Slave Lake it is known as Slave river. Excluding the rivers which enter these lakes, the principal tributaries of the Peace are: Omineca, Nation, Parsnip, Halfway, North Pine, South Pine, Smoky, Battle, and Loon rivers; those of the Mackenzie are the Liard (650 m. long), which rises near the sources of the Pelly, west of the Rocky Mountains, and breaks through that range on its way to join the parent stream, Great Bear river, which drains Great Bear Lake, Nahanni, Dahadinni, Arctic Red, and Peel rivers. The Mackenzie enters the Arctic Ocean near 135° W. and 68° 50′ W., after flowing for 70 to 80 m. through a flat delta, not yet fully surveyed. With its continuation, Slave river, it is navigable from the Arctic Ocean to Fort Smith, a distance of over 1,200 m., and between the latter and the head of Lesser Slave Lake, a further distance of 625 m., there is only one obstruction to navigation, the Grand Rapids near Fort McMurray on the Athabasca river. The Peace is navigable from its junction with Slave river for about 220 m. to Vermilion Falls. The Mackenzie is navigable from about the 10th of June to the 20th of October, and Great Slave Lake from about the 1st of July to the end of October. All the waters and lakes of this great system are abundantly stocked with fish, chiefly white fish and trout, the latter attaining to remarkable size.

MACKEREL, pelagic fishes, belonging to a small family, *Scombridae*, of which the tunny, bonito, albacore, and a few other tropical genera are members. Although the species are fewer in number than in most other families of fishes, they are widely spread and extremely abundant, peopling by countless schools the oceans of the tropical and temperate zones, and approaching the coasts only accidentally, occasionally, or periodically.

The mackerel proper (genus *Scomber*) are readily recognized by their elegantly shaped, well-proportioned body, shining in iridescent colours. Small, thin, deciduous scales equally cover nearly the entire body. There are two dorsal fins, the anterior near the head, composed of 11-14 feeble spines, the second near the tail with all the rays soft except the first, and behind the second dorsal five or six finlets. The ventral is immediately below the second dorsal, and is also followed by finlets. The caudal fin is crescent-shaped, strengthened at the base by two short ridges on each side. The mouth is wide, armed above and below with a row of very small fixed teeth.

No other fish shows finer proportions in the shape of its body. Every "line" of its build is designed and eminently adapted for rapid progression through the water; the muscles massed along the vertebral column are enormously developed, especially on the back and the sides of the tail, and impart to the body a certain rigidity which interferes with abruptly sideward motions of the fish. Therefore mackerel generally swim in a straightforward direction, deviating sidewards only when compelled, and rarely turning about in the same spot. They are in almost continuous motion, their power of endurance being equal to the rapidity of their motions. Mackerel, like all fishes of this family, have a firm flesh; that is, the muscles of the several segments are interlaced, and receive a greater supply of blood-vessels and nerves than in other fishes. Therefore the flesh, especially of the larger kinds, is of a red colour; and the energy of their muscular action causes the temperature of their blood to be several

degrees higher than in other fishes.

All fishes of the mackerel family are strictly carnivorous; they unceasingly pursue their prey, which consists principally of other fish and pelagic crustaceans. The fry of clupeoids, which likewise swim in schools, are followed by the mackerel until they reach some shallow place, which their enemies dare not enter.

Mackerel are found in almost all tropical and temperate seas, with the exception of the Atlantic shores of temperate South America. European mackerel are of two kinds, of which one, the common mackerel, *Scomber scomber*, lacks, while the other possesses, an air-bladder. The best-known species of the latter kind is *S. colias*, the "Spanish" mackerel;[1] a third, *S. pneumatophorus*, is believed by some ichthyologists to be identical with *S. colias*. Be this as it may, we have strong evidence that the Mediterranean is inhabited by other species different from *S. scomber* and *S. colias*, and well characterized by their dentition and coloration. Also the species from St Helena is distinct. Of extra-Atlantic species the mackerel of the Japanese seas are the most nearly allied to the European, those of New Zealand and Australia, and still more those of the Indian Ocean, differing in many conspicuous points. Two of these species occur in the British seas: *S. scomber*, which is the most common there as well as in other parts of the North Atlantic, crossing the ocean to America, where it abounds; and the Spanish mackerel, *S. colias*, which is distinguished by a somewhat different pattern of coloration, the transverse black bands of the common mackerel being in this species narrower, more irregular or partly broken up into spots, while the scales of the pectoral region are larger, and the snout is longer and more pointed. The Spanish mackerel is, as the name implies, a native of the seas of southern Europe, but single individuals or small schools frequently reach the shores of Great Britain and of the United Stales.

