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THE ENCYCLOPÆDIA BRITANNICA

A DICTIONARY OF ARTS, SCIENCES, LITERATURE AND GENERAL INFORMATION

ELEVENTH EDITION

VOLUME V SLICE II

Camorra to Cape Colony

Articles in This Slice

CAMORRA, a secret society of Naples associated with robbery, blackmail and murder. The origin of the name is doubtful. Probably both the word and the association were introduced into Naples by Spaniards. There is a Spanish word *camorra* (a quarrel), and similar societies seem to have existed in Spain long before the appearance of the Camorra in Naples. It was in 1820 that the society first became publicly known. It was primarily social, not political, and originated in the Neapolitan prisons then filled with the victims of Bourbon misrule and oppression, its first purpose being the protection of prisoners. In or about 1830 the Camorra was carried into the city by prisoners who had served their terms. The members worked the streets in gangs. They had special methods of communicating with each other. They mewed like cats at the approach of the patrol, and crowed like cocks when a likely victim approached. A long sigh gave warning that the latter was not alone, a sneeze meant he was not “worth powder and shot,” and so on. The society rapidly extended its power, and its operations included smuggling and blackmail of all kinds in addition to ordinary road-robberies. Its influence grew to be considerable. Princes were in league with and shared the profits of the smugglers: statesmen and dignitaries of the church, all classes in fact, were involved in the society’s misdeeds. From brothels the Camorra drew huge fees, and it maintained illegal lottery offices. The general disorder of Naples was so great and the police so badly organized that merchants were glad to engage

the Camorra to superintend the loading and unloading of merchandise. Being non-political, the government did not interfere with the society; indeed its members were taken into the police service and the Camorra sometimes detected crimes which baffled the authorities. After 1848 the society became political. In 1860, when the constitution was granted by Francis II., the *camorristi* then in gaol were liberated in great numbers. The association became all-powerful at elections, and general disorder reigned till 1862. Thereafter severe repressive measures were taken to curtail its power. In September 1877 there was a determined effort to exterminate it: fifty-seven of the most notorious camorristi being simultaneously arrested in the market-place. Though much of its power has gone, the Camorra has remained vigorous. It has grown upwards, and highly-placed and well-known camorristi have entered municipal administrations and political life. In 1900 revelations as to the Camorra's power were made in the course of a libel suit, and these led to the dissolution of the Naples municipality and the appointment of a royal commissioner. A government inquiry also took place. As the result of this investigation the Honest Government League was formed, which succeeded in 1901 in entirely defeating the Camorra candidates at the municipal elections.

The Camorra was divided into classes. There were the "swell mobsmen," the camorristi who dressed faultlessly and mixed with and levied fines on people of highest rank. Most of these were well connected. There were the lower order of blackmailers who preyed on shopkeepers, boatmen, &c.; and there were political and murdering camorristi. The ranks of the society were largely recruited from the prisons. A youth had to serve for one year an apprenticeship so to speak to a fully admitted camorrista when he was sometimes called *picciotto d' honore*, and after giving proof of courage and zeal became a *picciotto di sgarro*, one, that is, of the lowest grade of members. In some localities he was then called *tamurro*. The initiatory ceremony for full membership is now a mock duel in which the arm alone is wounded. In early times initiation was more severe. The camorristi stood round a coin laid on the ground, and at a signal all stooped to thrust at it with their knives while the novice had at the same time to pick the coin up, with the result that his hand was generally pierced through in several places. The noviciate as *picciotto di sgarro* lasted three years, during which the lad had to work for the camorrista who had been assigned to him as master. After initiation there was a ceremony of reception. The camorristi stood round a table on which were a dagger, a loaded pistol, a glass of water or wine supposed to be poisoned and a lancet. The *picciotto* was brought in and one of his veins opened. Dipping his hand in his own blood, he held it out to the camorristi and swore to keep the society's secrets and obey orders. Then he had to stick the dagger into the table, cock the pistol, and hold the glass to his mouth to show his readiness to die for the society. His master now bade him kneel before the dagger, placed his right hand on the lad's head while with the left he fired off the pistol into the air and smashed the poison-glass. He then drew the dagger from the table and presented it to the new comrade and embraced him, as did all the others. The Camorra was divided into centres, each under a chief. There were twelve at Naples. The society seems at one time to have always had a supreme chief. The last known was Aniello Ansiello, who finally disappeared and was never arrested. The chief of every centre was elected by the members of it. All the earnings of the centre were paid to and then distributed by him. The camorristi employ a whole vocabulary of cant terms. Their chief is *masto* or *si masto*, "sir master." When a member meets him he salutes with the phrase *Masto, volite niente?* ("Master, do you want anything?"). The members are addressed simply as *si*.

See Monnier, *La Camorra* (Florence, 1863); Umilta, *Camorra et Mafia* (Neuchâtel, 1878); Alongi, *La Camorra* (1890); C.W. Heckethorn *Secret Societies of All Ages* (London, 1897); Blasio, *Usi e costumi dei Camorriste* (Naples, 1897).

CAMP (from Lat. *campus*, field), a term used more particularly in a military sense, but also generally for a temporarily organized place of food and shelter in open country, as opposed to ordinary housing (see Camping-out). The shelter of troops in the field has always been of the greatest importance to their well-being, and from the earliest times tents and other temporary shelters have been employed as much as possible when it is not feasible or advisable to quarter the troops in barracks or in houses. The applied sense of the word "camp" as a military post of any kind comes from the practice which prevailed in the Roman army of fortifying every encampment. In modern warfare the word is used in two ways. In the wider sense, "camp" is opposed to "billets," "cantonments" or "quarters," in which the troops are scattered amongst the houses of towns or villages for food and shelter. In a purely military camp the soldiers live and sleep in an area of open ground allotted for their sole use. They are thus kept in a state of concentration and readiness for immediate action, and are under better disciplinary control than when in quarters, but they suffer more from the weather and from the want of comfort and warmth. In the restricted sense "camp" implies tents for all ranks, and is thus opposed to "bivouac," in which the only shelter is that afforded by improvised screens, &c., or at most small *tentes d'abri* carried in sections by the men themselves. The weight of large regulation tents and the consequent increase in the number of horses and vehicles in the transport service are, however, disadvantages so grave that the employment of canvas camps in European warfare is almost a thing of the past. If the military situation permits, all troops are put into quarters, only the outpost troops bivouacking. This course was pursued by the German field armies in 1870-1871, even during the winter campaign.

Circumstances may of course require occasionally a whole army to bivouac, but in theatres of war in which quarters are not to be depended upon, tents must be provided, for no troops can endure many successive nights in bivouac, except in summer, without serious detriment to their efficiency. In a war on the Russo-German frontier, for instance, especially if operations were carried out in the autumn and winter, tents would be absolutely essential at whatever cost of transport. In this connexion it may be said that a good railway system obviates many of the disadvantages attending the use of tents. For training purposes in peace time, *standing camps* are formed. These may be considered simply as temporary barracks. An *entrenched camp* is an area of ground occupied by, or suitable for, the camps of large bodies of troops, and protected by fortifications.

Ancient Camps.—English writers use "camp" as a generic term for any remains of ancient military posts, irrespective of their special age, size, purpose, &c. Thus they include under it various dissimilar things. We may distinguish (1) Roman "camps" (*castra*) of three kinds, large permanent fortresses, small permanent forts (both usually built of stone) and temporary earthen encampments (see Roman Army); (2) Pre-Roman; and (3) Post-Roman camps, such as occur on many English hilltops. We know far too little to be able to assign these to their special periods. Often we can say no more than that the "camp" is not Roman. But we know that enclosures fortified with earthen walls were thrown up as early as the Bronze Age and probably earlier still, and that they continued to be built down to Norman times. These consisted of hilltops or cliff-promontories or other suitable positions fortified with one or more lines of earthen ramparts with ditches, often attaining huge size. But the idea of an artificial elevation seems to have come in first with the Normans. Their *mottes* or earthen mounds crowned with wooden palisades or stone towers and surrounded by an enclosure on the flat constituted a new element in fortification and greatly aided the conquest of England. (See Castle.)

CAMPAGNA DI ROMA, the low country surrounding the city of Rome, bounded on the N.W. by the hills surrounding the lake of Bracciano, on the N.E. by the Sabine mountains, on the S.E. by the Alban hills, and on the S.W. by the sea. (See Latium, and Rome (province).)

CAMPAIGN, a military term for the continuous operations of an army during a war or part of a war. The name refers to the time when armies went into quarters during the winter and literally "took the field" at the opening of summer. The word is also used figuratively, especially in politics, of any continuous operations aimed at a definite object, as the "Plan of Campaign" in Ireland during 1886-1887. The word is derived from the Latin *Campania*, the plain lying south-west of the Tiber, c.f. Italian, *la Campagna di Roma*, from which came two French forms: (1) *Champagne*, the name given to the level province of that name, and hence the English "champaign," a level tract of country free from woods and hills; and (2) *Campagne*, and the English "campaign" with the restricted military meaning.

CAMPAN, JEANNE LOUISE HENRIETTE (1752-1822), French educator, the companion of Marie Antoinette, was born at Paris in 1752. Her father, whose name was Genest, was first clerk in the foreign office, and, although without fortune, placed her in the most cultivated society. At the age of fifteen she could speak English and Italian, and had gained so high a reputation for her accomplishments as to be appointed reader to the three daughters of Louis XV. At court she was a general favourite, and when she bestowed her hand upon M. Campan, son of the Secretary of the royal cabinet, the king gave her an annuity of 5000 *livres* as dowry. She was soon afterwards appointed first lady of the bedchamber by Marie Antoinette; and she continued to be her faithful attendant till she was forcibly separated from her at the sacking of the Tuileries on the 20th of June 1792. Madame Campan survived the dangers of the Terror, but after the 9th Thermidor finding herself almost penniless, and being thrown on her own resources by the illness of her husband, she bravely determined to support herself by establishing a school at St Germain. The institution prospered, and was patronized by Hortense de Beauharnais, whose influence led to the appointment of Madame Campan as superintendent of the academy founded by Napoleon at Écouen for the education of the daughters and sisters of members of the Legion of Honour. This post she held till it was abolished at the restoration of the Bourbons, when she retired to Mantes, where she spent the rest of her life amid the kind attentions of affectionate friends, but saddened by the loss of her only son, and by the calumnies circulated on account of her connexion with the Bonapartes. She died in 1822, leaving valuable *Mémoires sur la vie privée de Marie Antoinette, suivis de souvenirs et anecdotes historiques sur les règnes de Louis XIV.-XV.* (Paris, 1823); a treatise *De l'Éducation des Femmes*; and one or two small didactic works, written in a clear and natural style. The most noteworthy thing in her educational system, and that which especially recommended it to Napoleon, was the place given to domestic economy in the education of girls. At Écouen the pupils underwent a complete training in all branches of housework.

See Jules Flammermont, *Les Mémoires de Madame de Campan* (Paris, 1886), and histories of the time.

CAMPANELLA, TOMMASO (1568-1639), Italian Renaissance philosopher, was born at Stilo in Calabria. Before he was thirteen years of age he had mastered nearly all the Latin authors presented to him. In his fifteenth year he entered the order of the Dominicans, attracted partly by reading the lives of Albertus Magnus and Aquinas, partly by his love of learning. He took a course in philosophy in the convent at Morgentia in Abruzzo, and in theology at Cosenza. Discontented with this narrow course of study, he happened to read the *De Rerum Natura* of Bernardino Telesio, and was delighted with its freedom of speech and its appeal to nature rather than to authority. His first work in philosophy (he was already the author of numerous poems) was a defence of Telesio, *Philosophia sensibus demonstrata* (1591). His attacks upon established authority having brought him into disfavour with the clergy, he left Naples, where he had been residing, and proceeded to Rome. For seven years he led an unsettled life, attracting attention everywhere by his talents and the boldness of his teaching. Yet he was strictly orthodox, and was an uncompromising advocate of the pope's temporal power. He returned to Stilo in 1598. In the following year he was committed to prison because he had joined those who desired to free Naples from Spanish tyranny. His friend Naudée, however, declares that the expressions used by Campanella were wrongly interpreted as revolutionary. He remained for twenty-seven years in prison. Yet his spirit was unbroken; he composed sonnets, and prepared a series of works, forming a complete system of philosophy. During the latter years of his confinement he was kept in the castle of Sant' Elmo, and allowed considerable liberty. Though, even then, his guilt seems to have been regarded as doubtful, he was looked upon as dangerous, and it was thought better to restrain him. At last, in 1626, he was nominally set at liberty; for some three years he was detained in the chambers of the Inquisition, but in 1629 he was free. He was well treated at Rome by the pope, but on the outbreak of a new conspiracy headed by his pupil, Tommaso Pignatelli, he was persuaded to go to Paris (1634), where he was received with marked favour by Cardinal Richelieu. The last few years of his life he spent in preparing a complete edition of his works; but only the first volume appears to have been published. He died on the 21st of May 1639.

In philosophy, Campanella was, like Giordano Bruno (*q.v.*), a follower of Nicolas of Cusa and Telesio. He stands, therefore, in the uncertain half-light which preceded the dawn of modern philosophy. The sterility of scholastic Aristotelianism, as he understood it, drove him to the study of man and nature, though he was never entirely free from the medieval spirit. Devoutly accepting the authority of Faith in the region of theology, he considered philosophy as based on perception. The prime fact in philosophy was to him, as to Augustine and Descartes, the certainty of individual consciousness. To this consciousness he assigned a threefold content, power, will and knowledge. It is of the present only, of things not as they are, but merely as they seem. The fact that it contains the idea of God is the one, and a sufficient, proof of the divine existence, since the idea of the Infinite must be derived from the Infinite. God is therefore a unity, possessing, in the perfect degree, those attributes of power, will and knowledge which humanity possesses only in part. Furthermore, since community of action presupposes homogeneity, it follows that the world and all its parts have a spiritual nature. The emotions of love and hate are in everything. The more remote from God, the greater the degree of imperfection (*i.e.Not-being*) in things. Of imperfect things, the highest are angels and human beings, who by virtue of the possession of reason are akin to the Divine and superior to the lower creation. Next comes the mathematical world of space, then the corporeal world, and finally the empirical world with its limitations of space and time. The impulse of self-preservation in nature is the lowest form of religion; above this comes animal religion; and finally rational religion, the perfection of which consists in perfect knowledge, pure volition and love, and is union with God. Religion is, therefore, not political in origin; it

is an inherent part of existence. The church is superior to the state, and, therefore, all temporal government should be in subjection to the pope as the representative of God.

In natural philosophy Campanella, closely following Telesio, advocates the experimental method and lays down heat and cold as the fundamental principles by the strife of which all life is explained. In political philosophy (the *Civitas Solis*) he sketches an ideal communism, obviously derived from the Platonic, based on community of wives and property with state-control of population and universal military training. In every detail of life the citizen is to be under authority, and the authority of the administrators is to be based on the degree of knowledge possessed by each. The state is, therefore, an artificial organism for the promotion of individual and collective good. In contrast to More's *Utopia*, the work is cold and abstract, and lacking in practical detail. On the view taken as to his alleged complicity in the conspiracy of 1599 depends the vexed question as to whether this system was a philosophic dream, or a serious attempt to sketch a constitution for Naples in the event of her becoming a free city. The *De Monarchia Hispanica* contains an able account of contemporary politics especially Spanish.

Thus Campanella, though neither an original nor a systematic thinker, is among the precursors, on the one hand, of modern empirical science, and on the other of Descartes and Spinoza. Yet his fondness for the antithesis of Being and Not-being (*Ens* and *Non-ens*) shows that he had not shaken off the spirit of scholastic thought.

Bibliography.—For his works see Quétif-Echard, appendix to E.S. Cypriano, *Vita Campanellae* (Amsterdam, 1705 and 1722); Al. d'Ancona's edition, with introduction (Turin, 1854). The most important are *De sensu rerum* (1620); *Realis philosophiae epilogisticae partes IV.* (with *Civitas Solis*) (1623); *Atheismus triumphatus* (1631); *Philos. rationalis* (1637); *Philos. universalis seu metaph.* (1637); *De Monarchia Hispanica* (1640). For his life, see Cypriano (above); M. Baldachini, *Vita e filos. di Tommaso Campanella* (Naples, 1840-1853, 1847-1857); Dom. Berti, *Lettere inedite di T. Campanella e catalogo dei suoi scritti* (1878); and *Nuovi documenti di T.C.* (1881); and especially L. Amabile, *Fra T. Campanella* (3 vols., Naples, 1882). For his philosophy H. Ritter, *History of Philos.*; M. Carrière, *Philos. Weltanschauung d. Reformationszeit*, pp. 542-608; C. Dareste, *Th. Morus et Campanella* (Paris, 1843); Chr. Sigwart, *Kleine Schriften*, i. 125 seq.; and histories of philosophy. For his political philosophy, A. Calenda, *Fra Tommaso Campanella e la sua dottrina sociale e politica di fronte al socialismo moderno* (Nocera Inferiore, 1895). His poems, first published by Tobias Adami (1622), were rediscovered and printed again (1834) by J.G. Orelli; the sonnets were rendered into English verse by J.A. Symonds (1878). For a full bibliography see *Dict. de théol. cath.*, col. 1446 (1904).

CAMPANIA, a territorial division of Italy. The modern district (II. below) is of much greater extent than that known by the name in ancient times.

I. *Campani* was the name used by the Romans to denote the inhabitants first of the town of Capua and the district subject to it, and then after its destruction in the Hannibalic war (211 B.C.), to describe the inhabitants of the Campanian plain generally. The name, however, is pre-Roman and appears with Oscan terminations on coins of the early 4th (or late 5th) century B.C. (R.S. Conway, *Italic Dialects*, p. 143), which were certainly struck for or by the Samnite conquerors of Campania, whom the name properly denotes, a branch of the great Sabelline stock (see Sabini); but in what precise spot the coins were minted is uncertain. We know from Strabo (v. 4. 8.) and others that the Samnites deprived the Etruscans of the mastery of Campania in the last quarter of the 5th century; their earliest recorded appearance being at the conquest of their chief town Capua, probably in 438 B.C. (or 445, according to the method adopted in interpreting Diodorus xii. 31; on this see under Cumae), or 424 according to Livy (iv. 37). Cumae was taken by them in 428 or 421, Nola about the same time, and the Samnite language they spoke, henceforward known as Oscan, spread over all Campania except the Greek cities, though small communities of Etruscans remained here and there for at least another century (Conway, op. cit. p. 94). The hardy warriors from the mountains took over not merely the wealth of the Etruscans, but many of their customs; the haughtiness and luxury of the men of Capua was proverbial at Rome. This town became the ally of Rome in 338 B.C. (Livy viii. 14) and received the *civitas sine suffragio*, the highest status that could be granted to a community which did not speak Latin. By the end of the 4th century Campania was completely Roman politically. Certain towns with their territories (Neapolis, Nola, Abella, Nuceria) were nominally independent in alliance with Rome. These towns were faithful to Rome throughout the Hannibalic war. But Capua and the towns dependent on it revolted (Livy xxiii.-xxvi.); after its capture in 211 Capua was utterly destroyed, and the jealousy and dread with which Rome had long regarded it were both finally appeased (cf. Cicero. *Leg. Agrar.* ii. 88). We have between thirty and forty Oscan inscriptions (besides some coins) dating, probably, from both the 4th and the 3rd centuries (Conway, *Italic Dialects*, pp. 100-137 and 148), of which most belong to the curious cult described under Jovilae, while two or three are curses written on lead; see Osca Lingua.

See further Conway, op. cit. p. 99 ff.; J. Beloch, *Campanien* (2nd ed.), c. "Capua"; Th. Mommsen, *C.I.L.* x. p. 365.

(R. S. C.)

The name Campania was first formed by Greek authors, from Campani (see above), and did not come into common use until the middle of the 1st century A.D. Polybius and Diodorus avoid it entirely. Varro and Livy use it sparingly, preferring *Campanus ager*. Polybius (2nd century B.C.) uses the phrase κατὰ Καπύην to express the district bounded on the north by the mountains of the Aurunci, on the east by the Apennines of Samnium, on the south by the spur of these mountains which ends in the peninsula of Sorrento, and on the south and west by the sea, and this is what Campania meant to Pliny and Ptolemy. But the geographers of the time of Augustus (in whose division of Italy Campania, with Latium, formed the first region) carried the north boundary of Campania as far south as Sinuessa, and even the river Volturnus, while farther inland the modern village of San Pietro in Fine preserves the memory of the north-east boundary which ran between Venafrum and Casinum. On the east the valley of the Volturnus and the foot-hills of the Apennines as far as Abellinum formed the boundary; this town is sometimes reckoned as belonging to Campania, sometimes to Samnium. The south boundary remained unchanged. From the time of Diocletian onwards the name Campania was extended much farther north, and included the whole of Latium. This district was governed by a *corrector*, who about A.D. 333 received the title of *consularis*. It is for this reason that the district round Rome still bears the name of Campagna di Roma, being no doubt popularly connected with Ital. *campo*, Lat. *campus*. This district (to take its earlier extent), consisting mainly of a very fertile plain with hills on the north, east and south, and the sea on the south and west, is traversed by two great rivers, the Liris and Volturnus, divided by the Mons Massicus, which comes right down to the sea at Sinuessa. The plain at the mouth of the former is comparatively small, while that traversed by the Volturnus is the main plain of Campania. Both of these rivers rise in the central Apennines, and only smaller streams, such as the Sarnus, Sebethus, Savo, belong entirely to Campania.

The road system of Campania was extremely well developed and touched all the important towns. The main lines are followed (though less completely) by the modern railways. The most important road centre of Campania was Capua, at the east edge of the plain. At Casilinum, 3 m. to the north-west, was the only bridge over the Volturnus until the construction of the Via Domitiana; and here met the Via Appia, passing through Minturnae, Sinuessa and Pons Campanus (where it crossed the Savo) and the Via Latina which ran through Teanum Sidicinum and Cales. At Calatia, 6 m. south-east of Capua, the Via Appia began to turn east and to approach the mountains on its way to Beneventum, while the Via Popillia went straight on to Nola (whence a road ran to Abella and Abellinum) and thence to Nuceria Alfaterna and the south, terminating at Regium.

From Capua itself a road ran north to Vicus Dianae, Caiatia and Telesia, while to the south the so-called Via Campana (there is up ancient warrant for the name) led to Puteoli, with a branch to Cumae, Baiae and Misenum; there was also connexion between Cumae, Puteoli and Neapolis (see below), and another road to Atella and Neapolis. Neapolis could also be reached by a branch from the Via Popillia at Suessula, which passed through Acerrae. From Suessula, too, there was a short cut to the Via Appia before it actually entered the mountains. Dornitian further improved the communications of this district with Rome, by the construction of the Via Domitiana, which diverged from the Via Appia at Sinuessa, and followed the low sandy coast; it crossed the river Volturnus at Volturnum, near its mouth, by a bridge, which must have been a considerable undertaking, and then ran, still along the shore, past Liternum to Cumae and thence to Puteoli. Here it fell into the existing roads to Neapolis, the older Via Antiniana over the hills, at the back, and the newer, dating from the time of Agrippa, through the tunnel of Pausilypon and along the coast. The mileage in both cases was reckoned from Puteoli. Beyond Naples a road led along the coast through Herculaneum to Pompeii, where there was a branch for Stabiae and Surrentum, and thence to Nuceria, where it joined the Via Popillia. From Nuceria, which was an important road centre, a direct road ran to Stabiae, while from Salernum, 11 m. farther south-east but outside the limits of Campania proper, a road ran due north to Abellinum and thence to Aeclanum or Beneventum. Teanum was another important centre: it lay at the point where the Via Latina was crossed at right angles by a road leaving the Via Appia at Minturnae, and passing through Suessa Aurunca, while east of Teanum it ran on to Allifae, and there fell into the road from Venafrum to Telesia. Five miles north of Teanum a road branched off to Venafrum from the straight course of the Via Latina, and rejoined it near Ad Flexum (San Pietro in Fine). It is, indeed, probable that the original road made the detour by Venafrum, in order to give a direct communication between Rome and the interior of Samnium (inasmuch as roads ran from Venafrum to Aesernia and to Telesia by way of Allifae), and Th. Mommsen (*Corp. Inscrip. Lat.* x., Berlin, 1883, p. 699) denies the antiquity of the short cut through Rufrae (San Felice a Ruvo), though it is shown in Kiepert's map at the end of the volume, with a milestone numbered 93 upon it. This is no doubt an error bofh in placing and in numbering, and refers to one numbered 96 found on the road to Venafrum; but it is still difficult to believe that the short cut was not used in ancient times. The 4th and 3rd century coins of Telesia, Allifae and Aesernia are all of the Campanian type.

Of the harbours of Campania, Puteoli was by far the most important from the commercial point of view. Its period of greatest comparative importance was the 2nd-1st century B.C. The harbours constructed by Augustus by connecting the Lacus Avernus and Lacus Lucrinus with the sea, and that at Misenum (the latter the station of one of the chief divisions of the Roman navy, the other fleet being stationed at Ravenna), were mainly naval. Naples also had a considerable trade, but was less important than Puteoli.

The fertility of the Campanian plain was famous in ancient as in modern times;[1] the best portion was the Campi Laborini or Leborini (called Phlegraei by the Greeks and Terra di Lavoro in modern times, though the name has now extended to the whole province of Caserta) between the roads from Capua to Puteoli and Cumae (Pliny, *Hist. Nat.* xviii. III). The loose black volcanic earth (*terra pulla*) was easier to work than the stiffer Roman soil, and gave three or four crops a year. The spelt, wheat and millet are especially mentioned, as also fruit and vegetables; and the roses supplied the perfume factories of Capua. The wines of the Mons Massicus and of the Ager Falernus (the flat ground to the east and south-east of it) were the most sought after, though other districts also produced good wine; but the olive was better suited to the slopes than to the plain, though that of Venafrum was good.

The Oscan language remained in use in the south of Campania (Pompeii, Nola, Nuceria) at all events until the Social War, but at some date soon after that Latin became general, except in Neapolis, where Greek was the official language during the whole of the imperial period.

> See J. Beloch, *Campanien* (2nd ed., Breslau, 1890); Conway, *Italic Dialects*, pp. 51-57; Ch. Hulsen in Pauly-Wissowa, *Realencyklopadie*, iii. (Stuttgart, 1899), 1434.

II. Campania in the modern sense includes a considerably larger area than the ancient name, inasmuch as to the *compartimento* of Campania belong the five provinces of Caserta, Benevento, Naples, Avellino and Salerno.

It is bounded on the north by the provinces of Rome, Aquila (Abruzzi) and Campobasso (Molise), on the north-east by that of Foggia (Apulia), on the east by that of Potenza (Basilicata) and on the south and west by the Tyrrhenian Sea. The area is 6289 sq. m. It thus includes the whole of the ancient Campania, a considerable portion of Samnium (with a part of the main chain of the Apennines) and of Lucania, and some of *Latium adjectum*, consisting thus of a mountainous district, the greater part of which lies on the Mediterranean side of the watershed, with the extraordinarily fertile and populous Campanian plain (Terra di Lavoro, with 473 inhabitants to the square mile) between the mountains and the sea. The principal rivers are the Garigliano or Liri (anc. Liris), which rises in the Abruzzi (105 m. in length); the Volturno (94 m. in length), with its tributary the Calore; the Sarno, which rises near Sarno and waters the fertile plain south-east of Vesuvius; and the Sele, whose main tributary is the Tanagro, which is in turn largely fed by another Calore. The headwaters of the Sele have been tapped for the great aqueduct for the Apulian provinces.