The home of the common mackerel (to which the following remarks refer) is the North Atlantic, from the Canary Islands to the Orkneys, and from the Mediterranean and the Black Sea and the coasts of Norway to the United States.

Towards the spring large schools approach the coasts. Two causes have been assigned of this migration: first, the instinct of finding a suitable locality for propagating their species; and, secondly, the search and pursuit of food, which in the warmer season is more abundant in the neighbourhood of land than in the open sea. It is probable that the latter is the chief cause.

In the month of February, or in some years as early as the end of January, the first large schools appear at the entrance of the English Channel, and are met by the more adventurous of the drift-net fishers many miles west of the Scilly Islands. These early schools, which consist chiefly of one-year and two-year-old fishes, yield sometimes enormous catches, whilst in other years they escape the drift-nets altogether, passing them, for some hitherto unexplained reason, at a greater depth than that to which the nets reach, viz. 20 ft. As the season advances, the schools penetrate farther northwards into St George's Channel or eastwards into the English Channel. The fishery then assumes proportions which render it next in importance to the herring and cod fisheries. In Plymouth alone a fleet of some two hundred boats assembles; and on the French side of the Channel no less capital and labour are invested in it, the vessels employed being, though less in number, larger in size than on the English side. The chief centre, however, of the fishery in the west of England is at Newlyn, near Penzance, where the small local sailing boats are outnumbered by hundreds of large boats, both sail and steam, which come chiefly from Lowestoft for the season. Simultaneously with the drift-net the deep-sea-seine and shore-seine are used, which towards June almost entirely supersede the drift-net. Towards the end of May the old fish become heavy with spawn and are in the highest condition for the table; and the latter half of June or beginning of July may be regarded as the time at which the greater part of mackerel spawn. Considerable numbers of mackerel are taken off Norfolk and Suffolk in May and June, and also in September and October. There can be no doubt that they enter the North Sea from the English Channel, and return by the same route, but others travel round the north of Scotland and appear in rather small numbers off the east coast of that country. On the Norwegian coast mackerel fishing does not begin before May, whilst on the English coasts large catches are frequently made in March. Large cargoes are annually imported in ice from Norway to the English market.

After the spawning the schools break up into smaller companies which are much scattered, and offer for two or three months employment to the hand-line fishermen. They now begin to disappear from the coasts and return to the open sea. Single individuals or small companies are found, however, on the coast all the year round; they may have become detached from the main bodies, and be seeking for the larger schools which have long left on their return migration.

Although, on the whole, the course and time of the annual migration of mackerel are marked with great regularity, their appearance and abundance at certain localities are subject to great variations. They may pass a spot at such a depth as to evade the nets, and reappear at the surface some days after farther eastwards; they may deviate from their direct line of migration, and even temporarily return westwards. In some years between 1852 and 1867 the old mackerel disappeared off Guernsey from the surface, and were accidentally discovered feeding at the bottom. Many were taken at 10 fathoms and deeper with the line, and all were of exceptionally large size, several measuring 18 in. and weighing nearly 3 ℔; these are the largest mackerel on record.

The mackerel most esteemed as food is the common species, and individuals from 10 to 12 in. in length are considered the best flavoured. In more southern latitudes, however, this species seems to deteriorate, specimens from the coast of Portugal, and from the Mediterranean and Black Sea, being stated to be dry and resembling in flavour the Spanish mackerel (*S. colias*), which is not esteemed for the table.