The coast-line begins a little east of Terracina at the lake of Fondi with a low-lying, marshy district (the ancient *Ager Caecubus*), renowned for its wine (see FONDI). The mountains (of the ancient Aurunci) then come down to the sea, and on the east side of the extreme promontory to the south-east is the port of Gaeta, a strongly fortified naval station. The east side of the Gulf of Gaeta is occupied by the marshes at the mouth of the Liri, and the low sandy coast, with its unhealthy lagoons, continues (interrupted only by the Monte Massico, which reaches the sea at Mondragone) past the mouth of the Volturno, as far as the volcanic district (no longer active) with its several extinct craters (now small lakes, the Lacus Avernus, &c.) to the west of Naples, which forms the north-west extremity of the Bay of Naples. Here the scenery completely changes: the Bay of Naples, indeed, is one of the most beautiful in the world. The island of Procida lies 2½ m. south-west of the Capo Miseno, and 3 m. south-west of Procida is that of Ischia. In consequence of the volcanic character of the district there are several important mineral springs which are used medicinally, especially at Pozzuoli, Castellammare di Stabia, and on the island of Ischia.

Pozzuoli (anc. Puteoli), the most important harbour of Italy in the 1st century B.C., is now mainly noticeable for the large armour-plate and gun works of Messrs Armstrong, and for the volcanic earth (*pozzolana*) which forms so important an element in concrete and cement, and is largely quarried near Rome also. Naples, on the other hand, is one of the most important harbours of modern Italy. Beyond it, Torre del Greco and Torre Annunziata at the foot of Vesuvius, are active trading ports for smaller vessels, especially in connexion with macaroni, which is manufactured extensively by all the towns along the bay. Castellammare di Stabia, on the west coast of the gulf, has a large naval shipbuilding yard and an important harbour. Beyond Castellammare the promontory of Sorrento, ending in the Punta della Campanella (from which Capri is 3 m. south-west) forms the south-west extremity of the gulf. The highest point of this mountain ridge, which is connected with the main Apennine chain, is the Monte S. Angelo (4735 ft.). It extends as far east as Salerno, where the coast plain of the Sele begins. As in the low marshy ground at the mouths of the Liri and Volturno, malaria is very prevalent. The south-east extremity of the Gulf of Salerno is formed by another mountain group, culminating in the Monte Cervati (6229 ft.); and on the east side of this is the Gulf of Policastro, where the province of Salerno, and with it Campania, borders, on the province of Potenza.

The population of Campania was 3,080,503 in 1901; that of the province of Caserta was 705,412, with a total of 187 communes, the chief towns being Caserta (32,709), Sta Maria Capua Vetere (21,825), Maddaloni (20,682), Sessa Aurunca (21,844); that of the province of Benevento was 256,504, with 73 communes, the only important town being Benevento

itself (24,647); that of the province of Naples 1,151,834, with 69 communes, the most important towns being Naples (563,540), Torre del Greco (33,299), Castellammare di Stabia (32,841), Torre Annunziata (28,143), Pozzuoli (22,907); that of the province of Avellino (Principato Ulteriore in the days of the Neapolitan kingdom) 402,425, with 128 communes, the chief towns being Avellino (23,760) and Ariano di Puglia (17,650); that of the province of Salerno (Principato Citeriore) 564,328, with 158 communes, the chief towns being Salerno (42,727), Cava dei Tirreni (23,681), Nocera Inferiore (19,796). Naples is the chief railway centre: a main line runs from Rome through Roccasecca (whence there is a branch via Sora to Avezzano, on the railway from Rome to Castellammare Adriatico), Caianello (junction for Isernia, on the line between Sulmona and Campobasso or Benevento), Sparanise (branch to Formia and Gaeta) and Caserta to Naples. From Caserta, indeed, there are two independent lines to Naples, while a main line runs to Benevento and Foggia across the Apennines. From Benevento railways run north to Vinchiaturo (for Isernia or Campobasso) and south to Avellino. From Cancello, a station on one of the two lines from Caserta to Naples, branches run to Torre Annunziata, and to Nola, Codola, Mercato, San Severino and Avellino. Naples, besides the two lines to Caserta (and thence either to Rome or Benevento), has local lines to Pozzuoli and Torregaveta (for Ischia) and two lines to Sarno, one via Ottaiano, the other via Pompeii, which together make up the circum-Vesuvian electric line, and were in connexion with the railway to the top of Vesuvius until its destruction in April 1906. The main line for southern Italy passes through Torre Annunziata (branch for Castellammare di Stabia and Gragnano), Nocera (branch for Codola), Salerno (branch for Mercato San Severino), and Battipaglia. Here it divides, one line going east-south-east to Sicignano (branch to Lagonegro), Potenza and Metaponto (for Taranto and Brindisi or the line along the east coast of Calabria to Reggio), the other going south-south-east along the west coast of Calabria to Reggio.

Industrial activity is mainly concentrated in Naples, Pozzuoli and the towns between Naples and Castellammare di Stabia (including the latter) on the north-east shores of the Bay of Naples. The native peasant industries are (besides agriculture, for which see Italy) the manufacture of pottery and weaving with small hand-looms, both of which are being swept away by the introduction of machinery; but a government school of textiles has been established at Naples for the encouragement of the trade.

(T. As.)

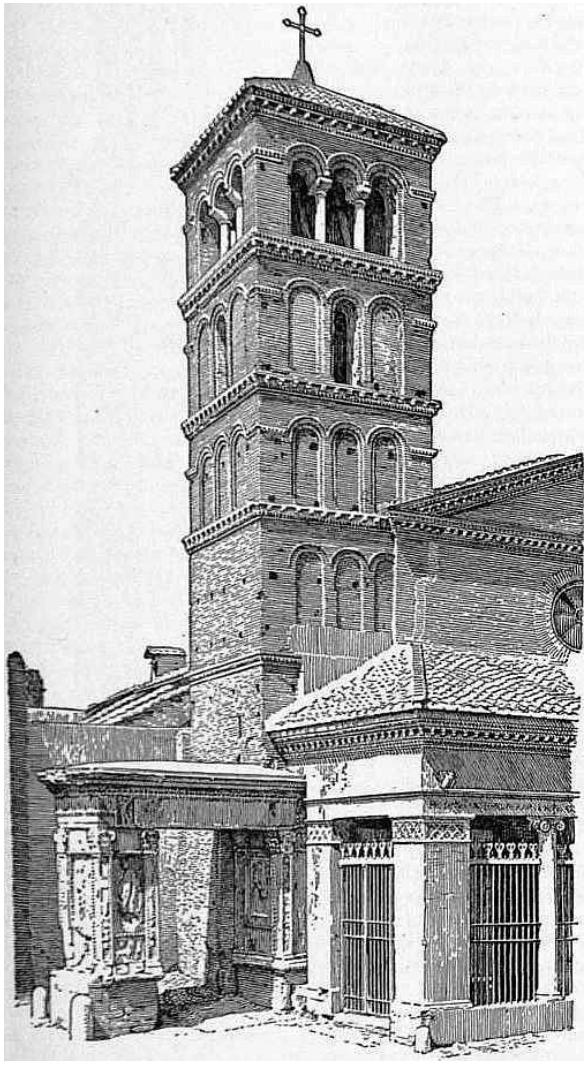
1 The name Osci—earlier Opsci, Opusci (Gr. Ὀπικοί)—presumably meant “tillers of the soil.”

CAMPANI-ALIMENIS, MATTEO, Italian mechanician and natural philosopher of the 17th century, was born at Spoleto. He held a curacy at Rome in 1661, but devoted himself principally to scientific pursuits. As an optician he is chiefly celebrated for the manufacture of the large object-glasses with which G.D. Cassini discovered two of Saturn’s satellites, and for an attempt to rectify chromatic aberration by using a triple eye-glass; and in clock-making, for his invention of the illuminated dial-plate, and that of noiseless clocks, as well as for an attempt to correct the irregularities of the pendulum which arise from variations of temperature. Campani published in 1678 a work on horology, and on the manufacture of lenses for telescopes. His younger brother Giuseppe was also an ingenious optician (indeed the attempt to correct chromatic aberration has been ascribed to him instead of to Matteo), and is, besides, noteworthy as an astronomer, especially for his discovery, by the aid of a telescope of his own construction, of the spots in Jupiter, the credit of which was, however, also claimed by Eustachio Divini.

CAMPANILE, the bell tower attached to the churches and town-halls in Italy (from *campana*, a bell). Bells are supposed to have been first used for announcing the sacred offices by Pope Sabinian (604), the immediate successor to St Gregory; and their use by the municipalities came with the rights granted by kings and emperors to the citizens to enclose their towns with fortifications, and assemble at the sound of a great bell. It is to the Lombard architects of the north of Italy that we are indebted for the introduction and development of the campanile, which, when used in connexion with a sacred building, is a feature peculiar to Christian architecture—Christians alone making use of the bell to gather the multitude to public worship. The campanile of Italy serves the same purpose as the tower or steeple of the churches in the north and west of Europe, but differs from it in design and position with regard to the body of the church. It is almost always detached from the church, or at most connected with it by an arcaded passage. As a rule also there is never more than one campanile to a church, with a few exceptions, as in S. Ambrogio, Milan; the cathedral of Novara; S. Abbondio, Como; S. Antonio, Padua; and some of the churches in south Italy and Sicily. The design differs entirely from the northern type; it never has buttresses, is very tall and thin in proportion to its height, and as a rule rises abruptly from the ground without base or plinth mouldings undiminished to the summit; it is usually divided by string-courses into storeys of nearly equal height, and in north and central Italy the wall surface is decorated with pilaster strips and arcaded corbel strings. Later, the square tower was crowned with an octagonal turret, sometimes with a conical roof, as in Cremona and Modena cathedrals. As a rule the openings increase in number and dimensions as they rise, those at the top therefore giving a lightness to the structure, while the lower portions, with narrow slits only, impart solidity to the whole composition.

The earliest examples are those of the two churches of S. Apollinare in Classe (see Basilica, fig. 8) and S. Apollinare Nuovo at Ravenna, dating from the 6th century. They are circular, of considerable height, and probably were erected as watch towers or depositories for the treasures of the church. The next in order are those in Rome, of which there are a very large number in existence, dating from the 8th to the 11th century. These towers are square and in several storeys, the lower part quite plain till well above the church to which they are attached. Above this they are divided into storeys by brick cornices carried on stone corbels, generally taken from ancient buildings, the lower storeys with blind arcades and the upper storeys with open arcades. The earliest on record was one connected with St Peter’s, to the atrium of which, in the middle of the 8th century, a bell-tower overlaid with gold was added. One of the finest is that of S. Maria-in-Cosmedin, ascribed to the 8th or 9th century. In the lower part of it are embedded some ancient columns of the Composite Order belonging to the Temple of Ceres. The tower is 120 ft. high, the upper part divided into seven storeys, the four upper ones with open arcades, the bells being hung in the second from the top. The arches of the arcades, two or three in number, are recessed in two orders and rest on long impost blocks (their length equal to the thickness of the wall above), carried by a mid-wall shaft. This type of arcade or window is found in early German work, except that, as a rule, there is a capital under the impost block. Rome is probably the source from which the Saxon windows were derived, the example in Worth church being identically the same as those in the Roman campanili. In the campanile of S. Alessio there are two arcades in each storey, each divided with a mid-wall shaft. Among others, those of SS. Giovanni e Paolo, S. Lorenzo in Lucina, S. Francesca Romana, S. Croce in Gerusalemme, S. Giorgio in Velabro (fig. 1), S. Cecilia, S. Pudenziana, S. Bartolommeo in Isola (982), S. Silvestro in Capite, are characteristic examples. On some of the towers are encrusted plaques of marble or of red or green porphyry, enclosed in a tile or moulded brick border; sometimes these plaques are in majolica with Byzantine

patterns.



From a photograph by Alinari.
FIG. 1.—Campanile of S. Giorgio in Velabro, Rome.

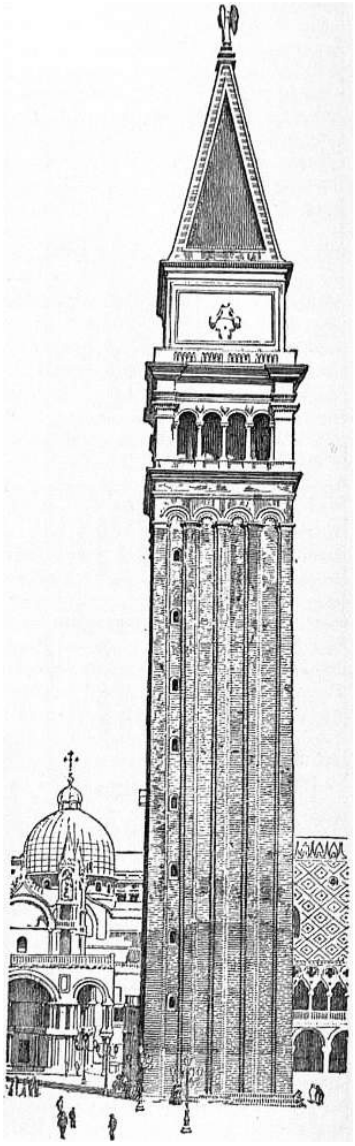
The early campanili of the north of Italy are of quite another type, the north campanile of S. Ambrogio, Milan (1129), being decorated with vertical flat pilaster strips, four on each face, and horizontal arcaded corbel strings. Of earlier date (879), the campanile of S. Satiro at Milan is in perfect preservation; it is divided into four storeys by arched corbel tables, the upper storey having a similar arcade with mid-wall shaft to those in Rome. One of the most notable examples in north Italy is the campanile of Pomposa near Ferrara. It is of immense height and has nine storeys crowned with a lofty conical spire, the wall face being divided vertically with pilaster strips and horizontally with arcaded corbel tables,—this campanile, the two towers of S. Antonio, Padua, and that of S. Gottardo, Milan, of octagonal plan, being among the few which are thus terminated. In the campanile at Torcello we find an entirely different treatment: doubly recessed pilaster-strips divide each face into two lofty blind arcades rising from the ground to the belfry storey, over 100 ft. high, with small slits for windows, the upper or belfry storey having an arcade of four arches on each front. This is the type generally adopted in the campanili of Venice, where there are no string-courses. The campanile of St Mark's was of similar design, with four lofty blind arcades on each face. The lower portion, built in brick, 162 ft. high, was commenced in 902 but not completed till the middle of the 12th century. In 1510 a belfry storey was added with an open arcade of four arches on each face, and slightly set back from the face of the tower above was a mass of masonry with pyramidal roof, the total height being 320 ft. On the 14th of July 1902 the whole structure collapsed; its age, the great weight of the additions made in 1510, and probably the cutting away inside of the lower part, would seem to have been the principal contributors to this disaster, as the pile foundations were found to be in excellent condition.

In central Italy the two early campanili at Lucca return to the Lombard type of the north, with pilaster strips and arcaded corbel strings, and the same is found in S. Francesco (Assisi), S. Frediano (Lucca), S. Pietro-in-Grado and S. Michele-in-Orticaia (Pisa), and S. Maria-Novella (Florence). The campanile of S. Niccola, Pisa, is octagonal on plan, with a lofty blind arcade on each face like those in Venice, but with a single string-course halfway up. The gallery above is an open eaves gallery like those in north Italy.

In southern Italy the design of the campanile varies again. In the two more important examples at Bari and Molfetta, there are two towers in each case attached to the east end of the cathedrals. The campanili are in plain masonry, the storeys being suggested only by blind arches or windows, there being neither pilaster strips nor string-courses. The same treatment is found at

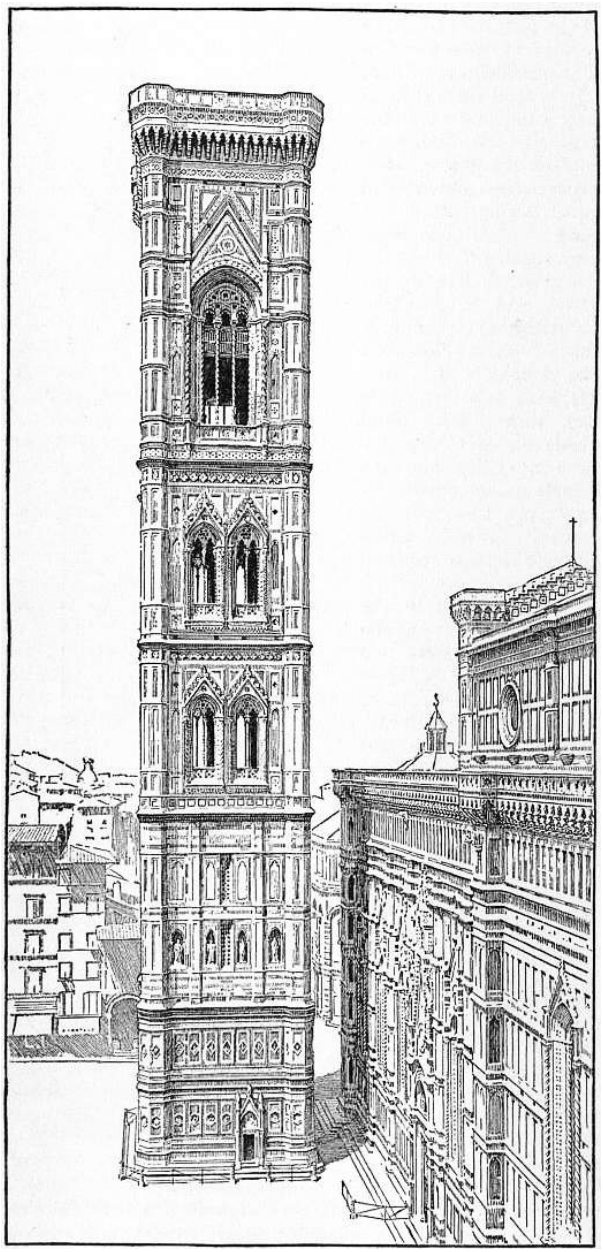
Barletta and Caserta Vecchia; in the latter the upper storey has been made octagonal with circular turrets at each angle, and this type of design is followed at Amalfi, the centre portion being circular instead of octagonal and raised much higher. In Palermo the campanile of the Martorana, of which the two lower storeys, decorated with three concentric blind pointed arches on each face, probably date from the Saracenic occupation, has angle turrets on the two upper storeys. The upper portions of the campanile of the cathedral have similar angle turrets, which, crowned with conical roofs, group well with the central octagonal spires of the towers. The two towers of the west front of the cathedral at Cefalu resemble those of Bari and Molfetta as regards their treatment.

The campanili of S. Zenone, Verona, and the cathedrals of Siena and Prato, differ from those already mentioned in that they owe their decoration to the alternating courses of black and white marble. Of this type by far the most remarkable so far as its marble decoration is concerned is Giotto's campanile at Florence, built in 1334. It measures 275 ft. high, 45 ft. square, and is encased in black, white and red marble, with occasional sculptured ornament. The angles are emphasized by octagonal projections, the panelling of which seems to have ruled that of the whole structure. There are five storeys, of which the three upper ones are pierced with windows; twin arcades side by side in the two lower, and a lofty triplet window with tracery in the belfry stage. A richly corbelled cornice crowns the structure, above which a spire was projected by Giotto, but never carried out.



From a photograph by Brogi.

FIG. 2.—Campanile of St Mark's, Venice.



From a photograph by Alinari.
Fig. 3.—Giotto's Campanile, Florence.

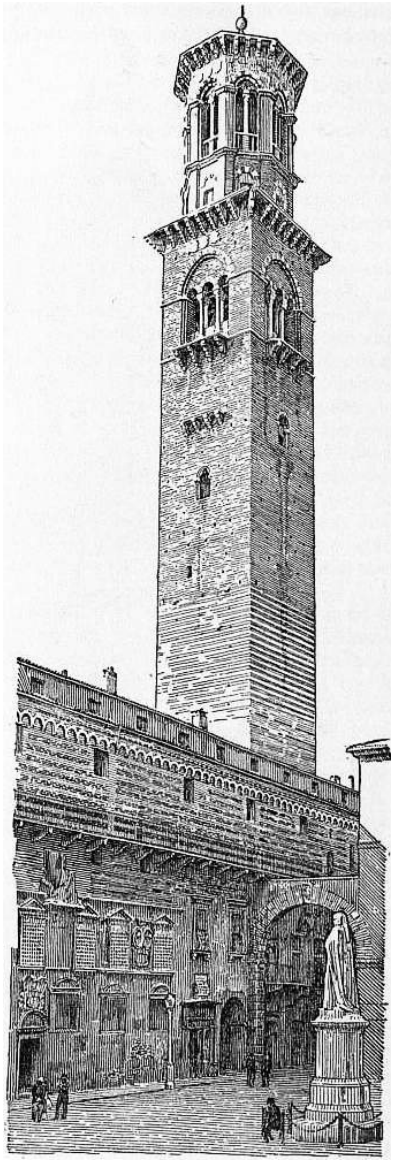
The loftiest campanile in Italy is that of Cremona, 396 ft. high. Though built in the second half of the 13th century, and showing therefore Gothic influence in the pointed windows of the belfry and two storeys below, and the substitution of the pointed for the semicircular arch of the arcaded corbel string-courses, it follows the Lombard type in its general design, and the same is found in the campanile of S. Andrea, Mantua. In the 16th century an octagonal lantern in two strings crowned with a conical roof was added. Owing to defective foundations, some of the Italian campanili incline over considerably; of these leaning towers, those of the Garisendi and Asinelli palaces at Bologna form conspicuous objects in the town; the two more remarkable examples are the campanile of S. Martino at Este, of early Lombard type, and the leaning tower at Pisa, which was built by the citizens in 1174 to rival that of Venice. The Pisa tower is circular on plan, about 51 ft. in diameter and 172 ft. high. Not including the belfry storey, which is set back on the inner wall, it is divided into seven storeys all surrounded with an open gallery or arcade. (See Architecture, Plate I. fig. 62.) Owing to the sinking of the piles on the south side, the inclination was already noticed when the tower was about 30 ft. high, and slight additions in the height of the masonry on that side were introduced to correct the level, but without result, so that the works were stopped for many years and taken up again in 1234 under the direction of William of Innsbruck; he also attempted to rectify the levels by increasing the height of the masonry on the south side. At a later period the belfry storey was added. The inclination now approaches 14 ft. out of the perpendicular. The outside is built entirely in white marble and is of admirable workmanship, but it is a question whether the equal subdivision of the several storeys is not rather monotonous. The campanili of the churches of S. Nicolas and S. Michele in Orticaia, both in Pisa, are also inclined to a slight extent.

The campanili hitherto described are all attached to churches, but there are others belonging to civic buildings some of which are of great importance. The campanile of the town hall of Siena rises to an enormous height, being 285 ft., and only 22 ft. wide; it is built in brick and crowned with a battlemented parapet carried on machicolation corbels, 16 ft. high,

all in stone, and a belfry storey above set back behind the face of the tower. The campanile of the Palazzo Vecchio at Florence is similarly crowned, but it does not descend to the ground, being balanced in the centre of the main wall of the town hall. A third example is the fine campanile of the Palazzo-del-Signore at Verona, fig. 4, the lower portion built in alternate courses of brick and stone and above entirely in brick, rising to a height of nearly 250 ft., and pierced with putlog holes only. The belfry window on each face is divided into three lights with coupled shafts. An octagonal tower of two storeys rises above the corbelled eaves.

In the campanili of the Renaissance in Italy the same general proportions of the tower are adhered to, and the style lent itself easily to its decoration; in Venice the lofty blind arcades were adhered to, as in the campanile of the church of S. Giorgio dei Greci. In that of S. Giorgio Maggiore, however, Palladio returned to the simple brickwork of Verona, crowned with a belfry storey in stone, with angle pilasters and columns of the Corinthian order in antis, and central turret with spire above. In Genoa there are many examples; the quoins are either decorated with rusticated masonry or attenuated pilasters, with or without horizontal string-courses, always crowned with a belfry storey in stone and classic cornices, which on account of their greater projection present a fine effect.

(R. P. S.)



From a photograph by Alinari.

FIG. 4.—Campanile of the Palazzo del Signore, Verona.

CAMPANULA (Bell-flower), in botany, a genus of plants containing about 230 species, found in the temperate parts of the northern hemisphere, chiefly in the Mediterranean region. The name is taken from the bell-shaped flower. The plants are perennial, rarely annual or biennial, herbs with spikes or racemes of white, blue or lilac flowers. Several are native in Britain; *Campanula rotundifolia* is the harebell (*q.v.*) or Scotch bluebell, a common plant on pastures and heaths,—the delicate slender stem bears one or a few drooping bell-shaped flowers; *C. Rapunculus,* rampion or ramps, is a larger plant with a panicle of broadly campanulate red-purple or blue flowers, and occurs on gravelly roadsides and hedgebanks, but is rare. It is cultivated, but not extensively, for its fleshy roots, which are used, either boiled or raw, as salad. Many of the species are grown in gardens for their elegant flowers; the dwarf forms are excellent for pot culture, rockeries or fronts of borders. *C. Medium,* Canterbury bell, with large blue, purple and white flowers, is a favourite and handsome biennial, of which there are numerous varieties. *C. persicifolia*, a perennial with more open flowers, is also a well-known border plant, with numerous forms, including white and blue-flowered and single and double. *C. glomerata*, which has sessile flowers crowded in heads on the stems and branches, found native in Britain in chalky and dry pastures, is known in numerous varieties as a border plant. *C. pyramidalis*, with numerous flowers forming a tall pyramidal inflorescence, is a handsome species. There are also a number of alpine species suitable for rockeries, such as *C. alpina, caucasica, caespitosa* and others. The plants are easily cultivated. The perennials are propagated by dividing the roots or by young cuttings in spring, or by seeds.

CAMPBELL, ALEXANDER (1788-1866), American religious leader, was born near Ballymena, Co. Antrim, Ireland, on the 12th of September 1788, and was the son of Thomas Campbell (1763-1854), a schoolmaster and clergyman of the Presbyterian “Seceders.” Alexander in 1809, after a year at Glasgow University, joined his father in Washington, Pennsylvania, where the elder Campbell had just formed the Christian Association of Washington, “for the sole purpose of promoting simple evangelical Christianity.” With his father’s desire for Church unity the son agreed. He began to preach in 1810, refusing any salary; in 1811 he settled in what is now Bethany, West Virginia, and was licensed by the Brush Run Church, as the Christian Association was now called. In 1812, urging baptism by immersion upon his followers by his own

example, he took his father's place as leader of the Disciples of Christ (*q.v.*, popularly called Christians, Campbellites and Reformers). He seemed momentarily to approach the doctrinal position of the Baptists, but by his statement, "I will be baptized only into the primitive Christian faith," by his iconoclastic preaching and his editorial conduct of *The Christian Baptist* (1823-1830), and by the tone of his able debates with Paedobaptists, he soon incurred the disfavour of the Redstone Association of Baptist churches in western Pennsylvania, and in 1823 his followers transferred their membership to the Mahoning Association of Baptist churches in eastern Ohio, only to break absolutely with the Baptists in 1830. Campbell, who in 1829 had been elected to the Constitutional Convention of Virginia by his anti-slavery neighbours, now established *The Millennial Harbinger* (1830-1865), in which, on Biblical grounds, he opposed emancipation, but which he used principally to preach the imminent Second Coming, which he actually set for 1866, in which year he died, on the 4th of March, at Bethany, West Virginia, having been for twenty-five years president of Bethany College. He travelled, lectured, and preached throughout the United States and in England and Scotland; debated with many Presbyterian champions, with Bishop Purcell of Cincinnati and with Robert Owen; and edited a revision of the New Testament.

See Thomas W. Grafton's *Alexander Campbell, Leader of the Great Reformation of the Nineteenth Century* (St Louis, 1897).

CAMPBELL, BEATRICE STELLA (Mrs Patrick Campbell) (1865-), English actress, was born in London, her maiden name being Tanner, and in 1884 married Captain Patrick Campbell (d. 1900). After having appeared on the provincial stage she first became prominent at the Adelphi theatre, London, in 1892, and next year created the chief part in Pinero's *Second Mrs Tanqueray* at the St James's, her remarkable impersonation at once putting her in the first rank of English actresses. For some years she displayed her striking dramatic talent in London, playing notably with Mr Forbes Robertson in Davidson's *For the Crown,* and in *Macbeth*; and her *Magda* (Royalty, 1900) could hold its own with either Bernhardt or Duse. In later years she paid successful visits to America, but in England played chiefly on provincial tours.

CAMPBELL, GEORGE (1719-1796), Scottish theologian, was born at Aberdeen on the 25th of December 1719. His father, the Rev. Colin Campbell, one of the ministers of Aberdeen, the son of George Campbell of Westhall, who claimed to belong to the Argyll branch of the family, died in 1728, leaving a widow and six children in somewhat straitened circumstances. George, the youngest son, was destined for the legal profession, and after attending the grammar school of Aberdeen and the arts classes at Marischal College, he was sent to Edinburgh to serve as an apprentice to a writer to the Signet. While at Edinburgh he attended the theological lectures, and when the term of his apprenticeship expired, he was enrolled as a regular student in the Aberdeen divinity hall. After a distinguished career he was, in 1746, licensed to preach by the presbytery of Aberdeen. From 1748 to 1757 he was minister of Banchory Ternan, a parish on the Dee, some 20 m. from Aberdeen. He then transferred to Aberdeen, which was at the time a centre of considerable intellectual activity. Thomas Reid was professor of philosophy at King's College; John Gregory (1724-1773), Reid's predecessor, held the chair of medicine; Alexander Gerard (1728-1795) was professor of divinity at Marischal College; and in 1760 James Beattie (1735-1803) became professor of moral philosophy in the same college. These men, with others of less note, formed themselves in 1758 into a society for the discussions of questions in philosophy. Reid was its first secretary, and Campbell one of its founders. It lasted till about 1773, and during this period numerous papers were read, particularly those by Reid and Campbell, which were afterwards expanded and published.

In 1759 Campbell was made principal of Marischal College. In 1763 he published his celebrated *Dissertation on Miracles*, in which he seeks to show, in opposition to Hume, that miracles are capable of proof by testimony, and that the miracles of Christianity are sufficiently attested. There is no contradiction, he argues, as Hume said there was, between what we know by testimony and the evidence upon which a law of nature is based; they are of a different description indeed, but we can without inconsistency believe that both are true. The *Dissertation* is not a complete treatise upon miracles, but with all deductions it was and still is a valuable contribution to theological literature. In 1771 Campbell was elected professor of theology at Marischal College, and resigned his city charge, although he still preached as minister of Greyfriars, a duty then attached to the chair. His *Philosophy of Rhetoric*, planned at Banchory Ternan years before, appeared in 1776, and at once took a high place among books on the subject. In 1778 his last and in some respects his greatest work appeared, *A New Translation of the Gospels*. The critical and explanatory notes which accompanied it gave the book a high value.

In 1795 he was compelled by increasing weakness to resign the offices he held in Marischal College, and on his retirement he received a pension of £300 from the king. He died on the 31st of March 1796.

His *Lectures on Ecclesiastical History* were published after his death with a biographical notice by G.S. Keith; there is a uniform edition of his works in 6 vols.

CAMPBELL, JOHN (1708-1775), Scottish author, was born at Edinburgh on the 8th of March 1708. Being designed for the legal profession, he was sent to Windsor, and apprenticed to an attorney; but his tastes soon led him to abandon the study of law and to devote himself entirely to literature. In 1736 he published the *Military History of Prince Eugene and the Duke of Marlborough*, and soon after contributed several important articles to the *Ancient Universal History*. In 1742 and 1744 appeared the *Lives of the British Admirals*, in 4 vols., a popular work which has been continued by other authors. Besides contributing to the *Biographia Britannica* and Dodsley's *Preceptor*, he published a work on *The Present State of Europe*, onsisting of a series of papers which had appeared in the *Museum*. He also wrote the histories of the Portuguese, Dutch, Spanish, French, Swedish, Danish and Ostend settlements in the East Indies, and the histories of Spain, Portugal, Algarve, Navarre and France, from the time of Clovis till 1656, for the *Modern Universal History*. At the request of Lord Bute, he published a vindication of the peace of Paris concluded in 1763, embodying in it a descriptive and historical account of the New Sugar Islands in the West Indies. By the king he was appointed agent for the provinces of Georgia in 1755. His last and most elaborate work, *Political Survey of Britain*, 2 vols. 4to, was published in 1744, and greatly increased the author's reputation. Campbell died on the 28th of December 1775. He received the honorary degree of LL.D. from the university of Glasgow in 1745.

CAMPBELL, JOHN CAMPBELL, Baron (1779-1861), lord chancellor of England, the second son of the Rev. George Campbell, D.D., was born on the 17th of September 1779 at Cupar, Fife, where his father was for fifty years parish minister. For a few years Campbell studied at the United College, St Andrews. In 1800 he was entered as a student at Lincoln's Inn, and, after a short connexion with the *Morning Chronicle*, was called to the bar in 1806, and at once began to report cases decided at *nisi prius* (*i.e.* on jury trial). Of these *Reports* he published altogether four volumes, with learned notes; they extend from Michaelmas 1807 to Hilary 1816. Campbell also devoted himself a good deal to criminal business, but in spite of his unceasing industry he failed to attract much attention behind the bar; he had changed his circuit from the home to the Oxford, but briefs came in slowly, and it was not till 1827 that he obtained a silk gown and found himself in that "front rank" who are permitted to have political aspirations. He unsuccessfully contested the borough of Stafford in 1826, but was elected for it in 1830 and again in 1831. In the House he showed an extraordinary, sometimes an excessive zeal for public business, speaking on all subjects with practical sense, but on none with eloquence or spirit. His main object, however, like that of Brougham, was the amelioration of the law, more by the abolition of cumbrous technicalities than by the assertion of new and striking principles.

Thus his name is associated with the Fines and Recoveries Abolition Act 1833; the Inheritance Act 1833; the Dower Act 1833; the Real Property Limitation Act 1833; the Wills Act 1837; one of the Copyhold Tenure Acts 1841; and the Judgments Act 1838. All these measures were important and were carefully drawn; but their merits cannot be explained in a biographical notice. The second was called for by the preference which the common law gave to a distant collateral over the brother of the half-blood of the first purchaser; the fourth conferred an indefeasible title on adverse possession for twenty years (a term shortened by Lord Cairns in 1875 to twelve years); the fifth reduced the number of witnesses required by law to attest wills, and removed the vexatious distinction which existed in this respect between freeholds and copyholds; the last freed an innocent debtor from imprisonment only before final judgment (or on what was termed *mesne* process), but the principle stated by Campbell that only fraudulent debtors should be imprisoned was ultimately given effect to for England and Wales in 1869.[1] In one of his most cherished objects, however, that of Land Registration (*q.v.*), which formed the theme of his maiden speech in parliament, Campbell was doomed to disappointment. His most important appearance as member for Stafford was in defence of Lord John Russell's first Reform Bill (1831). In a temperate and learned speech, based on Fox's declaration against constitution-mongering, he supported both the enfranchising and the disfranchising clauses, and easily disposed of the cries of "corporation robbery," "nabob representation," "opening for young men of talent," &c. The following year (1832) found Campbell solicitor-general, a knight and member for Dudley, which he represented till 1834. In that year he became attorney-general and was returned by Edinburgh, for which he sat till 1841.[2]

His political creed declared upon the hustings there was that of a moderate Whig. He maintained the connexion of church and state, and opposed triennial parliaments and the ballot. In parliament he continued to lend the most effective help to the Liberal party. His speech in 1835 in support of the motion for inquiry into the Irish Church temporalities with a view to their partial appropriation for national purposes (for disestablishment was not then dreamed of as possible) contains much terse argument, and no doubt contributed to the fall of Peel and the formation of the Melbourne cabinet. The next year Campbell had a fierce encounter with Lord Stanley in the debate which followed the motion of T. Spring Rice (afterwards Lord Monteagle) on the repair and maintenance of parochial churches and chapels. The legal point in the dispute (which Campbell afterwards made the subject of a separate pamphlet) was whether the church-wardens of the parish, in the absence of the vestry, had any means of enforcing a rate except the antiquated interdict or ecclesiastical censure. It was not on legal technicalities, however, but on the broad principle of religious equality, that Campbell supported the abolition of church rates, in which he included the Edinburgh annuity-tax.

In the same year he spoke for Lord Melbourne, in the action (thought by some to be a political conspiracy[3]) which the Hon. G.C. Norton brought against the Whig premier for criminal conversation with his wife. At this time also he exerted himself for the reform of justice in the ecclesiastical courts, for the uniformity of the law of marriage (which he held should be a purely civil contract) and for giving prisoners charged with felony the benefit of counsel. His defence of *The Times* newspaper, which had accused Sir John Conroy, equerry to the duchess of Kent, of misappropriation of money (1838), is chiefly remarkable for the Confession—"I despair of any definition of libel which shall exclude no publications which ought to be suppressed, and include none which ought to be permitted." His own definition of blasphemous libel was enforced in the prosecution which, as attorney-general, he raised against the bookseller H. Hetherington, and which he justified on the singular ground that "the vast bulk of the population believe that morality depends entirely on revelation; and if a doubt could be raised among them that the ten commandments were given by God from Mount Sinai, men would think they were at liberty to steal, and women would consider themselves absolved from the restraints of chastity." But his most distinguished effort at the bar was undoubtedly the speech for the House of Commons in the famous case of *Stockdale v. Hansard*, 1837, 7 C. and P. 731. The Commons had ordered to be printed, among other papers, a report of the inspectors of prisons on Newgate, which stated that an obscene book, published by Stockdale, was given to the prisoners to read. Stockdale sued the Commons' publisher, and was met by the plea of parliamentary privilege, to which, however, the judges did not give effect, on the ground that they were entitled to define the privileges of the Commons, and that publication of papers was not essential to the functions of parliament. The matter was settled by an act of 1840.

In 1840 Campbell conducted the prosecution against John Frost, one of the three Chartist leaders who attacked the town of Newport, all of whom were found guilty of high treason. We may also mention, as matter of historical interest, the case before the high steward and the House of Lords which arose out of the duel fought on Wimbledon Common between the earl of Cardigan and Captain Harvey Tuckett. The law of course was clear that the "punctilio which swordsmen falsely do call honour" was no excuse for wilful murder. To the astonishment of everybody, Lord Cardigan escaped from a capital charge of felony because the full name of his antagonist (Harvey Garnett Phipps Tuckett) was not legally proved. It is difficult to suppose that such a blunder was not preconcerted. Campbell himself made the extraordinary declaration that to engage in a duel which could not be declined without infamy (*i.e.* social disgrace) was "an act free from moral turpitude," although the law properly held it to be wilful murder. Next year, as the Melbourne administration was near its close, Plunkett, the venerable chancellor of Ireland, was forced by discreditable pressure to resign, and the Whig attorney-general, who had never practised in equity, became chancellor of Ireland, and was raised to the peerage with the title of Baron Campbell of St Andrews, in the county of Fife. His wife, Mary Elizabeth Campbell, the eldest daughter of the first Baron Abinger by one of the Campbells of Kilmorey, Argyllshire, whom he had married in 1821, had in 1836 been created Baroness Stratheden in recognition of the withdrawal of his claim to the mastership of the rolls. The post of chancellor Campbell held for only sixteen days, and then resigned it to his successor Sir Edward Sugden (Lord St Leonards). The circumstances of his appointment and the erroneous belief that he was receiving a pension of £4000 per annum for his few days' court work brought Campbell much unmerited obloquy.[4] It was during the period 1841-1849, when he had no legal duty, except the self-imposed one of occasionally hearing Scottish appeals in the House of Lords, that the unlucky dream of literary fame troubled Lord Campbell's leisure.[5]

Following in the path struck out by Miss Strickland in her *Lives of the Queens of England*, and by Lord Brougham's *Lives of Eminent Statesmen*, he at last produced, in 1849, *The Lives of the Lord Chancellors and Keepers of the Great Seal of England, from the earliest times till the reign of King George IV.*, 7 vols. 8vo. The conception of this work is magnificent; its execution wretched. Intended to evolve a history of jurisprudence from the truthful portraits of England's greatest lawyers, it merely exhibits the ill-digested results of desultory learning, without a trace of scientific symmetry or literary taste, without a spark of that divine imaginative sympathy which alone can give flesh and spirit to the dead bones of the past, and without which the present becomes an unintelligible maze of mean and selfish ideas. A charming style, a vivid fancy,

exhaustive research, were not to be expected from a hard-worked barrister; but he must certainly be held responsible for the frequent plagiarisms, the still more frequent inaccuracies of detail, the colossal vanity which obtrudes on almost every page, the hasty insinuations against the memory of the great departed who were to him as giants, and the petty sneers which he condescends to print against his own contemporaries, with whom he was living from day to day on terms of apparently sincere friendship.

These faults are painfully apparent in the lives of Hardwicke, Eldon, Lyndhurst and Brougham, and they have been pointed out by the biographers of Eldon and by Lord St Leonards.[6] And yet the book is an invaluable repertory of facts, and must endure until it is superseded by something better. It was followed by the *Lives of the Chief Justices of England, from the Norman Conquest till the death of Lord Mansfield*, 8vo, 2 vols., a book of similar construction but inferior merit.

It must not be supposed that during this period the literary lawyer was silent in the House of Lords. He spoke frequently. The 3rd volume of the *Protests of the Lords*, edited by Thorold Rogers (1875), contains no less than ten protests by Campbell, entered in the years 1842-1845. He protests against Peel's Income Tax Bill of 1842; against the Aberdeen Act 1843, as conferring undue power on church courts; against the perpetuation of diocesan courts for probate and administration; against Lord Stanley's absurd bill providing compensation for the destruction of fences to dispossessed Irish tenants; and against the Parliamentary Proceedings Bill, which proposed that all bills, except money bills, having reached a certain stage or having passed one House, should be continued to next session. The last he opposed because the proper remedy lay in resolutions and orders of the House. He protests in favour of Lord Monteagle's motion for inquiry into the sliding scale of corn duties; of Lord Normanby's motion on the queen's speech in 1843, for inquiry into the state of Ireland (then wholly under military occupation); of Lord Radnor's bill to define the constitutional powers of the home secretary, when Sir James Graham opened Mazzini's letters. In 1844 he records a solitary protest against the judgment of the House of Lords in *R.* v. *Millis*, 1844, 10 Cla. and Fin. 534, which affirmed that a man regularly married according to the rites of the Irish Presbyterian Church, and afterwards regularly married to another woman by an episcopally ordained clergyman, could not be convicted of bigamy, because the English law required for the validity of a marriage that it should be performed by an ordained priest.

On the resignation of Lord Denman in 1850, Campbell was appointed chief justice of the queen's bench. For this post he was well fitted by his knowledge of common law, his habitual attention to the pleadings in court and his power of clear statement. On the other hand, at *nisi prius* and on the criminal circuit, he was accused of frequently attempting unduly to influence juries in their estimate of the credibility of evidence. It is also certain that he liked to excite applause in the galleries by some platitude about the "glorious Revolution" or the "Protestant succession." He assisted in the reforms of special pleading at Westminster, and had a recognized place with Brougham and Lyndhurst in legal discussions in the House of Lords. But he had neither the generous temperament nor the breadth of view which is required in the composition of even a mediocre statesman. In 1859 he was made lord chancellor of Great Britain, probably on the understanding that Bethell should succeed as soon as he could be spared from the House of Commons. His short tenure of this office calls for no remark. In the same year he published in the form of a letter to Payne Collier an amusing and extremely inconclusive essay on Shakespeare's legal acquirements. One passage will show the conjectural Drocess which runs through the book: "If Shakespeare was really articled to a Stratford attorney, in all probability, during the five years of his clerkship, he visited London several times on his master's business, and he may then have been introduced to the green-room at Blackfriars by one of his countrymen connected with that theatre." The only positive piece of evidence produced is the passage from Thomas Nash's "Epistle to the Gentlemen of the Two Universities," prefixed to Greene's *Arcadia*, 1859, in which he upbraids somebody (not known to be Shakespeare) with having left the "trade of Noverint" and busied himself with "whole Hamlets" and "handfuls of tragical speeches." The knowledge of law shown in the plays is very much what a universal observer must have picked up. Lawyers always underestimate the legal knowledge of an intelligent layman. Campbell died on the 23rd of June 1861. It has been well said of him in explanation of his success, that he lived eighty years and preserved his digestion unimpaired. He had a hard head, a splendid constitution, tireless industry, a generally judicious temper. He was a learned, though not a scientific lawyer, a faithful political adherent, thoroughly honest as a judge, dutiful and happy as a husband. But there was nothing admirable or heroic in his nature. On no great subject did his principles rise above the commonplace of party, nor had he the magnanimity which excuses rather than aggravates the faults of others. His life was the triumph of steady determination unaided by a single brilliant or attractive quality.

AUTHORITIES.—*Life of Lord Campbell, a Selection from his Autobiography, Diary and Letters*, ed. by Hon. Mrs Hardcastle (1881); E. Foss, *The Judges of England* (1848-1864); W.H. Bennet, *Select Biographical Sketches from Note-books of a Law Reporter* (1867); E. Manson, *Builders of our Law* (ed. 1904); J.B. Atlay, *The Victorian Chancellors*, vol. ii. (1908).

1 Two of his later acts, allowing the defendant in an action for libel to prove *veritas*, and giving a right of action to the representatives of persons killed through negligence, also deserve mention.

2 Greville in his *Memoirs* says that Campbell got this post on condition that he should not expect the ordinary promotion to the bench; a condition which, it if were so, he immediately violated by claiming the vice-chancellorship on the death of Sir John Leach. Pepys (Lord Cottenham) and Bickersteth (Lord Langdale) were both promoted to the bench in preference to Campbell.

3 "There can be no doubt that old Wynton was at the bottom of it all, and persuaded Lord Grantley to urge it on for mere political purposes."—Greville, iii. 351.

4 See thereon J.B. Atlay, *The Victorian Chancellors* (1908), vol. ii. p. 174.

5 In 1842 he published the *Speeches of Lord Campbell at the Bar and in the Home of Commons, with an Address to the Irish Bar as Lord Chancellor of Ireland* (Edin., Black).

6 It was of this book that Sir Charles Wetherell said, referring to its author, "and then there is my noble and biographical friend who has added a new terror to death." See *Misrepresentations in Campbell's "Lives of Lyndhurst and Brougham" corrected by St Leonards* (London, 1869).

CAMPBELL, JOHN FRANCIS, of Islay (1822-1885), Gaelic scholar, was born on the 29th of December 1822, heir to the beautiful Isle of Islay, on the west coast of Argyllshire. Of this inheritance he never became possessed, as the estate had to be sold by his father, and he began life under greatly changed conditions. Educated at Eton and at Edinburgh University, he occupied at various times several minor government posts. His leisure was largely employed in collecting, translating and editing the folklore of the western Highlands, taken down from the lips of the natives. The results of his investigations were published in four volumes under the title *Popular Tales of the West Highlands* (1860-1862), and form a most important contribution to the subject, the necessary precursor to the subsequent Gaelic revival in Great Britain. Campbell was also devoted to geology and other scientific pursuits, and he invented the sunshine recorder, used in most of the British meteorological stations. He died at Cannes on the 17th of February 1885.

CAMPBELL, JOHN McLEOD (1800-1872), Scottish divine, son of the Rev. Donald Campbell, was born at Kilninver, Argyllshire, in 1800. Thanks to his father he was already a good Latin scholar when he went to Glasgow University in 1811. Finishing his course in 1817, he became a student at the Divinity Hall, where he gained some reputation as a Hebraist. After further training at Edinburgh he was licensed as preacher by the presbytery of Lorne in 1821. In 1825 he was appointed to the parish of Row on the Gareloch. About this time the doctrine of Assurance of Faith powerfully influenced him. He began to give so much prominence to the universality of the Atonement that his parishioners went so far as to petition the presbytery in 1829. This petition was withdrawn, but a subsequent appeal in March 1830 led to a presbyterial visitation followed by an accusation of heresy. The General Assembly by which the charge was ultimately considered found Campbell guilty of teaching heretical doctrines and deprived him of his living. Declining an invitation to join Edward Irving in the Catholic Apostolic Church, he worked for two years as an evangelist in the Highlands. Returning to Glasgow in 1843, he was minister for sixteen years in a large chapel erected for him, but he never attempted to found a sect. In 1856 he published his famous book on *The Nature of the Atonement*, which has profoundly influenced all writing on the subject since his time. His aim is to view the Atonement in the light of the Incarnation. The divine mind in Christ is the mind of perfect sonship towards God and perfect brotherhood towards men. By the light of this divine fact the Incarnation is seen to develop itself naturally and necessarily as an atonement; the penal element in the sufferings of Christ is minimized. Subsequent critics have pointed out that Campbell's position was not self-consistent in the place assigned to the penal and expiatory element in the sufferings of Christ, nor adequate in its recognition of the principle that the obedience of Christ perfectly affirms all righteousness and so satisfies the holiness of God. In 1859 his health gave way, and he advised his congregation to join the Barony church, where Norman McLeod was pastor. In 1862 he published *Thoughts on Revelation*. In 1868 he received the degree of D.D. from Glasgow University. In 1870 he removed to Roseneath, and there began his *Reminiscences and Reflections*, an unfinished work published after his death by his son. Campbell was greatly loved and esteemed by a circle of friends, which included Thomas Erskine, Norman McLeod, Bishop Alexander Ewing, F.D. Maurice, D.J. Vaughan, and he lived to be recognized and honoured as a man whose opinion on theological subjects carried great weight. In 1871 a testimonial and address were presented to him by representatives of most of the religious bodies in Scotland. He died on the 27th of February 1872, and was buried in Roseneath churchyard.

(D. Mn.)

CAMPBELL, LEWIS (1830-1908), British classical scholar, was born at Edinburgh on the 3rd of September 1830. His father, Robert Campbell, R.N., was a first cousin of Thomas Campbell, the poet. He was educated at Edinburgh Academy, and Glasgow and Oxford universities. He was fellow and tutor of Queen's College, Oxford (1855-1858), vicar of Milford, Hants (1858-1863), and professor of Greek and Gifford lecturer at the university of St Andrews (1863-1894). In 1894 he was elected an honorary fellow of Balliol. As a scholar he is best known by his work on Sophocles and Plato. His published works include: Sophocles (2nd ed., 1879); Plato, *Sophistes* and *Politicus* (1867), *Theaetetus* (2nd ed., 1883), *Republic* (with Jowett, 1894); *Life and Letters of Benjamin Jowett* (with E. Abbott, 1897), *Letters of B. Jowett* (1899); *Life of James Clerk Maxwell* (with W. Garnett, new ed., 1884); *A Guide to Greek Tragedy for English Readers* (1891); *Religion in Greek Literature* (1898); *On the Nationalisation of the Old English Universities* (1901); Verse translations of the plays of Aeschylus (1890); Sophocles (1896); *Tragic Drama in Aeschylus, Sophocles and Shakespeare* (1904); *Paralipomena Sophoclea* (1907). He died on the 25th of October 1908.

CAMPBELL, REGINALD JOHN (1867-), British Congregationalist divine, son of a United Free Methodist minister of Scottish descent, was born in London, and educated at schools in Bolton and Nottingham, where his father successively removed, and in Belfast, the home of his grandfather. At an early age he taught in the high school at Ashton, Cheshire, and was already married when in 1891 he went to Christchurch, Oxford, where he graduated in 1895 in the honours school of modern history. He had gone to Oxford with the intention of becoming a clergyman in the Church of England, but in spite of the influence of Bishop Gore, then head of the Pusey House, and of Dean Paget (afterwards bishop of Oxford), his Scottish and Irish Nonconformist blood was too strong, and he abandoned the idea in order to take up work in the Congregational ministry. He accepted a call, on leaving Oxford, to the small Congregational church in Union Street, Brighton, and quickly became famous there as a preacher, so much so that on Joseph Parker's death he was chosen as his successor (1903) at the City Temple, London. Here he notably enhanced his popularity as a preacher, and became one of the recognized leaders of Nonconformist opinion. At the end of 1906 he attracted widespread attention by his vigorous propagation of what was called the "New Theology," a restatement of Christian beliefs to harmonize with modern critical views and beliefs, and published a book with this title which gave rise to considerable discussion.

CAMPBELL, THOMAS (1777-1844), Scottish poet, eighth son of Alexander Campbell, was born at Glasgow on the 27th of July 1777. His father, who was a cadet of the family of Campbell of Kirnan, Argyllshire, belonged to a Glasgow firm trading in Virginia, and lost his money in consequence of the American war. Campbell was educated at the grammar school and university of his native town. He won prizes for classics and for verse-writing, and the vacations he spent as a tutor in the western Highlands. His poem "Glenara" and the ballad of "Lord Ullin's Daughter" owe their origin to a visit to Mull. In May 1797 he went to Edinburgh to attend lectures on law. He supported himself by private teaching and by writing, towards which he was helped by Dr Robert Anderson, the editor of the *British Poets*. Among his contemporaries in Edinburgh were Sir Walter Scott, Henry Brougham, Francis Jeffrey, Dr Thomas Brown, John Leyden and James Grahame. To these early days in Edinburgh may be referred "The Wounded Hussar," "The Dirge of Wallace" and the "Epistle to Three Ladies." In 1799, six months after the publication of the *Lyrical Ballads* of Wordsworth and Coleridge, *The Pleasures of Hope* was published. It is a rhetorical and didactic poem in the taste of his time, and owed much to the fact that it dealt with topics near to men's hearts, with the French Revolution, the partition of Poland and with negro slavery. Its success was instantaneous, but Campbell was deficient in energy and perseverance and did not follow it up. He went abroad in June 1800 without any very definite aim, visited Klopstock at Hamburg, and made his way to Regensburg, which was taken by the French three days after his arrival. He found refuge in a Scottish monastery. Some of his best lyrics, "Hohenlinden," "Ye Mariners of England" and "The Soldier's Dream," belong to his German tour. He spent the winter in Altona, where he met an Irish exile, Anthony McCann, whose history suggested "The Exile of Erin."[1] He had at that time the intention of writing an epic on Edinburgh to be entitled "The Queen of the North." On the outbreak of war between Denmark and

England he hurried home, the “Battle of the Baltic” being drafted soon after. At Edinburgh he was introduced to the first Lord Minto, who took him in the next year to London as occasional secretary. In June 1803 appeared a new edition of the *Pleasures of Hope*, which some lyrics were added.