(A. C. G.; J. T. C.)

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[1] The term "Spanish mackerel" is applied in America to *Cybium maculatum*.

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McKIM, CHARLES FOLLEN (1847-1909), American architect, was born in Chester county, Pennsylvania, on the 24th of August 1847. His father, James Miller McKim (1810-1874), originally a Presbyterian minister, was a prominent abolitionist and one of the founders (1865) of the New York *Nation*. The son studied at Harvard (1866-1867) and at Paris in the École des Beaux-Arts (1867-1870), and in 1872 became an architect in New York City, entering the office of H. H. Richardson; in 1877 he formed a partnership with William Rutherford Mead (b. 1846), the firm becoming in 1879 McKim, Mead & White, when Stanford White (1853-1906) became a partner. McKim was one of the founders of the American Academy in Rome; received a gold medal at the Paris exposition of 1900; in 1903, for his services in the promotion of architecture, received the King's Medal of the Royal Institute of British Architects; and in 1907 became a National Academician. He died at St James, Long Island, N.Y., on the 14th of September 1909. McKim's name is especially associated with the University Club in New York, with the Columbia University buildings, with the additions to the White House (1906), and, more particularly, with the Boston Public Library, for which the library of Ste Geneviève in Paris furnished the suggestion.

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MACKINAC ISLAND, a small island in the N.W. extremity of Lake Huron and a part of Mackinac county, Michigan, and a city and summer resort of the same name on the island. The city is on the S.E. shore, at the entrance of the Straits of Mackinac, about 7 m. N.E. of Mackinaw City and 6 m. E.S.E. of St Ignace. Pop. (1900), 665; (1904), 736; (1910), 714. During the summer season, when thousands of people come here to enjoy the cool and pure air and the island's beautiful scenery, the city is served by the principal steamboat lines on the Great Lakes and by ferry to Mackinaw city (pop. in 1904, 696), which is served by the Michigan Central, the Grand Rapids & Indiana, and the Duluth, South Shore & Atlantic railways. The island is about 3 m. long by 2 m. wide. From the remarkably clear water of Lake Huron its shores rise for the most part in tall white limestone cliffs; inland there are strangely shaped rocks and forests of cedar, pine, fir, spruce, juniper, maple, oak, birch, and beech. Throughout the island there are numerous glens, ravines, and caverns, some of which are rich in associations with Indian legends. The city is an antiquated fishing and trading village with modern hotels, club-houses, and summer villas. Fort Mackinac and its grounds are included in a state reservation which embraces about one-half of the island.

The original name of the island was Michilimackinac ("place of the big lame person" or "place of the big wounded person"); the name was apparently derived from an Algonquian tribe, the Mishinimaki or Mishinimakinagog, now extinct. The island was long occupied by Chippewas, the Hurons had a village here for a short time after their expulsion from the East by the Iroquois, and subsequently there was an Ottawa village here. The first white settlement or station was established by the French in 1670 (abandoned in 1701) at Point Saint Ignace on the north side of the strait. In 1761 a fort on the south side (built in 1712) was surrendered to the British. By the treaty of Paris (1783) the right of the United States to this district was acknowledged; but the fort was held by the British until 1796. In July 1812 a British force surprised the garrison, which had not yet learned that war had been declared. In August 1814 an American force under Colonel George Croghan (1791-1849) attempted to recapture the island but was repulsed with considerable loss. By the treaty of Ghent, however, the island was restored, in July 1815, to the United States; Fort Mackinac was maintained by the Federal government until 1895, when it was ceded to the state. From 1820 to 1840 the village was one of the principal stations of the American Fur Company. A Congregational mission was established among the Chippewas on the island in 1827, but was discontinued before 1845. The city of Mackinac Island was chartered in 1899.

See W. C. Richards, "The Fairy Isle of Mackinac," in the *Magazine of American History* (July 1891); and R. G. Thwaites, "The Story of Mackinac," in vol. 14 of the *Collections* of the State Historical Society of Wisconsin (Madison, 1898).

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