In 1803 Campbell married his second cousin, Matilda Sinclair, and settled in London. He was well received in Whig society, especially at Holland House. His prospects, however, were slight when in 1805 he received a government pension of £200. In that year the Campbells removed to Sydenham. Campbell was at this time regularly employed on the *Star* newspaper, for which he translated the foreign news. In 1809 he published a narrative poem in the Spenserian stanza, “Gertrude of Wyoming,” with which were printed some of his best lyrics. He was slow and fastidious in composition, and the poem suffered from over-elaboration. Francis Jeffrey wrote to the author: “Your timidity or fastidiousness, or some other knavish quality, will not let you give your conceptions glowing, and bold, and powerful, as they present themselves; but you must chasten, and refine, and soften them, forsooth, till half their nature and grandeur is chiselled away from them. Believe me, the world will never know how truly you are a great and original poet till you venture to cast before it some of the rough pearls of your fancy.” In 1812 he delivered a series of lectures on poetry in London at the Royal Institution; and he was urged by Sir Walter Scott to become a candidate for the chair of literature at Edinburgh University. In 1814 he went to Paris, making there the acquaintance of the elder Schlegel, of Baron Cuvier and others. His pecuniary anxieties were relieved in 1815 by a legacy of £4000. He continued to occupy himself with his *Specimens of the British Poets*, the design of which had been projected years before. The work was published in 1819. It contains on the whole an admirable selection with short lives of the poets, and prefixed to it an essay on poetry containing much valuable criticism. In 1820 he accepted the editorship of the *New Monthly Magazine*, and in the same year made another tour in Germany. Four years later appeared his “Theodric”, a not very successful poem of domestic life. He took an active share in the foundation of the university of London, visiting Berlin to inquire into the German system of education, and making recommendations which were adopted by Lord Brougham. He was elected lord rector of Glasgow University three times (1826-1829). In the last election he had Sir Walter Scott for a rival. Campbell retired from the editorship of the *New Monthly Magazine* in 1830, and a year later made an unsuccessful venture with the *Metropolitan Magazine*. He had championed the cause of the Poles in *The Pleasures of Hope*, and the news of the capture of Warsaw by the Russians in 1831 affected him as if it had been the deepest of personal calamities. “Poland preys on my heart night and day,” he wrote in one of his letters, and his sympathy found a practical expression in the foundation in London of the Association of the Friends of Poland. In 1834 he travelled to Paris and Algiers, where he wrote his *Letters from the South* (printed 1837).

The small production of Campbell may be partly explained by his domestic calamities. His wife died in 1828. Of his two sons, one died in infancy and the other became insane. His own health suffered, and he gradually withdrew from public life. He died at Boulogne on the 15th of June 1844, and was buried in Westminster Abbey.

Campbell’s other works include a *Life of Mrs Siddons* (1842), and a narrative poem, “The Pilgrim of Glencoe” (1842). See *The Life and Letters of Thomas Campbell* (3 vols., 1849), edited by William Beattie, M.D.; *Literary Reminiscences and Memoirs of Thomas Campbell* (1860), by Cyrus Redding; *The Poetical Works of Thomas Campbell* (1875), in the Aldine Edition of the British Poets, edited by the Rev. W. Alfred Hill, with a sketch of the poet’s life by William Allingham; and the “Oxford Edition” of the *Complete Works of Thomas Campbell* (1908), edited by J. Logie Robertson. See also *Thomas Campbell* in the Famous Scots Series, by J.C. Hadden, and a selection by Lewis Campbell (1904) for the Golden Treasury Series.

1 The original authorship of this poem was by many people assigned to G. Nugent Reynolds. Campbell’s claim is established in *Literary Remains of the United, Irishmen*, by R.R. Madden (1887).

CAMPBELL-BANNERMAN, SIR HENRY (1836-1908), English prime minister, was born on the 7th of September 1836, being the second son of Sir James Campbell, Bart., of Stracathro, Forfarshire, lord provost of Glasgow. His elder brother James, who just outlived him, was Conservative M.P. for Glasgow and Aberdeen Universities from 1880 to 1906. Both his father and his uncle William Campbell, who had together founded an important drapery business in Glasgow, left him considerable fortunes; and he assumed the name of Bannerman in 1872, in compliance with the provisions of the will of his maternal uncle, Henry Bannerman, from whom he inherited a large property in Kent. He was educated at Glasgow University and at Trinity College, Cambridge (senior optime, and classical honours); was returned to parliament for Stirling as a Liberal in 1868 (after an unsuccessful attempt at a by-election); and became financial secretary at the war office (1871-1874; 1880-1882), secretary to the admiralty (1882-1884), and chief secretary for Ireland (1884-1885). When Mr Gladstone suddenly adopted the cause of Home Rule for Ireland, he “found salvation”, to use his own phrase, and followed his leader. In Mr Gladstone’s 1886 ministry he was secretary for war, and filled the same office in the Liberal ministry of 1892-1895. In the latter year he was knighted (G.C.B.). It fell to his lot as war minister to obtain the duke of Cambridge’s resignation of the office of commander-in-chief; but his intended appointment of a chief of the staff in substitution for that office was frustrated by the resignation of the ministry. It was an imputed omission on the part of the war office, and therefore of the war minister, to provide a sufficient supply of small-arms ammunition for the army which on the 21st of June 1895 led to the defeat of the Rosebery government. Wealthy, popular and possessed of a vein of oratorical humour (Mr T. Healy had said that he tried to govern Ireland with Scottish jokes), Sir Henry had already earned the general respect of all parties, and in April 1895, when Mr Speaker Peel retired, his claims for the vacant post were prominently canvassed; but his colleagues were averse from his retirement from active politics and Mr Gully was selected. Though a prominent member of the inner Liberal circle and a stanch party man, it was not supposed by the public at this time that any ambition for the highest place could be associated with Sir Henry Campbell-Bannerman; but the divisions among the Liberals, and the rivalry between Lord Rosebery and Sir William Harcourt, made the political situation an anomalous one. The very fact that he was apparently unambitious of personal supremacy combined with his honourable record and experience to make him a safe man; and in December 1898, on Sir W. Harcourt’s formal resignation of the leadership of the Opposition, he was elected to fill the position in the House of Commons with the general assent of the party. In view of its parliamentary impotence, and its legacy of an unpopular Home Rule programme, Sir Henry had a difficult task to perform, but he prudently interpreted his duty as chiefly consisting in the effort to keep the Radical party together in the midst of its pronounced differences. In this he was successful, although the advent of the Boer War of 1899-1902 created new difficulties with the Liberal Imperialists. The leader of the Opposition from the first denounced the diplomatic steps taken by Lord Milner and Mr Chamberlain, and objected to all armed intervention or even preparation for hostilities. Sir Henry’s own tendency to favour the anti-war section, his refusal to support the government in any way, and his allusion to “methods of barbarism” in connexion with the conduct of the British army (June 14, 1901), accentuated the crisis within the party; and in 1901 the Liberal Imperialists, who looked to Lord Rosebery (*q.v.*) and Mr Asquith (*q.v.*) for their political inspiration, showed pronounced signs of restiveness. But a party meeting was called on the 9th of July, and Sir Henry was unanimously confirmed in the leadership.

The end of the war in 1902 showed the value of his persistency throughout the years of Liberal unpopularity and disunion. The political conflict once more resumed its normal condition, for the first time since 1892. The blunders of the

government were open to a united attack, and Mr Chamberlain's tariff-reform movement in 1903 provided a new rallying point in defence of the existing fiscal system. In the Liberal campaign on behalf of free trade the real leader, however, was Mr Asquith. Sir Henry's own principal contribution to the discussion was rather unfortunate, for while insisting on the blessings derived by England from its free-trade policy, he coupled this with the rhetorical admission (at Bolton in 1903) that "12,000,000 British citizens were underfed and on the verge of hunger." But Lord Salisbury's retirement, Unionist divisions, the staleness of the ministry, and the accumulating opposition in the country to the Education Act of 1902 and to the continued weight of taxation, together with the growth of the Labour movement, and the antagonism to the introduction of Chinese coolies (1904) into South Africa under conditions represented by Radical spokesmen as those of "slavery," made the political pendulum swing back. A Liberal majority at the dissolution was promised by all the signs at by-elections. The government held on, but collapse was only a question of time (see the articles on Balfour, A.J., and Chamberlain, J.). On the 4th of December 1905 the Unionist government resigned, and the king sent for Sir Henry Campbell-Bannerman, who in a few days formed his cabinet. Lord Rosebery, who until a short time before had seemed likely to co-operate, alone held aloof. In a speech at Stirling on the 23rd of November, Sir Henry appeared to him to have deliberately flouted his well-known susceptibilities by once more writing Home Rule in large letters on the party programme, and he declared at Bodmin that he would "never serve under that banner." Sir Henry's actual words, which undoubtedly influenced the Irish vote, were that he "desired to see the effective management of Irish affairs in the hands of a representative Irish assembly. If an instalment of representative control was offered to Ireland, or any administrative improvement, he would advise the Nationalists to accept it, provided it was consistent and led up to their larger policy." But if Lord Rosebery once more separated himself from the official Liberals, his principal henchmen in the Liberal League were included in the cabinet, Mr Asquith becoming chancellor of the exchequer, Sir Edward Grey foreign secretary, and Mr Haldane war minister. Other sections of the party were strongly represented by Mr John Morley as secretary for India, Mr Bryce (afterwards ambassador at Washington) as chief secretary for Ireland, Sir R.T. Reid (Lord Loreburn) as lord chancellor, Mr Augustine Birrell as education minister (afterwards Irish secretary), Mr Lloyd-George as president of the Board of Trade, Mr Herbert Gladstone as home secretary, and Mr John Burns—a notable rise for a Labour leader—as president of the Local Government Board. Lord Ripon became leader in the House of Lords; and Lord Elgin (colonial secretary), Lord Carrington (agriculture), Lord Aberdeen (lord lieutenant of Ireland), Sir Henry Fowler (chancellor of the duchy of Lancaster), Mr Sidney Buxton (postmaster-general), Mr L.V. Harcourt (first commissioner of works), and Captain John Sinclair (secretary for Scotland) completed the ministry, a place of prominence outside the cabinet being found for Mr Winston Churchill as under-secretary for the colonies. In 1907 Mr R. McKenna was brought into the cabinet as education minister. There had been some question as to whether Sir Henry Campbell-Bannerman should go to the House of Lords, but there was a decided unwillingness in the party, and he determined to keep his seat in the Commons.

At the general election in January 1906 an overwhelming Liberal majority was returned, irrespective of the Labour and Nationalist vote, and Sir Henry himself was again elected for Stirling. The Liberals numbered 379, the Labour members 51, the Nationalists 83, and the Unionists only 157. His premiership was the reward of undoubted services rendered to his party; it may be said, however, that, in contradistinction to the prime ministers for some time previous, he represented the party, rather than that the party represented him. It was not his ideas or his commanding personality, nor any positive programme, that brought the Liberals back to power, but the country's weariness of their predecessors and the successful employment at the elections of a number of miscellaneous issues. But as the man who had doggedly, yet unpretentiously, filled the gap in the days of difficulty, and been somewhat contemptuously criticized by the Unionist press for his pains, Sir Henry was clearly marked out for the post of prime minister when his party got its chance; and, as the head of a strongly composed cabinet, he satisfied the demands of the situation and was accepted as leader by all sections. Once prime minister, his personal popularity proved to be a powerful unifying influence in a somewhat heterogeneous party; and though the illness and death (August 30, 1906) of his wife (daughter of General Sir Charles Bruce), whom he had married in 1860, made his constant attendance in the House of Commons impossible, his domestic sorrow excited widespread sympathy and appealed afresh to the affection of his political followers. This became all the more apparent as his own health failed during 1907; for, though he was obliged to leave much of the leadership in the Commons to Mr Asquith, his possible resignation of the premiership was strongly deprecated; and even after November, when it became clear that his health was not equal to active work, four or five months elapsed before the necessary change became a *fait accompli*. Personal affection and political devotion had in these two years made him appear indispensable to the party, although nobody ever regarded him as in the front line of English statesmen so far as originality of ideas or brilliance of debating power were concerned. It is not the fortune of many more brilliant statesmen to earn this testimonial to character. From the beginning of the session of 1908 it was evident, however, that Mr Asquith, who was acting as deputy prime minister, would before long succeed to the Liberal leadership; and on the 5th of April Sir Henry Campbell-Bannerman's resignation was formally announced. He died on the 22nd of the same month. He had spoken in the House of Commons on the 13th of February, but since then had been prostrated and unable to transact business, his illness dating really from a serious heart attack in the night of the 13th of November at Bristol, after a speech at the Colston banquet.

From a party-political point of view the period of Sir Henry Campbell-Bannerman's premiership was chiefly marked by the continued controversies remaining from the general election of 1906,—tariff reform and free trade, the South African question and the allied Liberal policy for abolishing Chinese labour, the administration of Ireland, and the amendment of the Education Act of 1902 so as to remove its supposed denominational character. In his speech at the Albert Hall on the 21st of December 1905 it was noticeable that, before the elections, the prime minister laid stress on only one subject which could be regarded as part of a constructive programme—the necessity of doing something for canals, which was soon shelved to a royal commission. But in spite of the fiasco of the Irish Councils Bill (1907), the struggles over education (Mr Birrell's bill of 1906 being dropped on account of the Lords' amendments), the rejection by the peers of the Plural Voting Abolition Bill (1906), and the failure (again due to the Lords) of the Scottish Small Holdings Bill and Valuation Bill (1907), which at the time made his premiership appear to be a period of bitter and unproductive debate, a good many reforming measures of some moment were carried. A new Small Holdings Act (1907) for England was passed; the Trades Disputes Act (1906) removed the position of trades unions from the controversy excited over the Taff Vale decision; Mr Lloyd-George's Patents Act (1907) and Merchant Shipping Act (1906) were welcomed by the tariff reformers as embodying their own policy; a long-standing debate was closed by the passing of the Deceased Wife's Sister Act (1907); and acts for establishing a public trustee, a court of criminal appeal, a system of probation for juvenile offenders, and a census of production, were passed in 1907. Meanwhile, though the Colonial Conference (re-named Imperial) of 1907 showed that there was a wide difference of opinion on the tariff question between the free-trade government and the colonial premiers, in one part of the empire the ministry took a decided step—in the establishment of a self-governing constitution for the Transvaal and Orange River colonies—which, for good or ill, would make the period memorable. Mr Haldane's new army scheme was no less epoch-making in Great Britain. In foreign affairs, the conclusion of a treaty with Russia for delimiting the British and Russian spheres of influence in the Middle East laid the foundations of entirely new relations between the British and Russian governments. On the other hand, so far as concerned the ultimate fortunes of the Liberal party, Sir Henry Campbell-Bannerman's premiership can only be regarded as a period of marking time. He had become its leader as a conciliator of the various sections, and it was as a conciliator, ready to sympathize with the strong views of all sections of his following, that he kept the party together, while his colleagues went their own ways in their own departments. His own special "leads" were few, owing to the personal reasons given above; his declaration at the Queen's Hall, London, early in 1907, in favour of drastic land reform, served only to encourage a number of extremists; and the Liberal enthusiasm against the House of Lords, violently excited in 1906 by the fate of the Education Bill and Plural Voting Bill, was rather damped than otherwise, when his method of procedure by resolution of the House of Commons was disclosed in 1907. The House

passed by an enormous majority a resolution (introduced on June 25) “that in order to give effect to the will of the people, as expressed by their representatives, it is necessary that the power of the other House to alter or reject bills passed by this House should be so restricted by law as to secure that within the limits of a single parliament the final decision of the Commons shall prevail”; but the prime minister’s explanation that statutory provision should be made for two or three successive private conferences between the two Houses as to any bill in dispute at intervals of about six months, and that, only after that, the bill in question should be finally sent up by the Commons with the intimation that unless passed in that form it would become law over their heads, was obviously not what was wanted by enthusiastic opponents of the second chamber. The problem still remained, how to get the House of Lords to pass a “law” to restrict their own powers. After the passing of this resolution the cry against the House of Lords rapidly weakened, since it became clear at the by-elections (culminating at Peckham in March 1908) that the “will of the people” was by no means unanimously on the side of the bills which had failed to pass.

The result of the two years was undoubtedly to revive the confidence of the Opposition, who found that they had outlived the criticisms of the general election, and both on the question of tariff reform and on matters of general politics were again holding their own. The failure of the government in Ireland (where the only success was Mr Birrell’s introduction of the Universities Bill in April 1908), their internal divisions as regards socialistic legislation, their variance from the views of the self-governing colonies on Imperial administration, the admission after the general election that the alleged “slavery” of the Chinese in the Transvaal was, in Mr Winston Churchill’s phrase, a “terminological inexactitude,” and the introduction of extreme measures such as the Licensing Bill of 1908, offered excellent opportunities of electioneering attack. Moreover, the Liberal promises of economy had been largely falsified, the reductions in the navy estimates being dangerous in themselves, while the income tax still remained at practically the war level. For much of all this the prime minister’s colleagues were primarily responsible; but he himself had given a lead to the anti-militarist section by prominently advocating international disarmament, and the marked rebuff to the British proposals at the Hague conference of 1907 exposed alike the futility of this Radical ideal and the general inadequacy of the prime minister’s policy of pacificism. Sir Henry’s rather petulant intolerance of Unionist opposition, shown at the opening of the 1906 session in his dismissal of a speech by Mr Balfour with the words “Enough of this foolery!” gradually gave way before the signs of Unionist reintegration. His resignation took place at a moment when the Liberal, Irish and Labour parties were growing restive under their obligations, government policy stood in need of concentration against an Opposition no longer divided and making marked headway in the country, and the ministry had to be reconstituted under a successor, Mr Asquith, towards whom, so far, there was no such feeling of personal devotion as had been the chief factor in Sir Henry Campbell-Bannerman’s leadership.

(H. Ch.)

CAMPBELTOWN, a royal, municipal and police burgh, and seaport of Argyllshire, Scotland. Pop. (1901) 8286. It is situated on a fine bay, towards the S.E. extremity of the peninsula of Kintyre, 11 m. N.E. of the Mull and 83 m. S.W. of Glasgow by water. The seat of the Dalriad monarchy in the 6th or 7th century, its importance declined when the capital was transferred to Forteviot. No memorial of its antiquity has survived, but the finely sculptured granite cross standing on a pedestal in the market-place belongs to the 12th century, and there are ruins of some venerable chapels and churches. Through the interest of the Campbells, who are still the overlords and from whom it takes its name, it became a royal burgh in 1700. It was the birthplace of the Rev. Dr Norman Macleod (1812). The chief public buildings are the churches (one of which occupies the site of a castle of the Macdonalds), the town house, the Academy and the Athenaeum. The staple industry is whisky distilling, of which the annual output is 2,000,000 gallons, more than half for export. The port is the head of a fishery district and does a thriving trade. Shipbuilding, net and rope-making, and woollen manufacturing are other industries, and coal is mined in the vicinity. There are three piers and a safe and capacious harbour, the bay, called Campbeltown Loch, measuring 2 m. in length by 1 in breadth. At its entrance stands a lighthouse on the island of Davaar. On the Atlantic shore is the splendid golf-course of Machrihanish, 5 m. distant. Machrihanish is connected with Campbeltown by a light railway. Near the village of Southend is Machrireoch, the duke of Argyll’s shooting-lodge, an old structure modernized, commanding superb views of the Firth of Clyde and its islands, and of Ireland. On the rock of Dunaverty stood the castle of Macdonald of the Isles, who was dispossessed by the Campbells in the beginning of the 17th century. At this place in 1647 General David Leslie is said to have ordered 300 of the Macdonalds to be slain after their surrender. Of the ancient church founded here by Columba, only the walls remain. Campbeltown unites with Ayr, Inveraray, Irvine and Oban in sending one member (for the “Ayr Burghs”) to parliament.

CAMPE, JOACHIM HEINRICH (1746-1818), German educationist, was born at Deensen in Brunswick in 1746. He studied theology at the university of Halle, and after acting for some time as chaplain at Potsdam, he accepted a post as director of studies in the Philanthropin at Dessau (see Basedow). He soon after set up an educational establishment of his own at Trittow, near Hamburg, which he was obliged to give up to one of his assistants within a few years, in consequence of feeble health. In 1787 he proceeded to Brunswick as counsellor of education, and purchased the *Schulbuchhandlung*, which under his direction became a most prosperous business. He died in 1818. His numerous educational works were widely used throughout Germany. Among the most popular were the *Kleine Kinderbibliothek* (11th ed., 1815); *Robinson der Jüngere* (59th ed., 1861), translated into English and into nearly every European language; and *Sämmtliche Kinder- und Jugendschriften*, 37 vols.

CAMPECHE (Campeachy), a southern state of Mexico, comprising the western part of the peninsula of Yucatan, bounded N. and E. by Yucatan, S. by Guatemala, S.W. by Tabasco and N.W. by that part of the Gulf of Mexico designated on English maps as the Bay of Campeachy. Pop. (1895) 87,264; (1900) 86,542, mostly Indians and mestizos. Area, 18,087 sq. m. The name of the state is derived from its principal forest product, *palo de campeche* (logwood). The surface, like that of Yucatan, consists of a vast sandy plain, broken by a group of low elevations in the north, heavily forested in the south, but with open tracts in the north adapted to grazing. The northern part is insufficiently watered, the rains filtering quickly through the soil. In the south, however, there are some large rivers, and the forest region is very humid. The climate is hot and unhealthy. In the north-west angle of the state is the Laguna de Términos, a large tide-water lake, which receives the drainage of the southern districts. Among the products and exports are logwood, fustic, lignum-vitae, mahogany, cedar,

hides, tortoiseshell and *chicle*, the last extracted from the *zapote chico* trees (*Achras sapota*, L.). Stock-raising engages some attention. One railway crosses the state from the capital, Campeche, to Merida, Yucatan, but there are no other means of transportation except the rivers and mule-paths. The port of Carmen (pop. in 1900, about 6000), on a sand key between the Laguna de Términos and the Gulf, has an active trade in dyewoods and other forest products, and owing to its inland water communications with the forest areas of the interior is the principal port of the state and of Tabasco.

CAMPECHE, or Campeche de Baranda, a fortified city and port of Mexico, and capital of a state of the same name, situated on the Bay of Campeche, 825 m. E. of the city of Mexico and 90 m. S.W. of Merida, in lat. 20° 5′ N., long. 90° 16′ W. Pop. (1900) 17,109. Campeche was one of the three open ports of this coast under the Spanish régime, and its walls, general plan, fine public edifices, shady squares and comfortable stone residences are evidence of the wealth it once possessed. It is still one of the most attractive towns on the Gulf coast of Mexico. It had a monopoly of the Yucatan trade and enjoyed large profits from its logwood exports, both of which have been largely lost. It was formerly the principal port for the state and for a part of Yucatan, but the port of Carmen at the entrance to Laguna de Términos is now the chief shipping port for logwood and other forest products, and a considerable part of the trade of Campeche has been transferred to Progreso, the port of Merida. The port of Campeche is a shallow roadstead defended by three forts and protected by a stone pier or wharf 160 ft. long, but vessels drawing more than 9 ft. are compelled to lie outside and discharge cargo into lighters. The exports include logwood, cotton, hides, wax, tobacco, salt and cigars of local manufacture. The principal public buildings are the old citadel, some old churches, the town hall, a handsome theatre, hospital and market. The streets are traversed by tramways, and a railway runs north-eastward to Merida. Campeche stands on the site of an old native town, of which there are interesting remains in the vicinity, and which was first visited by Hernández de Córdoba in 1517. The Spanish town was founded in 1540, and was sacked by the British in 1659 and by buccaneers in 1678 and 1685. During the revolution of 1842 Campeche was the scene of many engagements between the Mexicans and people of Yucatan.

CAMPEGGIO, LORENZO (1464-1539), Italian cardinal, was born at Milan of a noble Bolognese family. At first he followed a legal career at Pavia and Bologna, and when in 1499 he took his doctorate he was esteemed the most learned canonist in Europe. In 1500 he married Francesca de' Gualtavillani, by whom he had five children, one of whom, Allessandro, born in 1504, became cardinal in 1551, and another, Gianbaptista, became bishop of Minorca. His wife dying in 1510, he went into the church; on account of his services during the rebellion of Bologna, he was made by Julius II. auditor of the Rota in 1511, and sent to Maximilian and to Vienna as nuncio. Raised to the see of Feltre in 1512, he went on another embassy to Maximilian in 1513, and was created cardinal priest of San Tommaso in Pavione, 27th of June 1517. Leo X., needing a subsidy from the English clergy, sent Campeggio to England on the ostensible business of arranging a crusade against the Turks. Wolsey, then engaged in beginning his reform of the English church, procured that he himself should be joined to the legation as senior legate; thus the Italian, who arrived in England on the 23rd of July 1518, held a subordinate position and his special legatine faculties were suspended. Campeggio's mission failed in its immediate object; but he returned to Rome, where he was received in Consistory on the 28th of November 1519, with the gift from the king of the palace of Cardinal Adriano Castellesi (*q.v.*), who had been deposed, and large gifts of money and furniture. He was made protector of England in the Roman curia; and in 1524 Henry VIII. gave him the rich see of Salisbury, and the pope the archbishopric of Bologna. After attending the diet of Regensburg, he shared the captivity of Clement VII. during the sack of Rome in 1527 and did much to restore peace. On the 1st of October 1528 he arrived in England as co-legate with Wolsey in the matter of Henry's divorce. He brought with him a secret document, the Decretal, which defined the law and left the legates to decide the question of fact; but this important letter was to be shown only to Henry and Wolsey. "Owing to recent events," that is, the loss of the temporal power, Clement was in no way inclined to offend the victorious Charles V., Catherine's nephew, and Campeggio had already received (16th of September 1528) distinct instructions "not to proceed to sentence under any pretext without express commission, but protract the matter as long as possible." After using all means of persuasion to restore peace between the king and queen, Campeggio had to resist the pressure brought upon him to give sentence. The legatine court opened at Blackfriars on the 18th of June 1529, but the final result was certain. Campeggio could not by the terms of his commission give sentence; so his only escape was to prorogue the court on the 23rd of July on the plea of the Roman vacation. Having failed to satisfy the king, he left England on the 26th of October 1529, after his baggage had been searched at Dover to find the Decretal, which, however, had been burnt. Returning to Bologna, the cardinal assisted at the coronation of Charles V. on the 24th of February 1530, and went with him to the diet of Augsburg. He was deprived by Henry of the English protectorate; and when sentence was finally given against the divorce, Campeggio was deprived of the see of Salisbury as a non-resident alien, by act of parliament (11th of March 1535); but his rich benefices in the Spanish dominions made ample amends. In 1537 he became cardinal bishop of Sabina, and died in Rome on the 25th of July 1539. His tomb is in the church of S. Maria in Trastevere.

(E. Tn.)

CAMPER, PETER (1722-1789), Dutch anatomist and naturalist, was born at Leiden on the 11th of May 1722. He was educated at the university there, and in 1746 graduated in philosophy and medicine. After the death of his father in 1748 he spent more than a year in England, and then visited Paris, Lyons and Geneva, and returned to Franeker, where in 1750 he had been appointed to the professorship of philosophy, medicine and surgery. He visited England a second time in 1752, and in 1755 he was called to the chair of anatomy and surgery at the Athenaeum in Amsterdam. He resigned this post after six years, and retired to his country house near Franeker, in order uninterruptedly to carry on his studies. In 1763, however, he accepted the professorship of medicine, surgery and anatomy at Groningen, and continued in the chair for ten years. He then returned to Franeker, and after the death of his wife in 1776 spent some time in travelling. In 1762 he had been returned as one of the deputies in the assembly of the province of Friesland, and the latter years of his life were much occupied with political affairs. In 1787 he was nominated to a seat in the council of state, and took up his residence at the Hague, where he died on the 7th of April 1789.

Camper's works, mainly memoirs and detached papers, are very numerous; the most important of those bearing on comparative anatomy were published in 3 vols. at Paris in 1803, under the title *Oeuvres de P. Camper qui ont pour objet l'histoire naturelle, la physiologie, et l'anatomie comparée*. His *Dissertation physique sur les différences réelles que présentent les traits du visage chez les hommes de différents pays et de différents âges; sur le beau qui caractérise les*

statues antiques et les pièces gravées, &c., which was published in 1781 both in Dutch and in French, contains an account of the facial angle which he used as a cranial characteristic. (See also ANATOMY.)

CAMPHAUSEN, OTTO VON (1812-1896), Prussian statesman, was born at Hünshoven in the Rhine Provinces on the 21st of October 1812. Having studied jurisprudence and political economy at the universities of Bonn, Heidelberg, Munich and Berlin, he entered the legal career at Cologne, and immediately devoted his attention to financial and commercial questions. Nominated assessor in 1837, he acted for five years in this capacity at Magdeburg and Coblenz, became in 1845 counsellor in the ministry of finance, and was in 1849 elected a member of the second chamber of the Prussian diet, joining the Moderate Liberal party. In 1869 he was appointed minister of finance. On taking office, he was confronted with a deficit in the revenue, which he successfully cleared off by effecting a conversion of a greater part of the state loans. The French war indemnity enabled him to redeem a considerable portion of the state debt and to remit certain taxes. He was, however, a too warm adherent of free trade principles to enjoy the confidence either of the Agrarian party or of Prince Bismarck, and his antagonism to the tobacco monopoly and the general economic policy of the latter brought about his retirement. Camphausen's great services to Prussia were recognized by his sovereign in the bestowal of the order of the Black Eagle in 1895, a dignity carrying with it a patent of nobility. He died at Berlin on the 18th of May 1896.

CAMPHAUSEN, WILHELM (1818-1885), German painter, was born at Düsseldorf, and studied under A. Rethel and F.W. von Schadow. As an historical and battle painter he rapidly became popular, and in 1859 was made professor of painting at the Düsseldorf academy, together with other later distinctions. His "Flight of Tilly" (1841), "Prince Eugene at the Battle of Belgrade" (1843; in the Cologne museum), "Flight of Charles II. after the Battle of Worcester" (Berlin National Gallery), "Cromwell's Cavalry" (Munich Pinakothek), are his principal earlier pictures; and his "Frederick the Great at Potsdam," "Frederick II. and the Bayreuth Dragoons at Hohenfriedburg," and pictures of the Schleswig-Holstein campaign and the war of 1866 (notably "Lines of Düppel after the Battle," at the Berlin National Gallery), made him famous in Germany as a representative of patriotic historical art. He also painted many portraits of German princes and celebrated soldiers and statesmen. He died at Düsseldorf on the 16th of June 1885.

CAMPHORS, organic chemical compounds, the alcohols and ketones of the hydrocarbons known as terpenes, occurring associated with volatile oils in many plants. They are extracted together with volatile oils by distilling certain plants with steam, the volatile oils being subsequently separated by fractional distillation. The term "camphor" is generally applied to the solid products so obtained, and hence includes the "stearoptenes," or solid portions of the volatile oils. They are mostly white crystalline solids, possessing a characteristic odour; they are sparingly soluble in water, but readily dissolve in alcohol and ether. Chemically, the camphors may be divided into two main groups, according to the nature of the corresponding hydrocarbon or terpene. In this article only the camphors of commercial importance will be treated; details as to the chemical structure, syntheses and relations will be found in the article TERPENES.

Menthol, mentha or peppermint camphor, $C_{10}H_{19}OH$, 5-methyl-2-isopropyl hexahydrophenol, an oxyhexahydrocymene, occurs in the volatile oils of *Mentha piperita* and *M. arvensis* (var. *piperascens* and *glabrata*), from which it is obtained by cooling and subsequently pressing the separated crystals; or by fractional distillation. It crystallizes in prisms, having the odour and taste of peppermint; it melts at 42° and boils at 212°. It is very slightly soluble in water, but readily dissolves in alcohol and ether. It is optically active, being laevo-rotatory. Menthol is used in medicine to relieve pain, as in rheumatism, neuralgia, throat affections and toothache. It acts also as a local anaesthetic, vascular stimulant and disinfectant.

Thymol, thyme camphor, $C_{10}H_{13}OH$, 3-methyl-6-isopropyl phenol, an oxycymene, occurs in the volatile oil of Ajowan, *Carum ajowan*, garden thyme, *Thymus vulgaris*, wild thyme, *T. Serpyllum* and horse mint, *Monarda punctata*. Thymol crystallizes in large colourless plates which melt at 44° and boil at 230°. It has the odour of thyme, is sparingly soluble in water, but very soluble in alcohol, ether and in alkaline solutions. In medicine it is used as an antiseptic, being more active than phenol. Iodine and potash convert it into di-iodthymol, which has been introduced in surgery under the names *aristol* and *annidalin*, as a substitute for iodoform.

Borneol, Borneo camphor or camphol, also known as Malayan, Barus or Dryobalanops camphor, $C_{10}H_{17}OH$, occurs in fissures in the wood of *Dryobalanops aromatica*, a majestic tree flourishing in the East Indies. This product is dextro-rotatory; the laevo and inactive modifications occur in the so-called baldrianic camphor. Borneol melts at 203° and boils at 212°. It is very similar to common or Japan camphor, but has a somewhat peppery odour. Sodium and alcohol reduce common camphor to a mixture of *d*- and *l*-borneol.

Common camphor, Japan or Laurel camphor, $C_{10}H_{16}O$, which constitutes the bulk of the camphor of commerce, is the product of the camphor laurel, *Cinnamonum camphora*, a tree flourishing in Japan, Formosa and central China. It also occurs in various volatile oils, *e.g.* lavender, rosemary, sage and spike. To extract the camphor, chips of the tree are steamed, and the mixed vapours of camphor, volatile oils and water are conducted to a condensing plant, where most of the camphor separates out. This is filtered, and the remainder, about 20% of the total, which is retained in solution, is extracted by fractional distillation and cooling the distillate. The crude camphor so obtained is exported from Japan in two grades—Samuel A and Samuel B. It is purified by mixing with a little charcoal, sand, iron filings or quicklime and subliming, by steam distillation or by crystallization. Common camphor forms a translucent mass of hexagonal prisms, melting at 175° and boiling at 204°. It sublimes very readily. In alcoholic solution it is dextro-rotatory; the laevo form, Matricaria camphor, occurs in the oil of *Matricaria parthenium* and closely resembles the *d* form. Camphor is chiefly used in the celluloid industry. The so-called "artificial camphor" is pinene hydrochloride (see TERPENES).

Externally applied it acts medicinally as a counter-irritant, and, in some degree, as a local anaesthetic, being also a definite antiseptic. It is, therefore, largely used in liniments for the relief of myalgia, sciatica, lumbago, etc. Combined with chloroform, thymol or carbolic acid, it is a valuable local application for neuralgia and for toothache due to dental caries. Taken internally, camphor is a nerve stimulant, a diaphoretic and a feeble antipyretic. It is excreted by the kidneys as various substances, including campho-glycuric acid (Schmiedeberg). In large doses it causes marked nervous symptoms, exhilaration being followed by abdominal pain, violent epileptiform convulsions, coma and death. Its internal uses are in

hysteria, and in such conditions as diarrhoea, dysentery and cholera. It is a popular remedy for “cold in the head,” but it is not to be relied upon as a prophylactic against infection either by an ordinary cold or true influenza.

CAMPHUYSEN, DIRK RAFELSZ (1586-1627), Dutch painter, poet and theologian, was the son of a surgeon at Gorcum. As he manifested great artistic talent, his brother, in whose charge he was left on the death of his parents, placed him under the painter Govaerts. But at that time there was intense interest in theology; and Camphuysen, sharing in the prevailing enthusiasm, deserted the pursuit of art, to become first a private tutor and afterwards minister of Vleuten near Utrecht(1616). As, however, he had embraced the doctrines of Arminius with fervour, he was deprived of this post and driven into exile (1619). His chief solace was poetry; and he has left a translation of the Psalms, and a number of short pieces, remarkable for their freshness and depth of poetic feeling. He is also the author of several theological works of fair merit, among which is a *Compendium Doctrinae Sociniorum*; but his fame chiefly rests on his pictures, which, like his poems, are mostly small, but of great beauty; the colouring, though thin, is pure; the composition and pencilling are exquisite, and the perspective above criticism. The best of his works are his sunset and moonlight scenes and his views of the Rhine and other rivers. The close of his life was spent at Dokkum. His nephew Raphael (b. 1598) is by some considered to have been the author of several of the works ascribed to him; and his son Govaert (1624-1674), a follower or imitator of Paul Potter, is similarly credited.

CAMPI, GIULIO (1500-1572), the founder of a school of Italian painters, was born at Cremona. He was son of a painter, Galeazzo Campi (1475-1536), under whom he took his first lessons in art. He was then taught by Giulio Romano; and he made a special study of Titian, Correggio and Raphael. His works are remarkable for their correctness, vigour and loftiness of style. They are very numerous, and the church of St Margaret in his native town owes all its paintings to his hand. Among the earliest of his school are his brothers, Vincenzo and Antonio, the latter of whom was also of some mark as a sculptor and as historian of Cremona.

Giulio’s pupil, Bernardino Campi (1522-1592), in some respects superior to his master, began life as a goldsmith. After an education under Giulio Campi and Ippolito Corta, he attained such skill that when he added another to the eleven Caesars of Titian, it was impossible to say which was the master’s and which the imitator’s. He was also much influenced by Correggio and Raphael. His principal work is seen in the frescoes of the cupola at San Sigismondo, at Cremona.

CAMPILLO, JOSÉ DEL (1695-1743), Spanish statesman, was of very obscure origin. From his own account of his youth, written to Antonio de Mier in 1726, we only know that he was born in “a house equally poor and honest,” that he studied Latin by his own wish, that he entered the service of Don Antonio Maldonado, prebendary of Córdoba, who wished apparently to train him as a priest, and that he declined to take orders. He left the service of Maldonado in 1713, being then eighteen years of age. In 1715 he became “page” to D. Francisco de Ocio, superintendent general of customs, who doubtless employed him as a clerk. In 1717 he attracted the favourable notice of Patiño, the head of the newly-organized navy, and was by him transferred to the naval department. Under the protection of Patiño, who became prime minister in 1726, Campillo was constantly employed on naval administrative work both at home and in America. It was Patiño’s policy to build up a navy quietly at home and in America, without attracting too much attention abroad, and particularly in England. Campillo proved an industrious and honest subordinate. Part of his experience was to be present at a shipwreck in Central America in which he was credited with showing spirit and practical ability in saving the lives of the crew. In 1726 he was denounced to the Inquisition for the offence of reading forbidden books. The proceedings against him were not carried further, but the incident is an example of the vexatious tyranny exercised by the Holy Office, and the effect it must have had even in its decadence in damping all intellectual activity. It was not until in 1741, when Spain was entangled in a land war in Italy and a naval war with England, that Campillo was summoned by the king to take the place of prime minister. He had to find the means of carrying on a policy out of all proportion to the resources of Spain, with an empty treasury. His short tenure of power was chiefly notable for his vigorous attempt to sweep away the system of farming the taxes, which left the state at the mercy of contractors and financiers. Campillo’s predecessors were constantly compelled to apply to capitalists to provide funds to meet the demands of the king for his buildings and his foreign policy. A whole year’s revenue was frequently forestalled. Campillo persuaded the king to allow him to establish a system of direct collection, by which waste and pilfering would be avoided. Some progress was made towards putting the national finances on a sound footing, though Campillo could not prevent the king from disposing, without his knowledge, of large sums of money needed for the public service. He died suddenly on the 11th of April 1743. Campillo was the author of a treatise on a *New System of Government for America* printed at Madrid 1789. He also left a MS. treatise with the curious title, *What is superfluous and is wanting in Spain, in order that it may be what it ought to be, and not what it is.*

See D. Antonio Rodriquez Villa, *Patiño y Campillo* (Madrid, 1882).

CAMPINAS, an inland city of the state of São Paulo, Brazil, 65 m. by rail N.W. of the city of São Paulo and 114 m. from the port of Santos, with which it is connected by the Paulista & São Paulo railway. Pop. (1890) of the city and municipality, 33,921. Campinas is the commercial centre of one of the oldest coffee-producing districts of the state and the outlet for a rich and extensive agricultural region lying farther inland. The Mogyana railway starts from this point and extends north to Uberaba, Minas Geraes, while the Paulista lines extend north-west into new and very fertile regions. Coffee is the staple production, though Indian corn, mandioca and fruit are produced largely for local consumption. The city is built in a bowl-like depression of the great central plateau, and the drainage from the surrounding hillsides has produced a dangerously insanitary condition, from which one or two virulent fever epidemics have resulted.

CAMPING OUT. The sport of abandoning ordinary house-life, and living in tents, touring in vans, boats, &c., has been elaborately developed in modern times, and a considerable literature has been devoted to it, to which the curious may be referred.

See, for Europe, A.A. Macdonell's *Camping-out* (1892) and *Voyages on German Rivers* (1890); G.R. Lowndes, *Gipsy Tents* (1890).

For Australia and Africa, W.B. Lord, *Shifts and Expedients of Camp Life* (1871); the articles by F.J. Jackson in the *Big Game Shooting* volume of the "Badminton Library"; the articles on "Camping out" in *The Encyclopaedia of Sport*; F.C. Selous, *A Hunter's Wanderings in Africa* (1881), and *Travel and Adventure in South Africa* (1893); A.W. Chanler, *Through Jungle and Desert* (1896); A.B. Rathbone, *Camping and Tramping in Malaya* (1898).

For America, G.O. Shields, *Camping and Camp Outfits* (1890); W.W. Pascoe, *Canoe and Camp Cookery* (1893); *Woodcraft*, by "Nessmuk" (1895); W.S. Rainsford, *Camping and Hunting in the Shoshone* (1896); S.E. White, *The Forest* (1903), and *The Mountains* (1904); *Suggestions as to Outfit for Tramping and Camping* (1904), published by "The Appalachian Mountain Club," Boston. Valuable information will be found in the sporting periodicals, and in the catalogues of outfitters and dealers in sporting goods.

CAMPION, EDMUND (1540-1581), English Jesuit, was born in London, received his early education at Christ's Hospital, and, as the best of the London scholars, was chosen in their name to make the complimentary speech when Queen Mary visited the city on the 3rd of August 1553. He went to Oxford and became fellow of St John's College in 1557, taking the oath of supremacy on the occasion of his degree in 1564, in which year he was orator in the schools. He had already shown his talents as a speaker at the funeral of Amy Robsart in 1560; and when Sir Thomas White, the founder of the college, was buried in 1564, the Latin oration fell to the lot of Campion. Two years later he welcomed Queen Elizabeth to the university, and won a regard, which the queen preserved until the end. Religious difficulties now began to beset him; but at the persuasion of Edward Cheyney, bishop of Gloucester, although holding Catholic doctrines, he took deacon's orders in the English Church. Inwardly "he took a remorse of conscience and detestation of mind." Rumours of his opinions began to spread and, giving up the office of proctor, he left Oxford in 1569 and went to Ireland to take part in a proposed restoration of the Dublin University. The suspicion of papistry followed him; and orders were given for his arrest. For some three months he eluded pursuit, hiding among friends and occupying himself by writing a history of Ireland (first published in Holinshed's *Chronicles*), a superficial work of no real value. At last he escaped to Douai, where he joined William Allen (*q.v.*) and was reconciled to the Roman Church. After being ordained subdeacon, he went to Rome and became a Jesuit in 1573, spending some years at Brünn, Vienna and Prague. In 1580 the Jesuit mission to England was begun, and he accompanied Robert Parsons (*q.v.*) who, as superior, was intended to counterbalance Campion's fervour and impetuous zeal. He entered England in the characteristic guise of a jewel merchant, arrived in London on the 24th of June 1580, and at once began to preach. His presence became known to the authorities and an indiscreet declaration, "Campion Brag," made the position more difficult. The hue and cry was out against him; henceforth he led a hunted life, preaching and ministering to Catholics in Berkshire, Oxfordshire, Northamptonshire and Lancashire. During this time he was writing his *Decem Rationes*, a rhetorical display of reasons against the Anglican Church. The book was printed in a private press at Stonor Park, Henley, and 400 copies were found on the benches of St Mary's, Oxford, at the Commencement, on the 27th of June 1581. The sensation was immense, and the pursuit became keener. On his way to Norfolk he stopped at Lyford in Berkshire, where he preached on the 14th of July and the following day, yielding to the foolish importunity of some pious women. Here he was captured by a spy and taken to London, bearing on his hat a paper with the inscription, "Campion, the Seditious Jesuit." Committed to the Tower, he was examined in the presence of Elizabeth, who asked him if he acknowledged her to be really queen of England, and on his replying straightly in the affirmative, she made him offers, not only of life but of wealth and dignities, on conditions which his conscience could not allow. He was kept a long time in prison, twice racked by order of the council, and every effort was made to shake his constancy. Despite the effect of a false rumour of retraction and a forged confession, his adversaries in despair summoned him to four public conferences (1st, 18th, 23rd and 27th of September), and although still suffering, and allowed neither time nor books for preparation, he bore himself so easily and readily that he won the admiration of most of the audience. Racked again on the 31st of October, he was indicted at Westminster that he with others had conspired at Rome and Reims to raise a sedition in the realm and dethrone the queen. On the 20th of November he was brought in guilty before Lord Chief Justice Wray; and in reply to him said: "If our religion do make traitors we are worthy to be condemned; but otherwise are and have been true subjects as ever the queen had." He received the sentence of the traitor's death with the *Te Deum laudamus*, and, after spending his last days in pious exercises, was led with two companions to Tyburn (1st of December 1581) and suffered the barbarous penalty. Of all the Jesuit missionaries who suffered for their allegiance to the ancient religion, Campion stands the highest. His life and his aspirations were pure, his zeal true and his loyalty unquestionable. He was beatified by Leo XIII. in 1886.

An admirable biography is to be found in Richard Simpson's *Edmund Campion*(1867); and a complete list of his works in De Backer's *Bibliothèque de la compagnie de Jésus*. (E.TN.)

CAMPION, THOMAS (1567-1620), English poet and musician, was born in London on the 12th of February 1567, and christened at St Andrew's, Holborn. He was the son of John Campion of the Middle Temple, who was by profession one of the cursitors of the chancery court, the clerks "of course," whose duties were to draft the various writs and legal instruments in correct form. His mother was Lucy Searle, daughter of Laurence Searle, one of the queen's serjeants-at-arms. Upon the death of Campion's father in 1576, his mother married Augustine Steward and died herself soon after. Steward acted for some years as guardian of the orphan, and sent him in 1581, together with Thomas Sisley, his stepson by his second wife Anne, relict of Clement Sisley, to Peterhouse, Cambridge, as a gentleman pensioner. He studied at Cambridge for four years, and left the university, it would appear, without a degree, but strongly imbued with those tastes for classical literature which exercised such powerful influence upon his subsequent work. In April 1587 he was admitted to Gray's Inn, possibly with the intention of adopting a legal profession, but he had little sympathy with legal studies and does not appear to have been called to the bar. His subsequent movements are not certain, but in 1591 he appears to have taken part in the French expedition under Essex, sent for the assistance of Henry IV. against the League; and in 1606 he first appears with the degree of doctor of physic, though the absence of records does not permit us to ascertain where this was obtained. The rest of his life was probably spent in London, where he practised as a physician until his death on the 1st of March 1620, leaving behind him, it would appear, neither wife nor issue. He was buried the same day at St Dunstan's-in-the-West, Fleet Street.

The body of his works is considerable, the earliest known being a group of five anonymous poems included in the *Songs of*

Divers Noblemen and Gentlemen, appended to Newman's surreptitious edition of Sidney's *Astrophel and Stella*, which appeared in 1591. In 1595 appeared under his own name the *Poemata*, a collection of Latin panegyrics, elegies and epigrams, which evince much skill in handling, and won him considerable reputation. This was followed in 1601 by *A Booke of Ayres*, one of the song-books so fashionable in his day, the music of which was contributed in equal proportions by himself and Philip Rosseter, while the words were almost certainly all written by him. The following year he published his *Observations in the Art of English Poesie*, "against the vulgar and unartificial custom of riming," in favour of rhymeless verse on the model of classical quantitative poetry. Its appearance at this stage was important as the final statement of the crazy prejudice by one of its sanest and best equipped champions, but the challenge thus thrown down was accepted by Daniel, who in his *Defence of Ryme*, published the same year, finally demolished the movement.

In 1607 he wrote and published a masque for the occasion of the marriage of Lord Hayes, and in 1613 he issued a volume of *Songs of Mourning* (set to music by Coperario or John Cooper) for the loss of Prince Henry, which was sincerely lamented by the whole English nation. The same year he wrote and arranged three masques, the *Lords' Masque* for the marriage of Princess Elizabeth, an entertainment for the amusement of Queen Anne at Caversham House, and a third for the marriage of the earl of Somerset to the infamous Frances Howard, countess of Essex. If, moreover, as appears quite likely, his *Two Bookes of Ayres* (both words and music written by himself) belongs also to this year, it was indeed his *annus mirabilis*.

Some time in or after 1617 appeared his *Third and Fourth Booke of Ayres*; while to that year probably also belongs his *New Way of making Foure Parts in Counter-point*, a technical treatise which was for many years the standard text-book on the subject. It was included, with annotations by Christopher Sympson, in Playfair's *Brief Introduction to the Skill of Musick*, and two editions appear to have been bought up by 1660. In 1618 appeared *The Ayres that were sung and played at Brougham Castle* on the occasion of the king's entertainment there, the music by Mason and Earsden, while the words were almost certainly by Campion; and in 1619 he published his *Epigrammatum Libri II. Umbra Elegiarum liber unus*, a reprint of his 1595 collection with considerable omissions, additions (in the form of another book of epigrams) and corrections.

While Campion had attained a considerable reputation in his own day, in the years that followed his death his works sank into complete oblivion. No doubt this was due to the nature of the media in which he mainly worked, the masque and the song-book. The masque was an amusement at any time too costly to be popular, and with the Rebellion it was practically extinguished. The vogue of the song-books was even more ephemeral, and, as in the case of the masque, the Puritan ascendancy, with its distaste for all secular music, effectively put an end to the madrigal. Its loss involved that of many hundreds of dainty lyrics, including those of Campion, and it is due to the enthusiastic efforts of Mr A.H. Bullen, who first published a collection of the poet's works in 1889, that his genius has been recognized and his place among the foremost rank of Elizabethan lyric poets restored to him.

Campion set little store by his English lyrics; they were to him "the superfluous blossoms of his deeper studies," but we may thank the fates that his precepts of rhymeless versification so little affected his practice. His rhymeless experiments are certainly better conceived than many others, but they lack the spontaneous grace and freshness of his other poetry, while the whole scheme was, of course, unnatural. He must have possessed a very delicate musical ear, for not one of his songs is unmusical; moreover, the fact of his composing both words and music gave rise to a metrical fluidity which is one of his most characteristic features. Rarely indeed are his rhythms uniform, while they frequently shift from line to line. His range was very great both in feeling and expression, and whether he attempts an elaborate epithalamium or a simple country ditty, the result is always full of unstudied freshness and tuneful charm. In some of his sacred pieces he is particularly successful, combining real poetry with genuine religious fervour.

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(P. VN.)

CAMPISTRON, JEAN GALBERT DE (1656-1723), French dramatist, was born at Toulouse of noble family in 1656. At the age of seventeen he was wounded in a duel and sent to Paris. Here he became an ardent disciple of Racine. If he copied his master's methods of construction with some success, in the execution of his plans he never advanced beyond mediocrity, nor did he ever approach the secret of the musical lines of *Athalie* and *Phèdre*. He secured the patronage of the influential duchesse de Bouillon by dedicating *Arminius* to her, and in 1685 he scored his first success with *Andronic*, which disguised under other names the tragic story of Don Carlos and Elizabeth of France. The piece made a great sensation, but Campistron's treatment is weak, and he failed to avail himself of the possibilities inherent in his subject. Racine was asked by Louis Joseph, duc de Vendôme, to write the book of an opera to be performed at a fete given in honour of the Dauphin. He handed on the commission to Campistron, who produced *Acis et Galathée* for Lulli's music. Campistron had another success in *Tiridate* (1691), in which he treated, again under changed names, the biblical story of Amnon's passion for his sister Tamar. He wrote many other tragedies and two comedies, one of which, *Le Jaloux désabusé*, has been considered by some judges to be his best work. In 1686 he had been made intendant to the duc de Vendôme and followed him to Italy and Spain, accompanying him on all his campaigns. If he was not a good poet he was an honest man under circumstances in which corruption was easy and usual. Many honours were conferred on him. The king of Spain bestowed on him the order of St James of the Sword; the duke of Mantua made him marquis of Penango in Montferrat; and in 1701 he was received into the Academy. After thirty years of service with Vendôme he retired to his native place, where he died on the 11th of May 1723.

CAMPOAMOR Y CAMPOOSORIO, RAMON DE (1817-1901), Spanish poet, was born at Navia (Asturias) on the 24th of September 1817. Abandoning his first intention of entering the Jesuit order, he studied medicine at Madrid, found an opening in politics as a supporter of the Moderate party, and, after occupying several subordinate posts, became governor of Castellón de la Plana, of Alicante and of Valencia. His conservative tendencies grew more pronounced with time, and his *Polémicas con la Democracia*(1862) may be taken as the definitive expression of his political opinions. His first appearance as a poet dated from 1840, when he published his *Ternezas y flores*, a collection of idyllic verses, remarkable for their technical excellence. His *Ayes del Alma*(1842) and his *Fábulas morales y políticas*(1842) sustained his reputation, but showed no perceptible increase of power or skill. An epic poem in sixteen cantos, *Colón* (1853), is no more successful than modern epics usually are. Campoamor's theatrical pieces, such as *El Palacio de la Verdad*(1871), *Dies Irae*(1873), *El*

Honor(1874) and *Glorias Humanas*(1885), are interesting experiments; but they are totally lacking in dramatic spirit. He always showed a keen interest in metaphysical and philosophic questions, and defined his position in *La Filosofía de las leyes*(1846), *El Personalismo*(1855), *Lo Absoluto*(1865) and *El Ideísmo*(1883). These studies are chiefly valuable as embodying fragments of self-revelation, and as having led to the composition of those *doloras, humoradas* and *pequeños poemas*, which the poet's admirers consider as a new poetic species. The first collection of *Doloras* was printed in 1846, and from that date onwards new specimens were added to each succeeding edition. It is difficult to define a *dolora*. One critic has described it as a didactic, symbolic stanza which combines the lightness and grace of the epigram, the melancholy of the *endecha*, the concise narrative of the ballad, and the philosophic intention of the apologue. The poet himself declared that a *dolora* is a dramatic *humorada*, and that a *pequeño poema*is a *dolora* on a larger scale. These definitions are unsatisfactory. The humoristic, philosophic epigram is an ancient poetic form to which Campoamor has given a new name; his invention goes no further. It cannot be denied that in the *Doloras* Campoamor's special gifts of irony, grace and pathos find their best expression. Taking a commonplace theme, he presents in four, eight or twelve lines a perfect miniature of condensed emotion. By his choice of a vehicle he has avoided the fatal facility and copiousness which have led many Spanish poets to destruction. It pleased him to affect a vein of melancholy, and this affectation has been reproduced by his followers. Hence he gives the impression of insincerity, of trifling with grave subjects and of using mysticism as a mask for frivolity. The genuine Campoamor is a poet of the sunniest humour who, under the pretence of teaching morality by satire, is really seeking to utter the gay scepticism of a genial, epicurean nature. His influence has not been altogether for good. His formula is too easily mastered, and to his example is due a plague of *doloras* and *humoradas* by poetasters who have caricatured their model. Campoamor, as he himself said, did not practise art for art's sake; he used art as the medium of ideas, and in ideas his imitators are poor. He died at Madrid on the 12th of February 1901. Of late years a deep silence had fallen upon him, and we are in a position to judge him with the impartiality of another generation. The overwhelming bulk of his work will perish; we may even say that it is already dead. His pretensions, or the pretensions put forward in his name, that he discovered a new poetic *genre* will be rejected later, as they are rejected now by all competent judges. The title of a philosophic poet will be denied to him. But he will certainly survive, at least in extract, as a distinguished humorist, an expert in epigrammatic and sententious aphorism, an artist of extremely finished execution.

(J. F.-K.)

CAMPOBASSO, a city of Molise, Italy, the capital of the province of Campobasso, 172 m. E.S.E. of Rome by rail, situated 2132 ft. above sea-level. Pop. (1901) town 11,273; commune 14,491. The town itself contains no buildings of antiquarian interest, but it has some fine modern edifices. Its chief industry is the manufacture of arms and cutlery. Above the town are the picturesque ruins of a castle of the 15th century. The date of the foundation of Campobasso is unknown. The town, with the territory surrounding it, was under the feudal rule of counts until 1739, when it passed to the Neapolitan crown, in consideration of a payment of 108,000 ducats.

CAMPODEA, a small whitish wingless insect with long flexible antennae and a pair of elongated caudal appendages. The best-known species (*Campodea staphylinus*) has a wide distribution and is equally at home in the warm valleys of south Europe, in the subarctic conditions of mountain tops, in caves and in woods and gardens in England. It lives in damp places under stones, fallen trees or in rotten wood and leaves. Although blind, it immediately crawls away on exposure to the light into the nearest crevice or other sheltered spot, feeling the way with its antennae. Its action is characteristically serpentine, recalling that of a centipede. Campodea is one of the bristle-tailed or thysanurous insects of the order Aptera (*q.v.*).

CAMPOMANES, PEDRO RODRIGUEZ, Conde de (1723-1802), Spanish statesman and writer, was born at Santa Eulalia de Sorribia, in Asturias, on the 1st of July 1723. From 1788 to 1793 he was president of the council of Castile; but on the accession of Charles IV. he was removed from his office, and retired from public life, regretted by the true friends of his country. His first literary work was *Antiquidad maritima de la republica de Cartago*, with an appendix containing a translation of the *Voyage of Hanno* the Carthaginian, with curious notes. This appeared in a quarto volume in 1756. His principal works are two admirable essays, *Discurso sobre el fomento de la industria popular*, 1774, and *Discurso sobre la educacion popular de los artesanos y su fomento*, 1775. As a supplement to the last, he published four appendices, each considerably larger than the original essay. The first contains reflections on the origin of the decay of arts and manufactures in Spain during the last century. The second points out the steps necessary for improving or re-establishing the old manufactures, and contains a curious collection of royal ordinances and rescripts regarding the encouragement of arts and manufactures, and the introduction of foreign raw materials. The third treats of the gild laws of artisans, contrasted with the results of Spanish legislation and the municipal ordinances of towns. The fourth contains eight essays of Francisco Martinez de Mata on national commerce, with some observations adapted to present circumstances. These were all printed at Madrid in 1774 and 1777, in five volumes. Count Campomanes died on the 3rd of February 1802.

Don A. Rodriguez Villa has placed a biographical notice of Campomanes as an introduction to the first edition of his *Cartas politico-economicas*, published in 1878.

CAMPOS, ARSENIO MARTINEZ DE (1831-1900), Spanish marshal, senator and knight of the Golden Fleece, was born at Segovia on the 14th of December 1831. He graduated as a lieutenant in 1852, and for some years was attached to the staff college as an assistant professor. He took part in the Morocco campaign of 1850-1860, and distinguished himself in sixteen actions, obtaining the cross of San Fernando, and the rank of lieutenant-colonel. He then returned to the staff college as a professor. Afterwards he joined the expedition to Mexico under Prim. In 1869 he was sent to Cuba, where he was promoted to the rank of general in 1872. On his return to the Peninsula, the Federal Republican government in 1873 confided to General Campos several high commands, in which he again distinguished himself against the Cantonal Republicans and the Carlists. About that time he began to conspire with a view to restore the son of Queen Isabella. Though

Campos made no secret of his designs, Marshal Serrano, in 1874, appointed him to the command of a division which took part in the relief of Bilbao on the 2nd of May of that year, and in the operations around Estella in June. On both occasions General Campos tried in vain to induce the other commanders to proclaim Alphonso XII. He then affected to hold aloof, and would have been arrested, had not the minister of war, Ceballos, answered for his good behaviour, and quartered him in Avila under surveillance. He managed to escape, and after hiding in Madrid, joined General Daban at Sagunto on the 29th of December 1874, where he proclaimed Alphonso XII. king of Spain. From that date he never ceased to exercise great influence in the politics of the restoration. He was considered as a sort of supreme counsellor, being consulted by King Alphonso, and later by his widow, the queen-regent, in every important political crisis, and on every international or colonial question, especially when other generals or the army itself became troublesome. He took an important part in the military operations against the Carlists, and in the negotiations with their leaders, which put an end to the civil war in 1876. In the same way he brought about the pacification of Cuba in 1878. On his return from that island he presided over a Conservative cabinet for a few months, but soon made way for Canovas, whom he ever afterwards treated as the leader of the Conservative party. In 1881, with other discontented generals, he assisted Sagasta in obtaining office. After the death of King Alphonso, Campos steadily supported the regency of Queen Christina, and held high commands, though declining to take office. In 1893 he was selected to command the Spanish army at Melilla, and went to the court of Morocco to make an advantageous treaty of peace, which averted a war. When the Cuban rising in 1895 assumed a serious aspect, he was sent out by the Conservative cabinet of Canovas to cope with the rebellion, but he failed in the field, as well as in his efforts to win over the Creoles, chiefly because he was not allowed to give them local self-government, as he wished. Subsequently he remained aloof from politics, and only spoke in the senate to defend his Cuban administration and on army questions. After the war with America, and the loss of the colonies in 1899, when Señor Silvela formed a new Conservative party and cabinet, the old marshal accepted the presidency of the senate, though his health was failing fast. He held this post up to the time of his death. This took place in the summer recess of 1900 at Zarauz, a village on the coast of Guipuzcoa, where he was buried.

CAMPOS, an inland city of the state of Rio de Janeiro, Brazil, on the Parahyba river, 30 m. from the sea, and about 143 m. N.E. of the city of Rio de Janeiro. Pop. (1890) of the city, 22,518; of the municipality, 78,036. The river is navigable for small steamers above and below the city, but is closed to coast-wise navigation by dangerous sandbars at its mouth. The shipping port for Campos is Imbetiba (near Macahé), 60 m. south-west, with which it is connected by rail. There is also water communication between the two places by means of coastal lakes united by canals. Campos has indirect railway communication with Rio de Janeiro by way of Macahé, and is the starting point for several small independent lines. The elevation of the city is only 69 ft. above sea level, and it stands near the western margin of a highly fertile alluvial plain devoted to the production of sugar. The climate is hot and humid, and many kinds of tropical fruit are produced in abundance.

CÂMPULUNG (also written Campu Lung and Kimpulung), the capital of the department of Muscel, Rumania, and the seat of a suffragan bishop; situated among the outlying hills of the Carpathian Mountains, at the head of a long well-wooded glen traversed by the river Tirgului, a tributary of the Argesh. Pop. (1900) 13,033. Its pure air and fine scenery render Câmpulung a popular summer resort. In the town are more than twenty churches, besides a monastery and a cathedral, which both claim to have been founded, in the 13th century, by Radul Negru, first prince of Walachia. The Tirgului supplies water-power for several paper-mills; annual fairs are held on the 20th of July and the 24th of October; and there is a considerable traffic with Transylvania, over the Torzburg Pass, 15 m. north, and with the south by a branch railway to Ploesci. Near Câmpulung are the remains of a Roman camp; and, just beyond the gates, vestiges of a Roman colony, variously identified with Romula, Stepenium and Ulpia Traiana, but now called Gradistea or Jidovi.

CAMUCCINI, VINCENZO (1773-1844), Italian historical painter, was born at Rome. He was educated by his brother Pietro, a picture-restorer, and Borubelli, an engraver, and, up to the age of thirty, attempted nothing higher than copies of the great masters, his especial study being Raphael. As an original painter, Camuccini belongs to the school of the French artist David. His works are rather the fruits of great cleverness and patient care than of fresh and original genius; and his style was essentially imitative. He enjoyed immense popularity, both personally, and as an artist, and received many honours and preferments from the papal and other Italian courts. He was appointed director of the Academy of San Luca and of the Neapolitan Academy at Rome, and conservator of the pictures of the Vatican. He was also made chevalier of nearly all the orders in Italy, and member of the Legion of Honour. His chief works are the classical paintings of the “Assassination of Caesar,” the “Death of Virginia,” the “Devotion of the Roman Women,” “Young Romulus and Remus,” “Horatius Cocles,” the “St Thomas,” which was copied in mosaic for St Peter’s, the “Presentation of Christ in the Temple” and a number of excellent portraits. He became a rich man, and made a fine collection of pictures which in 1856 were sold, a number of them (including Raphael’s “Madonna with the Pink”) being bought by the duke of Northumberland.

CAMULODUNUM, also written Camalodūnum (mod. Colchester, *q.v.*), a British and Roman town. It was the capital of the British chief Cunobelin and is named on his coins: after his death and the Roman conquest of south Britain, the Romans established (about A.D. 48) a *colonia* or municipality peopled with discharged legionaries, and intended to serve both as an informal garrison and as a centre of Roman civilization. It was stormed and burnt A.D. 61 in the rising of Boadicéa (*q.v.*), but soon recovered and became one of the chief towns in Roman Britain. Its walls and some other buildings still stand and abundant Roman remains enrich the local museum. The name denotes “the fortress of Camulos,” the Celtic Mars.

CAMUS, ARMAND GASTON (1740-1804), French revolutionist, was a successful advocate before the Revolution. In 1789 he was elected by the third estate of Paris to the states general, and attracted attention by his speeches against social inequalities. Elected to the National Convention by the department of Haute-Loire, he was named member of the committee of general safety, and then sent as one of the commissioners charged with the surveillance of General C.F. Dumouriez. Delivered with his colleagues to the Austrians on the 3rd of April 1793, he was exchanged for the daughter of Louis XVI. in November 1795. He played an inconspicuous rôle in the council of the Five Hundred. On the 14th of August 1789 the Constituent Assembly made Camus its archivist, and in that capacity he organized the national archives, classified the papers of the different assemblies of the Revolution and drew up analytical tables of the *procès-verbaux*. He was restored to the office in 1796 and became absorbed in literary work. He remained an austere republican, refusing to take part in the Napoleonic régime.

CAMUS, CHARLES ÉTIENNE LOUIS (1699-1768), French mathematician and mechanician, was born at Crécy-en-Brie, near Meaux, on the 25th of August 1699. He studied mathematics, civil and military architecture, and astronomy, and became associate of the Académie des Sciences, professor of geometry, secretary to the Academy of Architecture and fellow of the Royal Society of London. In 1736 he accompanied Pierre Louis Maupertuis and Alexis Claude Clairaut in the expedition to Lapland for the measurement of a degree of the meridian. He died on the 2nd of February 1768. He was the author of a *Cours de mathématiques* (Paris, 1766), and a number of essays on mathematical and mechanical subjects (see Poggendorff, *Biog.-lit. Handworterbuch*).

CAMUS, FRANÇOIS JOSEPH DES (1672-1732), French mechanician, was born near St Mihiel, on the 14th of September 1672. After studying for the church, he devoted himself to mechanical inventions, a number of which he described in his *Traité des forces mouvantes pour la pratique des arts et métiers*, Paris, 1722. He died in England in 1732.

CAMUS DE MÉZIÈRES, NICOLAS LE (1721-1789), French architect, was born at Paris on the 26th of March 1721, and died it the same city on the 27th of July 1789. He published several works on architectural and related subjects.

CANA, of Galilee, a village of Palestine remarkable as the home of Nathanael, and the scene of Christ's "beginning of miracles" (John ii. I-II, iv. 46-54). Its site is unknown, but it is evident from the biblical narrative that it was in the neighbourhood of, and higher than, Capernaum. Opinion as to identification is fairly divided between Kefr Kenna and Kand-el-Jelil. The former, about 4 m. N.N.E. of Nazareth, contains a ruined church and a small Christian population; the latter is an uninhabited village about 9 m. N. of Nazareth, with no remains but a few cisterns.

CANAAN, CANAANITES. These geographical and ethnic terms have a shifting reference, which doubtless arises out of the migrations of the tribes to which the term "Canaanites" belongs. Thus in Josh. v. 1 the term seems to be applied to a population on the coast of the Mediterranean, and in Josh. xi. 3, Num. xiii. 29 (cf. also Gen. xiii, 12) not only to these, but to a people in the Jordan Valley. In Isa. xxiii. 11 it seems to be used of Phoenicia, and in Zeph. ii. 5 (where, however, the text is disputed) of Philistia. Most often it is applied comprehensively to the population of the entire west Jordan land and its pre-Israelitish inhabitants. This usage is characteristic of the writer called the Yahwist (J); see *e.g.* Gen. xii. 5, xxxiii. 18; Ex. xv. 15; Num. xxxiii. 51; Josh. xxii. 9; Judg. in. i; Ps. cvi. 38, and elsewhere. It was also, as Augustine tells us,[1] a usage of the Phoenicians to call their land "Canaan." This is confirmed by coins of the city of Laodicea by the Lebanon, which bear the legend, "Of Laodicea, a metropolis in Canaan"; these coins are dated under Antiochus IV. (17 5-1648.0.), and his successors, Greek writers, too, tell us a fact of much interest, viz. that the original name of Phoenicia was χνα, *i.e.* Kĕna, a short, collateral form of Kena'an or Kan'an The form Kan'an is favoured by the Egyptian usage. Seti I. is said to have conquered the Shasu, or Arabian nomads, from the fortress of Taru (Shūr?) to "the Ka-n-'-na," and Rameses III. to have built a temple to the god Amen in "the Ka-n-'-na." By this geographical name is probably meant all western Syria and Palestine with Raphia—"the (first) city of the Ka-n-'-na"—for the south-west boundary towards the desert.[2] In the letters sent by governors and princes of Palestine to their Egyptian overlord[3]—commonly known as the Tel-el-Amarna tablets—we find the two forms Kinaḫḫi and Kinahna, corresponding to Kena' and Kena'an respectively, and standing, as Ed. Meyer has shown, for Syria in its widest extent.

On the name "Canaan" Winckler remarks,[4] "There is at present no prospect of an etymological explanation." From the fact that Egyptian (though not Hebrew) scribes constantly prefix the article, we may suppose that it originally meant "the country of the Canaanites," just as the Hebrew phrase "the Lebanon" may originally have meant "the highlands of the Libnites"; and we are thus permitted to group the term "Canaan" with clan-names such as Achan, Akan, Jaakan, Anak (generally with the article prefixed), Kain, Kenan. Nor are scholars more unanimous with regard to the region where the terms "Canaanite" and "Canaan" arose. It may be true that the term Kinaḫḫi in the Amarna letters corresponds to Syria and Palestine in their entirety. But this does not prove that the terms "Canaanite" and "Canaan" arose in that region, for they are presumably much older than the Amarna tablets. Let us refer at this point to a document in Genesis which is perhaps hardly estimated at its true value, the so-called Table of Peoples in Gen. x. Here we find "Canaan" included among the four sons of Ham. If Cush in *v.* 6 really means Ethiopia, and M-ṣ-r-i-m Egypt, and Put the Libyans, and if Ham is really a Hebraized form of the old Egyptian name for Egypt, Kam-t (black),[5] the passage is puzzling in the extreme. But if, as has

recently been suggested,[6] Cush, M-ṣ-r-i-m, and Put are in north Arabia, and Ḥam is the short for Yarḥam or Yeraḥme'el (see i Chr. ii. 25-27, 42), a north Arabian name intimately associated with Caleb, all becomes clear, and Canaan in particular is shown to be an Arabian name. Now it is no mere hypothesis that beginning from about 4000 B.C.[7] a wave of Semitic migration poured out of Arabia, and flooded Babylonia certainly, and possibly, more or less, Syria and Palestine also. Also that between 2800 and 2600 B.C. a second wave from Arabia took the same course, covering not only Babylonia, but also Syria and Palestine and probably also Egypt (the Hyksos). It is soon after this that we meet with the great empire-builder and civilizer, Khammurabi (2267-2213), the first king of a united Babylonia. It is noteworthy that the first part of his name is identical with the name of the father of Canaan in Genesis (Ḥam or Kham), indicating his Arabian origin.[8] It was he, too, who restored the ancient supremacy of Babylonia over Syria and Palestine, and so prevented the Babylonizing of these countries from coming to an abrupt end.

We now understand how the Phoenicians, whose ancestors arrived in the second Semitic migration, came to call their land "Canaan." They had in fact the best right to do so. The first of the Canaanite immigrants were driven seawards by the masses which followed them. They settled in Phoenicia, and in after times became so great in commerce that "Canaanite" became a common Hebrew term for "merchant" (*e.g.* Isa. xxiii. 8). It is a plausible theory that in the conventional language of their inscriptions they preserved a number of geographical and religious phrases which, for them, had no clear meaning, and belonged properly to the land of their distant ancestors, Arabia.[9] For their own traditions as to their origin see Phoenicia; we cannot venture to reject these altogether. The masses of immigrants which followed them may have borne the name of Amorites. A few words on this designation must here be given. Both within and without Palestine the name was famous.

First, as regards the Old Testament. We find "the Amorite" (a collective term) mentioned in the Table of Peoples (Gen. x. 16-18a) among other tribal names, the exact original reference of which had probably been forgotten. No one in fact would gather from this and parallel passages how important a part was played by the Amorites in the early history of Palestine. In Gen. xiv. 7 f., Josh. x. 5 f., Deut. i. 19 ff., 27, 44 we find them located in the southern mountain country, while in Num. xxi. 13, 21 f., Josh. ii 10, ix 10, xxiv. 8, 12, &c. we hear of two great Amorite kings, residing respectively at Heshbon and Ashtaroth on the east of the Jordan. Quite different, however, is the view taken in Gen. xv. 16, xlviii. 22, Josh. xxiv. 15, Judg. i. 34, Am. ii. 9, 10, &c., where the name of Amorite is synonymous with "Canaanite," except that "Amorite" is never used for the population on the coast. Next, as to the extra-Biblical evidence. In the Egyptian inscriptions and in the Amarna tablets Amar and Amurru have a more limited meaning, being applied to the mountain-region east of Phoenicia, extending to the Orontes. Later on, Amurru became the Assyrian term for the interior of south as well as north Palestine, and at a still more recent period the term "the land of Hatti" (conventionally = Hittites) displaced "Amurru" so far as north Palestine is concerned (see Hittites).

Thus the Phoenicians and the Amorites belong to the first stage of the second great Arabian migration. In the interval preceding the second stage Syria with Palestine became an Egyptian dependency, though the links with the sovereign power were not so strong as to prevent frequent local rebellions. Under Thothmes III. and Amen-hotep II. the pressure of a strong hand kept the Syrians and Canaanites sufficiently loyal to the Pharaohs. The reign of Amen-hotep III., however, was not quite so tranquil for the Asiatic province. Turbulent chiefs began to seek their opportunities, though as a rule they did not find them because they could not obtain the help of a neighbouring king.[10] The boldest of the disaffected was Aziru, son of Abdashirta, a prince of Amurru, who even before the death, of Amen-hotep III. endeavoured to extend his power into the plain of Damascus. Akizzi, governor of Katna (near Horns or Hamath), reported this to the Pharaoh who seems to have frustrated the attempt. In the next reign, however, both father and son caused infinite trouble to loyal servants of Egypt like Rib-Addi, governor of Gubla (Gebal).

It was, first, the advance of the Ḥatti (Hittites) into Syria, which began in the time of Amen-hotep III., but became far more threatening in that of his successor, and next, the resumption of the second Arabian migration, which most seriously undermined the Egyptian power in Asia. Of the former we cannot speak here (see Hittites), except so far as to remark the Abd-Ashirta and his son Aziru, though at first afraid of the Hatti, was afterwards clever enough to make a treaty with their king, and, with other external powers, to attack the districts which remained loyal to Egypt. In vain did Rib-Addi send touching appeals for aid to the distant Pharaoh, who was far too much engaged in his religious innovations to attend to such messages. What most interests us is the mention of troublesome invaders called some times *sa-gas* (a Babylonian ideogram meaning "robber"), sometimes Ḥabiri. Who are these Ḥabiri? Not, as was at first thought by some, specially the Israelites, but all those tribes of land-hungry nomads ("Hebrews") who were attracted by the wealth and luxury of the settled regions, and sought to appropriate it for themselves. Among these we may include not only the Israelites or tribes which afterwards became Israelitish, but the Moabites, Ammonites and Edomites. We meet with the Habiri in north Syria. Itakkama writes thus to the Pharaoh,[11] "Behold, Namyawaza has surrendered all the cities of the king, my lord, to the SA-GAS in the land of Kadesh and in Ubi. But I will go, and if thy gods and thy sun go before me, I will bring back the cities to the king, my lord, from the Ḥabiri, to show myself subject to him; and I will expel the SA-GAS." Similarly Zimrida, king of Sidon, declares, "All my cities which the king has given into my hand, have come into the hand of the Ḥabiri."[12] Nor had Palestine any immunity from the Arabian invaders. The king of *Jerusalem*, Abd-Ḥiba, the second part of whose name has been thought to represent the Hebrew Yahweh,[13] reports thus to the Pharaoh, "If (Egyptian) troops come this year, lands and princes will remain to the king, my lord; but if troops come not, these lands and princes will not remain to the king, my lord."[14] Abd-Ḥiba's chief trouble arose from persons called Milkili and the sons of Lapaya, who are said to have entered into a treasonable league with the Ḥabiri. Apparently this restless warrior found his death at the siege of Gina.[15] All these princes, however, malign each other in their letters to the Pharaoh, and protest their own innocence of traitorous intentions. Namyawaza, for instance, whom Itakkama (see above) accuses of disloyalty, writes thus to the Pharaoh, "Behold, I and my warriors and my chariots, together with my brethren and my SA-GAS, and my Suti[16] are at the disposal of the (royal) troops, to go whithersoever the king, my lord, commands."[17] This petty prince, therefore, sees no harm in having a band of Arabians for his garrison, as indeed Hezekiah long afterwards had his Urbi to help him against Sennacherib.

From the same period we have recently derived fresh and important evidence as to pre-Israelitish Palestine. As soon as the material gathered is large enough to be thoroughly classified and critically examined, a true history of early Palestine will be within measurable distance. At present, there are five places whence the new evidence has been obtained: 1. Tell-el-Hasy, generally identified with the Lachish of the Old Testament. Excavations were made here in 1890-1892 by Flinders Petrie and Bliss. 2. Gezer, plausibly identified with the Gezer of I Kings ix. 16. Here R.A.S. Macalister began excavating in 1902. 3. Tell-eṣ-Ṣafy, possibly the Gath of the Old Testament, 6 m. from Eleutheropolis. Here F.J. Bliss and R.A.S. Macalister made some discoveries in 1899-1900. A complete examination of the site, however, was impossible. 4. Tell-el-Mutasellim, near Lejjun (Megiddo-Legio). Schumacher began working here in 1903 for the German Palestine Society. 5. Taannek, on the south of the plain of Esdraelon. Here Prof. Ernst Sellin of Vienna was able to do much in a short time (1902-1904). It may be mentioned here that on the first of these sites a cuneiform tablet belonging to the Amarna series was discovered; at Gezer, a deed of sale; at Tell-el-Hasy the remains of a Babylonian stele, three seals, and three cylinders with Babylonian mythological representations; at Tell-el-Mutasellim, a seal bearing a Babylonian legend, and at Taannek, twelve tablets and fragments of tablets were found near the fragments of the terracotta box in which they were stored. It is a remarkable fact that the kings or chiefs of the neighbourhood should have used Babylonian cuneiform in their own official correspondence. But much beside tablets has been found on these sites; primitive sanctuaries, for instance. The splendid alignment of monoliths at Gezer is described in detail in *P.E.F. Quart. Statement*, January 1903, p. 23, and July 1903, p. 219. There is reason, as Macalister thinks, to believe that it is the result of a gradual development, beginning with two

small pillars, and gradually enlarging by later additions. There is a smaller one at Tell-eṣ-Ṣafy. The Semitic cult of sacred standing stones is thus proved to be of great antiquity; Sellin's discoveries at Taannek and those of Bliss at Tell-e#7779;-Ṣafy fully confirm this. Rock-hewn altars have also been found, illustrating the prohibition in Ex. xx. 25, 26, and numerous jars with the skeletons of infants. We cannot doubt that the sacrificing of children was practised on a large scale among the Canaanites. Their chief deity was Ashtart (Astarte), the goddess of fertility. Numerous images of her have been found, but none of the god Baal. The types of the divine form vary in the different places. The other images which have been found represent Egyptian deities. We must not, however, infer that there was a large Egyptian element in the Canaanitish Pantheon. What the images do prove is the large amount of intercourse between Egypt and Canaan, and the presence of Egyptians in the subject country.

See the *Tell-el-Amarna Letters*, ed. by Winckler, with translation (1896); the reports of Macalister in the Pal. Expl. Fund Statements from 1903 onwards; Sellin's report of excavations at Tell Ta'annek; also H.W. Hogg, "Recent Assyriology," &c., in *Inaugural Lectures* ed. by Prof. A.S. Peake (Manchester University, 1905). On Biblical questions, see Dillmann's commentaries and the Bible dictionaries. See further articles PALESTINE; JEWS.

(T. K. C.)

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1 *Enarralio in Psalm civ.*

2 W.M. Müller, *Asien und Europa*, p. 205.

3 The letters are written in the official and diplomatic language—Babylonian, though "Canaanitish" words and idioms are not wanting.

4 *Die Keilinschriften und das Alte Testament*, p. 181.

5 These explanations are endorsed by Driver (*Genesis, on* Gen. x.).

6 See the relevant articles in *Ency. Bib.* and Cheyne's *Genesis and Exodus.*

7 For the grounds of these dates see Winckler, *Gesch. Isr.* i. 127 f.; Paton, *Early Hist. of Syria and Palestine* (1902), pp. 6-8, 25-28.

8 It is true the Babylonians themselves interpreted the name differently (5 R. 44 a b 21), *kimta rapashtum*, "wide family." That, however, is only a natural protest against what we may call Canaanism or Arabism.

9 See Cheyne, *Genesis and Exodus* (on Gen. i. 26), and cf. G.A. Cooke, *N. Sem. Inscriptions* (*e.g.* pp. 30-40, on Eshmunazar's inscription).

10 See *Amarna Letters*, Winckler's edition, No. 7.

11 *Op. cit.* No. 146.

12 *Op. cit.* No. 147.

13 Johns, *Assyrian Deeds*, iii. p. 16.

14 *Amarna Letters*, No. 180 (xi. 20-24).

15 *Ibid.* No. 164 (xi. 15-18).

16 Nomads of the Syrian desert.

17 *Amarna Letters*, No. 144 (xi. 24-32).

CANACHUS, a sculptor of Sicyon in Achaea, of the latter part of the 6th century B.C. He was especially noted as the author of two great statues of Apollo, one in bronze made for the temple at Miletus, and one in cedar wood made for Thebes. The coins of Miletus furnish us with copies of the former and show the god to have held a stag in, one hand and a bow in the other. The rigidity of these works naturally impressed later critics.

CANADA. The Dominion of Canada comprises the northern half of the continent of North America and its adjacent islands, excepting Alaska, which belongs to the United States, and Newfoundland, still a separate colony of the British empire. Its boundary on the south is the parallel of latitude 49°, between the Pacific Ocean and Lake-of-the-Woods, then a chain of small lakes and rivers eastward to the mouth of Pigeon river on the north-west side of Lake Superior, and the Great Lakes with their connecting rivers to Cornwall, on the St Lawrence. From this eastward to the state of Maine the boundary is an artificial line nearly corresponding to lat. 45°; then an irregular line partly determined by watersheds and rivers divides Canada from Maine, coming out on the Bay of Fundy. The western boundary is the Pacific on the south, an irregular line a few miles inland from the coast along the "pan handle" of Alaska to Mount St Elias, and the meridian of 141° to the Arctic Ocean. A somewhat similar relationship cuts off Canada from the Atlantic on the east, the north-eastern coast of Labrador belonging to Newfoundland.

Physical Geography.—In spite of these restrictions of its natural coast line on both the Atlantic and the Pacific, Canada is admirably provided with harbours on both oceans. The Gulf of St Lawrence with its much indented shores and the coast of Nova Scotia and New Brunswick supply endless harbours, the northern ones closed by ice in the winter, but the southern ones open all the year round; and on the Pacific British Columbia is deeply fringed with islands and fjords with well-sheltered harbours everywhere, in strong contrast with the unbroken shore of the United States to the south. The long stretches of sheltered navigation from the Straits of Belle Isle north of Newfoundland to Quebec, and for 600 m. on the British Columbian coast, are of great advantage for the coasting trade. The greatly varied Arctic coast line of Canada with its large islands, inlets and channels is too much clogged with ice to be of much practical use, but Hudson Bay, a mediterranean sea 850 m. long from north to south and 600 m. wide, with its outlet Hudson Strait, has long been navigated by trading ships and whalers, and may become a great outlet for the wheat of western Canada, though closed by ice except for four months in the summer. Of the nine provinces of Canada only three have no coast line on salt water, Manitoba, Alberta and Saskatchewan, and the first may soon be extended to Hudson Bay. Ontario has a seaboard only on Hudson Bay's southern extension, James Bay, and there is no probability that the shallow harbours of the latter bay will ever be of much importance for shipping, though Churchill Harbour on the west side of Hudson Bay may become an important grain port. What Ontario lacks in salt water navigation is, however, made up by the busy traffic of the Great Lakes.

The physical features of Canada are comparatively simple, and drawn on a large scale, more than half of its surface sloping gently inwards towards the shallow basin of Hudson Bay, with higher margins to the south-east and south-west. In the main it is a broad trough, wider towards the north than towards the south, and unsymmetrical, Hudson Bay occupying

much of its north-eastern part, while to the west broad plains rise gradually to the foot-hills of the Rocky Mountains, the eastern member of the Cordillera which follows the Pacific coast of America. The physical geography of Canada is so closely bound up with its geology that at least an outline of the geological factors involved in its history is necessary to understand the present physiography. The mountain structures originated in three great orogenic periods, the earliest in the Archean, the second at the end of the Palaeozoic and the third at the end of the Mesozoic. The Archean mountain chains, which enclosed the present region of Hudson Bay, were so ancient that they had already been worn down almost to a plain before the early Palaeozoic sediments were laid down. This ruling geological and physical feature of the North American continent has been named by E. Suess the “Canadian Shield.” Round it the Palaeozoic sands and clays, largely derived from its own waste, were deposited as nearly horizontal beds, in many places still almost undisturbed. Later the sediments lying to the south-east of this “protaxis,” or nucleus of the continent, were pushed against its edge and raised into the Appalachian chain of mountains, which, however, extends only a short distance into Canada. The Mesozoic sediments were almost entirely laid down to the west and south-west of the protaxis, upon the flat-lying Palaeozoic rocks, and in the prairie region they are still almost horizontal; but in the Cordillera they have been thrust up into the series of mountain chains characterizing the Pacific coast region. The youngest of these mountain chains is naturally the highest, and the oldest one in most places no longer rises to heights deserving the name of mountains. Owing to this unsymmetric development of North America the main structural watershed is towards its western side, on the south coinciding with the Rocky Mountains proper, but to the northward falling back to ranges situated further west in the same mountain region. The great central area of Canada is drained towards Hudson Bay, but its two largest rivers have separate watersheds, the Mackenzie flowing north-west to the Arctic Ocean and the St Lawrence north-east towards the Atlantic, the one to the south-west and the other to the south-east of the Archean protaxis. While these ancient events shaped the topography in a broad way, its final development was comparatively recent, during the glacial period, when the loose materials were scoured from some regions and spread out as boulder clay, or piled up as moraines in others; and the original water-ways were blocked in many places. The retreat of the ice left Canada much in its present condition except for certain post-glacial changes of level which seem to be still in progress. For this reason the region has a very youthful topography with innumerable lakes and waterfalls as evidence that the rivers have not long been at work. The uneven carving down of the older mountain systems, especially that of the Archean pro taxis, and the disorderly scattering of glacial material provide most of the lake basins so characteristic of Canada.

Geology.

Lakes and Rivers.—As a result of the geological causes just mentioned many parts of Canada are lavishly strewn with lakes of all sizes and shapes, from bodies of water hundreds of miles long and a thousand feet deep to ponds lost to sight in the forest. Thousands of these lakes have been mapped more or less carefully, and every new survey brings to light small lakes hitherto unknown to the white man. For numbers they can be compared only with those of Finland and Scandinavia in Europe, and for size with those of eastern Africa; but for the great extent of lake-filled country there is no comparison. From the map it will be noticed that the largest and most thickly strewn lakes occur within five hundred or a thousand miles of Hudson Bay, and belong to the Archean protaxis or project beyond its edges into the Palaeozoic sedimentary rocks which lean against it. The most famous of the lakes are those of the St Lawrence system, which form part of the southern boundary of Canada and are shared with the United States; but many others have the right to be called “Great Lakes” from their magnitude. There are nine others which have a length of more than 100 m., and thirty-five which are more than 50 m. long. Within the Archean protaxis they are of the most varied shapes, since they represent merely portions of the irregular surface inundated by some morainic dam at the lowest point. Comparatively few have simple outlines and an unbroken surface of water, the great majority running into long irregular bays and containing many islands, sometimes even thousands in number, as in Georgian Bay and Lake-of-the-Woods. In the Cordilleran region on the other hand the lakes are long, narrow and deep, in reality sections of mountain valleys occupied by fresh water, just as the fjords of the adjoining coast are valleys occupied by the sea. The lakes of the different regions present the same features as the nearest sea coasts but on a smaller scale. The majority of the lakes have rocky shores and islands and great variety of depth, many of the smaller ones, however, are rimmed with marshes and are slowly filling up with vegetable matter, ultimately becoming peat bogs, the *muskegs* of the Indian. Most of Canada is so well watered that the lakes have outlets and are kept fresh, but there are a few small lakes in southern Saskatchewan, *e.g.* the Quill and Old Wives lakes, in regions arid enough to require no outlets. In such cases the waters are alkaline, and contain various salts in solution which are deposited as a white rim round the basin towards the end of the summer when the amount of water has been greatly reduced by evaporation. It is interesting to find maritime plants, such as the samphire, growing on their shores a thousand miles from the sea and more than a thousand feet above it. In many cases the lakes of Canada simply spill over at the lowest point from one basin into the next below, making chains of lakes with no long or well-defined channels between, since in so young a country there has not yet been time for the rivers to have carved wide valleys. Thus canoe navigation may be carried on for hundreds of miles, with here and there a waterfall or a rapid requiring a portage of a few hundred yards or at most a mile or two. The river systems are therefore in many cases complex and tortuous, and very often the successive connecting links between the lakes receive different names. The best example of this is the familiar one of the St Lawrence, which may be said to begin as Nipigon river and to take the names St Mary’s, St Clair, Detroit and Niagara, before finally flowing from Lake Ontario to the sea under its proper name. As these lakes are great reservoirs and settling basins, the rivers which empty them are unusually steady in level and contain beautifully clear water. The St Lawrence varies only a few feet in the year and always has pellucid bluish-green water, while the Mississippi, whose tributaries begin only a short distance south of the Great Lakes, varies 40 ft. or more between high- and low-water and is loaded with mud. The St Lawrence is far the most important Canadian river from the historic and economic points of view, since it provided the main artery of exploration in early days, and with its canals past rapids and between lakes still serves as a great highway of trade between the interior of the continent and the seaports of Montreal and Quebec. It is probable that politically Canada would have followed the course of the States to the south but for the planting of a French colony with widely extended trading posts along the easily ascended channel of the St Lawrence and the Great Lakes, so that this river was the ultimate bond of union between Canada and the empire.

North of the divide between the St Lawrence system and Hudson Bay there are many large rivers converging on that inland sea, such as Whale river, Big river, East Main, Rupert and Nottaway rivers coming in from Ungava and northern Quebec; Moose and Albany rivers with important tributaries from northern Ontario; and Severn, Nelson and Churchill rivers from the south-west. All of these are rapid and shallow, affording navigation only for canoes; but the largest of them, Nelson river, drains the great Manitoban lakes, Winnipeg, Winnipegosis and Manitoba, which are frequented by steamers, and receive the waters of Lake-of-the-Woods, Lake Seul and many others emptying into Winnipeg river from Ontario; of Red river coming in from the United States to the south; and of the southern parts of the Rocky Mountains and the western prairie provinces drained by the great Saskatchewan river. The parallel of 49° approximately separates the Saskatchewan waters from the streams going south to the Missouri, though a few small tributaries of the latter river begin on Canadian territory.

The northern part of Alberta and Saskatchewan and much of northern British Columbia are drained through the Athabasca and Peace rivers, first north-eastwards towards Athabasca Lake, then north through Slave river to Great Slave Lake, and finally north-west through Mackenzie river to the Arctic Ocean. If measured to the head of Peace river the Mackenzie has a length of more than 2000 m., and it provides more than 1000 m. of navigation for stern-wheel steamers. Unfortunately, like other northward-flowing rivers, it does not lead down to a frequented sea, and so bears little traffic except for the northern fur-trading posts. The Mackenzie forms a large but little-known delta in lat. 69°, and in its flood season the head-waters pour down their torrents before the thick ice of the lower part with its severer climate has yet given way, piling up the ice in great barriers and giving rise to widespread floods along the lower reaches. Similar flooding takes

place in several other important northward-flowing rivers in Canada, the St Lawrence at Montreal affording the best-known instance. Second among the great north-western rivers is the Yukon, which begins its course about 18 m. from tide-water on an arm of the Pacific, 2800 ft. above the sea and just within the Canadian border. It flows first to the north, then to the north-west, passing out of the Yukon territory into Alaska, and then south-west, ending in Bering Sea, the northward projection of the Pacific, 2000 m. from its head-waters. Of its course 1800 m. are continuously navigable for suitable steamers, so that most of the traffic connected with the rich Klondike gold-fields passes over its waters. The rest of the rivers flowing into the Pacific pass through British Columbia and are much shorter, though the two southern ones carry a great volume of water owing to the heavy precipitation of snow and rain in the Cordilleran region. The Columbia is the largest, but after flowing north-west and then south for about 400 m., it passes into the United States. With its expansions, the narrow and deep Arrow lakes, it is an important waterway in the Kootenay region. The Fraser, next in size but farther north, follows a similar course, entering the sea at Vancouver; while the Skeena and Stikine in northern British Columbia are much shorter and smaller, owing to the encroachments of Peace and Liard rivers, tributaries of the Nelson, on the Cordilleran territory. All of these rivers are waterways of some importance in their lower course, and are navigated by powerful stern-wheel boats supplying the posts and mining camps of the interior with their requirements. In most cases they reach the coast through deep valleys or profound canyons, and the transcontinental railways find their way beside them, the Canadian Pacific following at first tributaries of the Columbia near its great bend, and afterwards Thompson river and the Fraser; while the Grand Trunk Pacific makes use of the valley of the Skeena and its tributaries. The divide between the rivers flowing west and those flowing east and north is very sharp in the southern Rocky Mountains, but there are two lakes, the Committee's Punch Bowl and Fortress Lake, right astride of it, sending their waters both east and west; and there is a mountain somewhat south of Fortress Lake whose melting snows drain in three directions into tributaries of the Columbia, the Saskatchewan and the Athabasca, so that they are distributed between the Pacific, the Atlantic (Hudson Bay) and the Arctic Oceans. The divide between the St Lawrence and Hudson Bay in eastern Canada also presents one or two lakes draining each way, but in a much less striking position, since the water-parting is flat and boggy instead of being a lofty range of mountains. The rivers of Canada, except the St Lawrence, are losing their importance as means of communication from year to year, as railways spread over the interior and cross the mountains to the Pacific; but from the point of view of the physical geographer there are few things more remarkable than the intricate and comprehensive way in which they drain the country. As most of the Canadian rivers have waterfalls on their course, they must become of more and more importance as sources of power. The St Lawrence system, for instance, generates many thousand horse-power at Sault Ste Marie, Niagara and the Lachine rapids. All the larger cities of Canada make use of water power in this way, and many new enterprises of the kind are projected in eastern Canada; but the thousands of feet of fall of the rivers in the Rocky Mountain region are still almost untouched, though they will some day find use in manufactures like those of Switzerland.

The Archean Protaxis.—The broad geological and geographical relationships of the country have already been outlined, but the more important sub-divisions may now be taken up with more detail, and for that purpose five areas may be distinguished, much the largest being the Archean protaxis, covering about 2,000,000 sq. m. It includes Labrador, Ungava and most of Quebec on the east, northern Ontario on the south; and the western boundary runs from Lake-of-the-Woods north-west to the Arctic Ocean near the mouth of Mackenzie river. The southern parts of the Arctic islands, especially Banksland, belong to it also. This vast area, shaped like a broad-limbed V or U, with Hudson Bay in the centre, is made up chiefly of monotonous and barren Laurentian gneiss and granite; but scattered through it are important stretches of Keewatin and Huronian rocks intricately folded as synclines in the gneiss, as suggested earlier, the bases of ancient mountain ranges. The Keewatin and Huronian, consisting of greenstones, schists and more or less metamorphosed sedimentary rocks, are of special interest for their ore deposits, which include most of the important metals, particularly iron, nickel, copper and silver. The southern portion of the protaxis is now being opened up by railways, but the far greater northern part is known only along the lakes and rivers which are navigable by canoe. Though once consisting of great mountain ranges there are now no lofty elevations in the region except along the Atlantic border in Labrador, where summits of the Nachvak Mountains are said to reach 6000 ft. or more. In every other part the surface is hilly or mammilated, the harder rocks, such as granite or greenstone, rising as rounded knobs, or in the case of schists forming narrow ridges, while the softer parts form valleys generally floored with lakes. From the summit of any of the higher hills one sees that the region is really a somewhat dissected plain, for all the hills rise to about the same level with a uniform skyline at the horizon. The Archean protaxis is sometimes spoken of as a plateau, but probably half of it falls below 1000 ft. The lowland part includes from 100 to 500 m. all round the shore of Hudson Bay, and extends south-west to the edge of the Palaeozoic rocks on Lake Winnipeg. Outwards from the bay the level rises slowly to an average of about 1500 ft., but seldom reaches 2000 ft. except at a few points near Lake Superior and on the eastern coast of Labrador. In most parts the Laurentian hills are bare *roches moutonnées* scoured by the glaciers of the Ice Age, but a broad band of clay land extends across northern Quebec and Ontario just north of the divide. The edges of the protaxis are in general its highest parts, and the rivers flowing outwards often have a descent of several hundred feet in a few miles towards the Great Lakes, the St Lawrence or the Atlantic, and in some cases they have cut back deep gorges or canyons into the tableland. The waterfalls are utilized at a few points to work up into wood pulp the forests of spruce which cover much of Labrador, Quebec and Ontario. Most of the pine that formerly grew on the Archean at the northern fringe of the settlements has been cut, but the lumberman is still advancing northwards and approaching the northern limit of the famous Canadian white pine forests, beyond which spruces, tamarack (larch) and poplar are the prevalent trees. As one advances northward the timber grows smaller and includes fewer species of trees, and finally the timber line is reached, near Churchill on the west coast of Hudson Bay and somewhat farther south on the Labrador side. Beyond this to the north are the "barren grounds" on which herds of caribou (reindeer) and musk ox pasture, migrating from north to south according to the season. There are no permanent ice sheets known on the mainland of north-eastern Canada, but some of the larger islands to the north of Hudson Bay and Straits are partially covered with glaciers on their higher points. Unless by its mineral resources, of which scarcely anything is known, the barren grounds can never support a white population and have little to tempt even the Indian or Eskimo, who visit it occasionally in summer to hunt the deer in their migrations.

The Acadian Region.—The "maritime provinces" of eastern Canada, including Nova Scotia, New Brunswick and Prince Edward Island, may be considered together; and to these provinces as politically bounded may be added, from a physical point of view, the analogous south-eastern part of Quebec—the entire area being designated the Acadian region. Taken as a whole, this eastern part of Canada, with a very irregular and extended coast-line on the Gulf of St Lawrence and the Atlantic, may be regarded as a northern continuation of the Appalachian mountain system that runs parallel to the Atlantic coast of the United States. The rocks underlying it have been subjected to successive foldings and crumplings by forces acting chiefly from the direction of the Atlantic Ocean, with alternating prolonged periods of waste and denudation. The main axis of disturbance and the highest remaining land runs through the south-eastern part of Quebec, forming the Notre Dame Mountains, and terminates in the Gaspé peninsula as the Shickshock Mountains. The first-named seldom exceed 1500 ft. in height, but the Shickshocks rise above 3000 ft. The province of New Brunswick exhibits approximately parallel but subordinate ridges, with wide intervening areas of nearly flat Silurian and Carboniferous rocks. The peninsula of Nova Scotia, connected by a narrow neck with New Brunswick, is formed by still another and more definite system of parallel ridges, deeply fretted on all sides by bays and harbours. A series of quartzites and slates referred to the Cambrian, and holding numerous and important veins of auriferous quartz, characterize its Atlantic or south-eastern side, while valuable coal-fields occur in Cape Breton and on parts of its shores on the Gulf of St Lawrence. In New Brunswick the Carboniferous rocks occupy a large area, but the coal seams so far developed are thin and unimportant. Metalliferous ores of various kinds occur both in Nova Scotia and in this province, but with the exception of the gold already mentioned, have not yet

become the objects of important industries. Copper and asbestos are the principal mineral products of that part of Quebec included in the region now under description, although many other minerals are known and already worked to some extent. Extensive tracts of good arable land exist in many parts of the Acadian region. Its surface was originally almost entirely wooded, and the products of the forest continue to hold a prominent place. Prince Edward Island, the smallest province of Canada, is low and undulating, based on Permo-Carboniferous and Triassic rocks affording a red and very fertile soil, much of which is under cultivation.

The St Lawrence Plain.—As the St Lawrence invited the earliest settlers to Canada and gave the easiest communication with the Old World, it is not surprising to find the wealthiest and most populous part of the country on its shores and near the Great Lakes which it leads up to; and this early development was greatly helped by the flat and fertile plain which follows it inland for over 600 m. from the city of Quebec to Lake Huron. This affords the largest stretch of arable land in eastern Canada, including the southern parts of Ontario and Quebec with an area of some 38,000 sq. m. In Quebec the chief portion is south of the St Lawrence on the low plain extending from Montreal to the mountains of the "Eastern Townships," while in Ontario it extends from the Archean on the north to the St Lawrence and Lakes Ontario, Erie and Huron. The whole region is underlain by nearly horizontal and undisturbed rocks of the Palaeozoic from the Devonian downward. Superimposed on these rocks are Pleistocene boulder clay, and clay and sand deposited in post-glacial lakes or an extension of the Gulf of St Lawrence. Though petroleum and salt occur in the south-west peninsula of Ontario, metalliferous deposits are wanting, and the real wealth of this district lies in its soil and climate, which permit the growth of all the products of temperate regions. Georgian Bay and the northern part of Lake Huron with the whole northern margin of Lake Superior bathe the foot of the Laurentian plateau, which rises directly from these lakes; so that the older fertile lands of the country with their numerous cities and largely-developed manufactures are cut off by an elevated, rocky and mostly forest-covered tract of the Archean from the newer and far more extensive farm lands of the west. For many years this southern projection of the northern wilderness was spanned by only one railway, and offered a serious hindrance to the development of the regions beyond; but settlements are now spreading to the north and rapidly filling up the gap between east and west.

The Interior Continental Plain.—Passing westward by rail from the forest-covered Archean with its rugged granite hills, the flat prairie of Manitoba with its rich grasses and multitude of flowers comes as a very striking contrast, introducing the Interior Continental plain in its most typical development. This great plain runs north-westward between the border of the Archean protaxis and the line of the Rocky Mountains, including most of Manitoba, the southern part of Saskatchewan and most of Alberta. At the international boundary in lat. 49° it is 800 m. wide, but in lat. 56° it has narrowed to 400 m. in width, and to the north of lat. 62° it is still narrower and somewhat interrupted, but preserves its main physical features to the Arctic Ocean about the mouth of the Mackenzie. This interior plain of the continent represents the area of the ancient sea by which it was occupied in Mesozoic times, with a more ancient margin towards the north-west against the Archean, where undisturbed limestones and other rocks of the Silurian and Devonian rest upon the downward slope of the Laurentian Shield. Most of the plains are underlain by Cretaceous and early Tertiary shales and sandstones lying nearly unaltered and undisturbed where they were deposited, although now raised far above sea-level, particularly along the border of the Rocky Mountains where they were thrust up into foot-hills when the range itself was raised. These strata have been subjected to great denudation, but owing to their comparatively soft character this has been, in the main, nearly uniform, and has produced no very bold features of relief, Coal and lignitic coal are the principal economic minerals met with in this central plain, though natural gas occurs and is put to use near Medicine Hat, and "tar sands" along the north-eastern edge of the Cretaceous indicate the presence of petroleum. Its chief value lies in its vast tracts of fertile soil, now rapidly filling up with settlers from all parts of the world, and the grassy uplands in the foot-hill region affording perennial pasturage for the cattle, horses and sheep of the rancher. Though the region is spoken of as a plain there are really great differences of level between the highest parts in south-western Alberta, 4500 ft. above the sea, and the lowest in the region of Lake Winnipeg, where the prairie is at an elevation of only 800 ft. The very flat and rich prairie near Winnipeg is the former bed of the glacial Lake Agassiz; but most of the prairie to the west is of a gently rolling character and there are two rather abrupt breaks in the plain, the most westerly one receiving the name of the Missouri Coteau. The first step represents a rise to 1600 ft., and the second to 3000 ft. on an average. In so flat a country any elevation of a few hundred feet is remarkable and is called a mountain, so that Manitoba has its Duck and Riding mountains. More important than the hills are the narrow and often rather deep river valleys cut below the general level, exposing the soft rocks of the Cretaceous and in many places seams of lignite. When not too deep the river channels may be traced from afar across the prairie by the winding band of trees growing beside the water. The treeless part of the plains, the prairie proper, has a triangular shape with an area twice as large as that of Great Britain. North of the Saskatchewan river groves or "bluffs" of trees begin, and somewhat farther north the plains are generally wooded, because of the slightly more humid climate. It has been proved, however, that certain kinds of trees if protected will grow also on the prairie, as may be seen around many of the older farm-steads. In the central southern regions the climate is arid enough to permit of "alkaline" ponds and lakes, which may completely dry up in summer, and where a supply of drinking-water is often hard to obtain, though the land itself is fertile.

The Cordilleran Belt.—The Rocky Mountain region as a whole, best named the Cordillera or Cordilleran belt, includes several parallel ranges of mountains of different structures and ages, the eastern one constituting the Rocky Mountains proper. This band of mountains 400 m. wide covers towards the south almost all of British Columbia and a strip of Alberta east of the watershed, and towards the north forms the whole of the Yukon Territory. While it is throughout essentially a mountainous country, very complicated in its orographic features and interlocking river systems, two principal mountain axes form its ruling features—the Rocky Mountains proper, above referred to, and the Coast Ranges. Between them are many other ranges shorter and less regular in trend, such as the Selkirk Mountains, the Gold Ranges and the Caribou Mountains. There is also in the southern inland region an interior plateau, once probably a peneplain, but now elevated and greatly dissected by river valleys, which extends north-westward for 500 m. with a width of about 100 m. and affords the largest areas of arable and pasture land in British Columbia. Similar wide tracts of less broken country occur, after a mountainous interruption, in northern British Columbia and to some extent in the Yukon Territory, where wide valleys and rolling hills alternate with short mountain ranges of no great altitude. The Pacific border of the coast range of British Columbia is ragged with fjords and channels, where large steamers may go 50 or 100 m. inland between mountainous walls as on the coast of Norway; and there is also a bordering mountain system partly submerged forming Vancouver Island and the Queen Charlotte Islands. The highest mountains of the Cordillera in Canada are near the southern end of the boundary separating Alaska from the Yukon Territory, the meridian of 141°, and they include Mount Logan (19,540 ft.) and Mount St Elias (18,000 ft.), while the highest peak in North America, Mount McKinley (20,000 ft.), is not far to the north-west in Alaska. This knot of very lofty mountains, with Mount Fairweather and some others, all snowy and glacier-clad for almost their whole height, are quite isolated from the highest points of the Rocky Mountains proper, which are 1000 m. to the south-east. Near the height of land between British Columbia and Alberta there are many peaks which rise from 10,000 to 12,000 ft. above sea-level, the highest which has been carefully measured being Mount Robson (13,700 ft.). The next range to the east, the Selkirks, has several summits that reach 10,000 ft. or over, while the Coast Ranges scarcely go beyond 9000 ft. The snow line in the south is from 7500 to 9000 ft. above sea-level, being lower on the Pacific side where the heaviest snowfall comes in winter than on the drier north-eastern side. The snow line gradually sinks as one advances north-west, reaching only 2000 or 3000 ft. on the Alaskan coast. The Rockies and Selkirks support thousands of glaciers, mostly not very large, but having some 50 or 100 sq. m. of snowfield. All the glaciers are now in retreat, with old tree-covered moraines, hundreds or thousands of feet lower down the valley. The timber line is at about 7500 ft. in southern British Columbia and 4000 ft. in the interior of the Yukon Territory. On the westward slopes, especially of the Selkirks and Coast

Ranges, vegetation is almost tropical in its density and luxuriance, the giant cedar and the Douglas fir sometimes having diameters of 10 ft. or more and rising to the height of 150 ft. On the eastern flanks of the ranges the forest is much thinner, and on the interior plateau and in many of the valleys largely gives way to open grass land. The several ranges of the Cordillera show very different types of structure and were formed at different ages, the Selkirks with their core of pre-Cambrian granite, gneiss and schists coming first, then the Coast Ranges, which seem to have been elevated in Cretaceous times, formed mainly by a great upwelling of granite and diorite as batholiths along the margin of the continent and sedimentary rocks lying as remnants on their flanks; and finally the Rocky Mountains in the Laramie or early Eocene, after the close of the Cretaceous. This latest and also highest range was formed by tremendous thrusts from the Pacific side, crumpling and folding the ancient sedimentary rocks, which run from the Cambrian to the Cretaceous, and faulting them along overturned folds. The outer ranges in Alberta have usually the form of tilted blocks with a steep cliff towards the north-east and a gentler slope, corresponding to the dip of the beds, towards the south-west. Near the centre of the range there are broader foldings, carved into castle and cathedral shapes. The most easterly range has been shown to have been actually pushed 7 m. out upon the prairies. In the Rocky Mountains proper no eruptive rocks have broken through, so that no ore deposits of importance are known from them, but in the Cretaceous synclines which they enclose valuable coal basins exist. Coal of a bituminous and also semi-anthracite kind is produced, the best mined on the Pacific slope of the continent, the coking coals of the Fernie region supplying the fuel of the great metal mining districts of the Kootenays in British Columbia, and of Montana and other states to the south. The Selkirks and Gold Ranges west of the Rockies, with their great areas of eruptive rocks, both ancient and modern, include most of the important mines of gold, silver, copper and lead which give British Columbia its leadership among the Canadian provinces as a producer of metals. In early days the placer gold mines of the Columbia, Fraser and Caribou attracted miners from everywhere, but these have declined, and lode mines supply most of the gold as well as the other metals. The Coast Ranges and islands also include many mines, especially of copper, but up to the present of less value than those inland. Most of the mining development is in southern British Columbia, where a network of railways and waterways gives easy access; but as means of communication improve to the north a similar development may be looked for there. The Atlin and White Horse regions in northern British Columbia and southern Yukon have attracted much attention, and the Klondike placers still farther north have furnished many millions of dollars' worth of gold. Summing up the economic features of the Cordilleran belt, it includes many of the best coal-mines and the most extensive deposits of gold, copper, lead and zinc of the Dominion, while in silver, nickel and iron Ontario takes the lead. When its vast area stretching from the international boundary to beyond the Arctic circle is opened up, it may be expected to prove the counterpart of the great mining region of the Cordillera in the United States to the south.

Climate.—In a country like Canada ranging from lat. 42° to the Arctic regions and touching three oceans, there must be great variations of climate. If placed upon Europe it would extend from Rome to the North Cape, but latitude is of course only one of the factors influencing climate, the arrangement of the ocean currents and of the areas of high and low pressure making a very wide difference between the climates of the two sides of the Atlantic. In reality the Pacific coast of Canada, rather than the Atlantic coast, should be compared with western Europe, the south-west corner of British Columbia, in lat. 48° to 50°, having a climate very similar to the southern coast of England. In Canada the isotherms by no means follow parallels of latitude, especially in summer when in the western half of the country they run nearly north-west and south-east; so that the average temperature of 55° is found about on the Arctic circle in the Mackenzie river valley, in lat. 50° near the Lake-of-the-Woods, in lat. 55° at the northern end of James Bay, and in lat. 49° on Anticosti in the Gulf of St Lawrence. The proximity of the sea or of great lakes, the elevation and the direction of mountain chains, the usual path of storms and of prevalent winds, and the relative length of day and amount of sunshine in summer and winter all have their effect on different parts of Canada. One cannot even describe the climate of a single province, like Ontario or British Columbia, as a unit, as it varies so greatly in different parts. Details should therefore be sought in articles on the separate provinces. In eastern Canada Ungava and Labrador are very chill and inhospitable, owing largely to the iceberg-laden current sweeping down the coast from Davis Strait, bringing fogs and long snowy winters and a temperature for the year much below the freezing-point. South of the Gulf of St Lawrence, however, the maritime provinces have much more genial temperatures, averaging 40° F. for the year and over 60° for the summer months. The amount of rain is naturally high so near the sea, 40 to 56 in., but the snowfall is not usually excessive. In Quebec and northern Ontario the rainfall is diminished, ranging from 20 to 40 in., while the snows of winter are deep and generally cover the ground from the beginning of December to the end of March. The winters are brilliant but cold, and the summers average from 60° to 65° F., with generally clear skies and a bracing atmosphere which makes these regions favourite summer resorts for the people of the cities to the south. The winter storms often sweep a little to the north of southern Ontario, so that what falls as snow in the north is rain in the south, giving a much more variable winter, often with too little snow for sleighing. The summers are warm, with an average temperature of 65° and an occasional rise to 90°. As one goes westward the precipitation diminishes to 17.34 in. in Manitoba and 13.35 for the other two prairie provinces, most of this, however, coming opportunely from May to August, the months when the growing grain most requires moisture. There is a much lighter snowfall in winter than in northern Ontario and Quebec, with somewhat lower temperatures. The snow and the frost in the ground are considered useful as furnishing moisture to start the wheat in spring. The precipitation in southern Saskatchewan and Alberta is much more variable than farther east and north, so that in some seasons crops have been a failure through drought, but large areas are now being brought under irrigation to avoid such losses. The prairie provinces have in most parts a distinctly continental climate with comparatively short, warm summers and long, cold winters, but with much sunshine in both seasons. In southern Alberta, however, the winter cold is often interrupted by chinooks, westerly winds which have lost their moisture by crossing the mountains and become warmed by plunging down to the plains, where they blow strongly, licking up the snow and raising the temperature, sometimes in a few hours, from 20° to 40° F. In this region cattle and horses can generally winter on the grass of the ranges without being fed, though in hard seasons there may be heavy losses. Northwards chinooks become less frequent and the winter's cold increases, but the coming of spring is not much later, and the summer temperatures, with sunshine for twenty hours out of twenty-four in June, are almost the same as for hundreds of miles to the south, so that most kinds of grain and vegetables ripen far to the north in the Peace river valley. Though the climate of the plains is one of extremes and often of rather sudden changes, it is brisk and invigorating and of particular value for persons affected with lung troubles.

The climate of the Cordilleran region presents even more variety than that of the other provinces because of the ranges of mountains which run parallel to the Pacific. Along the coast itself the climate is insular, with little frost in winter and mild heat in summer, and with a very heavy rainfall amounting to 100 in. on the south-west side of Vancouver Island and near Port Simpson. Within 100 m. inland beyond the Coast Range the precipitation and general climate are, like those of Ontario, comparatively mild and with moderate snowfall towards the south, but with keen winters farther north. The interior plateau may be described as arid, so that irrigation is required if crops are to be raised. The Selkirk Mountains have a heavy rainfall and a tremendous snowfall on their western flanks, but very much less precipitation on their eastern side. The Rocky Mountains have the same relationships but the whole precipitation is much less than in the Selkirks. The temperature depends largely, of course, on altitude, so that one may quickly pass from perpetual snow above 8000 ft. in the mountains to the mild, moist climate of Vancouver or Victoria, which is like that of Devonshire. In the far north of the territories of Yukon, Mackenzie and Ungava the climate has been little studied, as the region is uninhabited by white men except at a few fur-trading posts. North-west and north-east of Hudson Bay it becomes too severe for the growth of trees as seen on the "barren grounds," and there may be perpetual ice beneath the coating of moss which serves as a non-conducting covering for the "tundras." There is, however, so little precipitation that snow does not accumulate on the surface to form glaciers, the summer's sun having warmth enough to thaw what falls in the winter. Leaving out the

maritime provinces, southern Ontario, southern Alberta and the Pacific coast region on the one hand, and the Arctic north, particularly near Hudson Bay, on the other, Canada has snowy and severe winters, a very short spring with a sudden rise of temperature, short warm summers, and a delightful autumn with its “Indian summer.” There is much sunshine, and the atmosphere is bracing and exhilarating.

Flora.—The general flora of the Maritime Provinces, Quebec and Eastern Ontario is much the same, except that in Nova Scotia a number of species are found common also to Newfoundland that are not apparent inland. Professor Macoun gives us a few notable species—*Calluna vulgaris*, Salisb., *Alchemilla vulgaris*, L., *Rhododendron maximum*, L., *Ilex glabia*, Gray, *Hudsonia ericoides*, L., *Gaylussacia dumosa*, F. and G., and *Schezaea pusilla*, Pursh. In New Brunswick the western flora begins to appear as well as immigrants from the south, while in the next eastern province, Quebec, the flora varies considerably. In the lower St Lawrence country and about the Gulf many Arctic and sub-Arctic species are found. On the shores of the lower reaches *Thalictrum alpinum*, L., *Vesicaria arctica*, Richards, *Arapis alpina*, L., *Saxifraga oppositifolia*, L., *Cerastium alpinum*, L., *Saxifraga caespitosa*, L. and S. have been gathered, and on the Shickshock Mountains of Eastern Canada *Silene acaulis*, L., *Lychnis alpina*, L., *Cassiope hypnoides*, Don., *Rhododendron laponicum*, Wahl, and many others. On the summit of these hills (4000 ft.) have been collected *Aspidium aculeatum*, Swartz var., *Scopulinum*, D.C. Eaton, *Pellaea densa*, Hook, *Gallium kamtschaticum*, Sletten. From the city of Quebec westwards there is a constantly increasing ratio of southern forms, and when the mountain (so called) at Montreal is reached the representative Ontario flora begins. In Ontario the flora of the northern part is much the same as that of the Gulf of St Lawrence, but from Montreal along the Ottawa and St Lawrence valleys the flora takes a more southern aspect, and trees, shrubs and herbaceous plants not found in the eastern parts of the Dominion become common. In the forest regions north of the lakes the vegetation on the shores of Lake Erie requires a high winter temperature, while the east and north shores of Lake Superior have a boreal vegetation that shows the summer temperature of this enormous water-stretch to be quite low. Beyond the forest country of Ontario come the prairies of Manitoba and the North-West Territories. In the ravines the eastern flora continues for some distance, and then disappearing gives place to that of the prairie, which is found everywhere between the Red river and the Rocky Mountains except in wooded and damp localities. Northwards, in the Saskatchewan country, the flora of the forest and that of the prairies intermingle. On the prairies and the foot-hills of the Rocky Mountains a great variety of grasses are found, several years’ collection resulting in 42 genera and 156 species. Of the best hay and pasture grasses, *Agropyrum Elymus, Stipa, Bromus, Agrostis, Calamagrostes* and *Poa*, there are 59 species. Besides the grasses there are leguminous plants valuable for pasture—*Astragalus, Vicia* (wild vetch), *Lathyrus* (wild pea) of which there are many species. The rose family is represented by *Prunus, Potentilla, Fragaria, Rosa, Rubus* and *Amelanchier*.

About the saline lakes and marshes of the prairie country are found *Ruppia maritima*, L., *Heliotropium curassavicum*, L., natives of the Atlantic coast, and numerous species of *Chenopodium, Atriplex* and allied genera. The flora of the forest belt of the North-West Territories differs little from that of northern Ontario. At the beginning of the elevation of the Rocky Mountains there is a luxurious growth of herbaceous plants, including a number of rare umbellifers. At the higher levels the vegetation becomes more Arctic. Northwards the valleys of the Peace and other rivers differ little from those of Quebec and the northern prairies. On the western slope of the mountains, that is, the Selkirk and Coast ranges as distinguished from the eastern or Rocky Mountains range, the flora differs, the climate being damp instead of dry. In some of the valleys having an outlet to the south the flora is partly peculiar to the American desert, and such species as *Purshia tridentata*, D.C., and *Artemisia tridentata*, Nutt., and species of *Gilia, Aster* and *Erigonum* are found that are not met with elsewhere. Above Yale, in the drier part of the Fraser valley, the absence of rain results in the same character of flora, while in the rainy districts of the lower Fraser the vegetation is so luxuriant that it resembles that of the tropics. So in various parts of the mountainous country of British Columbia, the flora varies according to climatic conditions. Nearer the Pacific coast the woods and open spaces are filled with flowers and shrubs. Liliaceous flowers are abundant, including *Erythoniums, Trilliums, Alliums, Brodeaeas, Fritillarias, Siliums, Camassias* and others.

Fauna.—The larger animals of Canada are the musk ox and the caribou of the barren lands, both having their habitat in the far north; the caribou of the woods, found in all the provinces except in Prince Edward Island; the moose, with an equally wide range in the wooded country; the Virginia deer, in one or other of its varietal forms, common to all the southern parts; the black-tailed deer or mule deer and allied forms, on the western edge of the plains and in British Columbia; the pronghorn antelope on the plains, and a small remnant of the once plentiful bison found in northern Alberta and Mackenzie, now called “wood buffalo.” The wapiti or American elk at one time abounded from Quebec to the Pacific, and as far north as the Peace river, but is now found only in small numbers from Manitoba westwards. In the mountains of the west are the grizzly bear, black bear and cinnamon bear. The black bear is also common to most other parts of Canada; the polar bear everywhere along the Arctic littoral. The large or timber wolf is found in the wooded districts of all the provinces, and on the plains there is also a smaller wolf called the coyote. In British Columbia the puma or cougar, sometimes called the panther and the American lion, still frequently occurs; and in all parts the common fox and the silver fox, the lynx, beaver, otter, marten, fisher, wolverene, mink, skunk and other fur-bearing animals. Mountain and plain and Arctic hares and rabbits are plentiful or scarce in localities, according to seasons or other circumstances. In the mountains of British Columbia are the bighorn or Rocky Mountain sheep and the Rocky Mountain goat, while the saddleback and white mountain sheep have recently been discovered in the northern Cordillera. The birds of Canada are mostly migratory, and are those common to the northern and central states of the United States. The wildfowl are, particularly in the west, in great numbers; their breeding-grounds extending from Manitoba and the western prairies up to Hudson Bay, the barren lands and Arctic coasts. The several kinds of geese— including the Canada goose, the Arctic goose or wavey, the laughing goose, the brant and others—all breed in the northern regions, but are found in great numbers throughout the several provinces, passing north in the spring and south in the autumn. There are several varieties of grouse, the largest of which is the grouse of British Columbia and the pennated grouse and the prairie chicken of Manitoba and the plains, besides the so-called partridge and willow partridge, both of which are grouse. While the pennated grouse (called the prairie chicken in Canada) has always been plentiful, the prairie hen (or chicken) proper is a more recent arrival from Minnesota and the Dakotas, to which it had come from Illinois and the south as settlement and accompanying wheatfields extended north. In certain parts of Ontario the wild turkey is occasionally found and the ordinary quail, but in British Columbia is found the California quail, and a larger bird much resembling it called the mountain partridge. The golden eagle, bald-headed eagle, osprey and a large variety of hawks are common in Canada, as are the snowy owl, the horned owl and others inhabiting northern climates. The raven frequently remains even in the colder parts throughout the winter; these, with the Canada jay, waxwing, grosbeak and snow bunting, being the principal birds seen in Manitoba and northern districts in that season. The rook is not found, but the common crow and one or two other kinds are there during the summer. Song-birds are plentiful, especially in wooded regions, and include the American robin, oriole, thrushes, the cat-bird and various sparrows; while the English sparrow, introduced years ago, has multiplied excessively and become a nuisance in the towns. The smallest of the birds, the ruby throat humming-bird, is found everywhere, even up to timber line in the mountains. The sea-birds include a great variety of gulls, guillemots, cormorants, albatrosses (four species), fulmars and petrels, and in the Gulf of St Lawrence the gannet is very abundant. Nearly all the sea-birds of Great Britain are found in Canadian waters or are represented by closely allied species.

(A. P. C.)

Area and Population.—The following table shows the division of the Dominion into provinces and districts, with the capital, population and estimated area of each.

	Area in sq. mi.	Population.	Official Capital.

		1881.	1901.	
Provinces—				
Ontario	260,862	1,926,922	2,182,947	Toronto
Quebec	351,873	1,359,027	1,648,898	Quebec
Nova Scotia	21,428	440,572	459,574	Halifax
New Brunswick	27,985	321,233	331,120	Fredericton
Manitoba	73,732	62,260	255,211[1]	Winnipeg
British Columbia	372,630	49,459	178,657	Victoria
Prince Edward Island	2,184	108,891	103,259	Charlottetown
Saskatchewan	250,650	} 25,515	91,460[1]	Regina
Alberta	253,540		72,841[1]	Edmonton
Districts—				
Keewatin	516,571	30,931	8,800	. .
Yukon	196,976	}	27,219	Dawson City
Mackenzie	562,182		5,216	. .
Ungava	354,961		5,113	. .
Franklin	500,000			. .
The Dominion	3,745,574[2]	4,324,810	5,371,315	Ottawa

In 1867 the Dominion was formed by the union of the provinces of Nova Scotia, New Brunswick, Quebec (Lower Canada) and Ontario (Upper Canada). In 1869 the North-west Territories were purchased from the Hudson's Bay Company, from a corner of which Manitoba was carved in the next year. In 1871 British Columbia and in 1873 Prince Edward Island joined the Dominion.

The islands and other districts within the Arctic circle became a portion of the Dominion only in 1880, when all British possessions in North America, excepting Newfoundland, with its dependency, the Labrador coast, and the Bermuda islands, were annexed to Canada. West of the province of Ontario, then inaccurately defined, the provinces of Manitoba and British Columbia were the only organized divisions of the western territory, but in 1882 the provisional districts of Assiniboia, Athabasca, Alberta and Saskatchewan were formed, leaving the remainder of the north-west as unorganized territories, a certain portion of the north-east, called Keewatin, having previously been placed under the lieutenant-governor of Manitoba. In 1905 these four districts were formed into the two provinces of Alberta and Saskatchewan, and Keewatin was placed directly under the federal government. In 1898, owing to the influx of miners, the Yukon territory was constituted and granted a limited measure of self-government. The unorganized territories are sparsely inhabited by Indians, the people of the Hudson's Bay Company's posts and a few missionaries.

Population.—The growth of population is shown by the following figures:—1871, 3,485,761; 1881, 4,324,810; 1891, 4,833,239; 1901, 5,371,315. Since 1901 the increase has been more rapid, and in 1905 alone 144,621 emigrants entered Canada, of whom about two-fifths were from Great Britain and one-third from the United States.

The density of population is greatest in Prince Edward Island, where it is 51.6 to the sq. m.; in Nova Scotia it is 22.3; New Brunswick, 11.8; Ontario, 9.9; Manitoba, 4.9; Quebec, 4.8; Saskatchewan, 1.01; Alberta, 0.72; British Columbia, 0.4; the Dominion, 1.8. This is not an indication of the density in settled parts; as in Quebec, Ontario and the western provinces there are large unpopulated districts, the area of which enters into the calculation. The population is composed mainly of English- or French-speaking people, but there are German settlements of some extent in Ontario, and of late years there has been a large immigration into the western provinces and territories from other parts of Europe, including Russians, Galicians, Polish and Russian Jews, and Scandinavians. These foreign elements have been assimilated more slowly than in the United States, but the process is being hastened by the growth of a national consciousness. English, Irish and Scots and their descendants form the bulk of the population of Ontario, French-Canadians of Quebec, Scots of Nova Scotia, the Irish of a large proportion of New Brunswick. In the other provinces the latter race tends to confine itself to the cities. Manitoba is largely peopled from Ontario, together with a decreasing number of half-breeds—*i.e.* children of white fathers (chiefly French or Scottish) and Indian mothers—who originally formed the bulk of its inhabitants. Alberta and Saskatchewan, particularly the ranching districts, are chiefly peopled by English immigrants, though since 1900 there has also been a large influx from the United States. British Columbia contains a mixed population, of which in the mining districts a large proportion is American. Since 1871 a great change has taken place throughout the west, *i.e.* from Lake Superior to the Pacific. Then Manitoba was principally inhabited by English and French half-breeds (or Métis), descendants of Hudson's Bay Company's employes, or adventurous pioneers from Quebec, together with Scottish settlers, descendants of those brought out by Lord Selkirk (*q.v.*), some English army pensioners and others, and the van of the immigration that shortly followed from Ontario. Beyond Manitoba buffalo were still running on the plains, and British Columbia having lost its mining population of 1859 and 1860 was largely inhabited by Indians, its white population which centred in the city of Victoria being principally English.

French is the language of the province of Quebec, though English is much spoken in the cities; both languages are officially recognized in that province, and in the federal courts and parliament. Elsewhere, English is exclusively used, save by the newly-arrived foreigners. The male sex is slightly the more numerous in all the provinces except Quebec, the greatest discrepancy existing in British Columbia.

The birth-rate is high, especially in Quebec, where families of twelve to twenty are not infrequent, but is decreasing in Ontario. In spite of the growth of manufactures since 1878, there are few large cities, and the proportion of the urban population to the rural is small. Herein it differs noticeably from Australia. Between 1891 and 1901 the number of farmers in Ontario, Quebec and the Maritime provinces decreased, and there seemed a prospect of the country being divided into a manufacturing east and an agricultural west, but latterly large tracts in northern Ontario and Quebec have proved suitable for cultivation and are being opened up.

Religion.—There is no established church in Canada, but in the province of Quebec certain rights have been allowed to the Roman Catholic church ever since the British conquest. In that province about 87% of the population belongs to this church, which is strong in the others also, embracing over two-fifths of the population of the Dominion. The Protestants have shown a tendency to subdivision, and many curious and ephemeral sects have sprung up; of late years, however, the various sections of Presbyterians, Methodists and Baptists have united, and a working alliance has been formed between Presbyterians, Methodists and Congregationalists. The Methodists are the strongest, and in Ontario form over 30% of the population. Next come the Presbyterians, the backbone of the maritime provinces. The Church of England is strong in the cities, especially Toronto. Save among the Indians, active disbelief in Christianity is practically non-existent, and even among them 90% are nominally Christian.

Indians.—The Indian population numbers over 100,000 and has slightly increased since 1881. Except in British Columbia and the unorganized territories, nearly all of these are on reservations, where they are under government supervision, receiving an annuity in money and a certain amount of provisions; and where, by means of industrial schools and other methods, civilized habits are slowly superseding their former mode of life. British Columbia has about 25,000, most of whom are along the coast, though one of the important tribes, the Shuswaps, is in the interior. An almost equal number are

found in the three prairie provinces. Those of Ontario, numbering about 20,000, are more civilized than those of the west, many of them being good farmers. In all the provinces they are under the control of the federal government which acts as their trustee, investing the money which they derive chiefly from the sale of lands and timber, and making a large annual appropriation for the payment of their annuities, schools and other expenses. While unable to alienate their reservations, save to the federal government, they are not confined to them, but wander at pleasure. As they progress towards a settled mode of life, they are given the franchise; this process is especially far advanced in Ontario. A certain number are found in all the provinces. They make incomparable guides for fishing, hunting and surveying parties, on which they will cheerfully undergo the greatest hardships, though tending to shrink from regular employment in cities or on farms.

Orientals.—The Chinese and Japanese numbered in 1906 about 20,000, of whom, three-quarters were in British Columbia, though they were spreading through the other provinces, chiefly as laundrymen. They are as a rule frugal, industrious and law-abiding, and are feared rather for their virtues than for their vices. Since 1885 a tax has been imposed on all Chinese entering Canada, and in 1903 this was raised to £100 ($500). British Columbia endeavoured in 1905 to lay a similar restriction on the Japanese, but the act was disallowed by the federal legislature.

Finance.—Since 1871 the decimal system of coinage, corresponding to that of the United States, has been the only one employed. One dollar is divided into one hundred cents (£1 = $4.86⅔). The money in circulation consists of a limited number of notes issued by the federal government, and the notes of the chartered banks, together with gold, silver and copper coin. Previous to 1906 this coin was minted in England, but in that year a branch of the royal mint was established at Ottawa. Though the whole financial system rests on the maintenance of the gold standard, gold coin plays a much smaller part in daily business than in England, France or Germany. United States' notes and silver are usually received at par; those of other nations are subject to a varying rate of exchange.

The banking system, which retains many features of the Scotch system, on which it was originally modelled, combines security for the note-holders and depositors with prompt increase and diminution of the circulation in accordance with the varying conditions of trade. This is especially important in a country where the large wheat crop renders an additional quantity of money necessary on very short notice during the autumn and winter. There has been no successful attempt to introduce the "wild cat" banking, which had such disastrous effects in the early days of the western states. Since federation no chartered bank has been compelled to liquidate without paying its note-holders in full. The larger banks are chartered by the federal government; in the smaller towns a number of private banks remain, but their importance is small, owing to the great facilities given to the chartered banks by the branch system. In 1906 there were 34 chartered banks, of which the branches had grown from 619 in 1900 to 1565 in 1906, and the number since then has rapidly increased. The banks are required by law to furnish to the finance minister detailed monthly statements which are published in the official gazette. Once in every ten years the banking act is revised and weaknesses amended. Clearing-houses have been established in the chief commercial centres. In October 1906 the chartered banks had an aggregate paid-up capital of over $94,000,000 with a note circulation of $83,000,000 and deposits of over $553,000,000.

There are four kinds of savings banks in Canada:—(1) the post-office savings banks; (2) the government savings banks of the Maritime provinces taken over at federation and being gradually merged with the former; (3) two special savings banks in the cities of Montreal and Quebec; (4) the savings bank departments of the chartered banks. The rate of interest allowed by the government is now 3%, and the chartered banks usually follow the government rate. The amount on deposit in the first three increased from $5,057,607 in 1868 to $89,781,546 in October 1906. The returns from the chartered banks do not specify the deposits in these special accounts.

The numerous loan and trust companies also possess certain banking privileges.

The federal revenue is derived mainly from customs and excise duties, with subsidiary amounts from mining licences, timber dues, post-office, &c. Both the revenue and the expenditure have in recent years increased greatly, the revenue rising from $46,743,103 in 1899 to $71,186,073 in 1905 and the expenditure keeping pace with it. The debt of the Dominion in 1873 and in 1905 was:—

	1873.	1905.
Gross debt	$129,743,432	$377,678,580
Assets	30,894,970	111,454,413
Net debt	98,848,462	266,224,413

While the debt had thus increased faster than the population, it weighed less heavily on the people, not only on account of the great increase in commercial prosperity, but of the much lower rate of interest paid, and of the increasing revenue derived from assets. Whereas in 1867 the rate of interest was over 4%, and interest was being paid on former provincial loans of over 6%, Canada could in 1906 borrow at 3%.

The greater part of the debt arises from the assumption of the debts of the provinces as they entered federation, expenditure on canals and assistance given to railways. It does not include the debts incurred by certain provinces since federation, a matter which concerns themselves alone. A strong prejudice against direct taxation exists, and none is imposed by the federal government, though it has been tentatively introduced in the provinces, especially in Quebec, in the form of liquor licences, succession duties, corporation taxes, &c. British Columbia has a direct tax on property and on income. The cities, towns and municipalities resort to it to supply their local needs, and there is a tendency, especially pronounced in Ontario on account of the excellence of her municipal system, to devolve the burden of educational payments, and others more properly provincial, upon the municipal authorities on the plea of decentralization.

Commerce and Manufactures.—Since 1867 the opening up of the fertile lands in the north-west, the increase of population, the discovery of new mineral fields, the construction of railways and the great improvement of the canal system have changed the conditions, methods and channels of trade. The great extension during the same period of the use of water-power has been of immense importance to Canada, most of the provinces possessing numerous swift-flowing streams or waterfalls, capable of generating a practically unlimited supply of power.

In 1878 the introduction of the so-called "National Policy" of protection furthered the growth of manufactures. Protection still remains the trade policy of Canada, though modified by a preference accorded to imports from Great Britain and from most of the British colonies. The tariff, though moderate as compared with that of the United States, amounted in 1907 to about 28% on dutiable imports and to about 16% on total imports. Tentative attempts at export duties have also been made. Inter-provincial commerce is free, and the home market is greatly increasing in importance. The power to make commercial treaties relating to Canada rests with the government of Great Britain, but in most cases the official consent of Canada is required, and for many years no treaty repugnant to her interests has been signed. The denunciation by the British government in 1897 of commercial treaties with Belgium and Germany, at the request of Canada, was a striking proof of her increasing importance, and attempts have at various times been made to obtain the full treaty-making power for the federal government. The great proportion of the foreign trade of the Dominion is with the United States and Great Britain. From the former come most of the manufactured goods imported and large quantities of raw materials; to the latter are sent food-stuffs. Farm products are the most important export, and with the extension of this industry in the north-west provinces and in northern Ontario will probably continue to be so. Gold, silver, copper and other minerals are largely

exported, chiefly in an unrefined state and almost entirely to the United States. The exports of lumber are about equally divided between the two. Formerly, the logs were shipped as square timber, but now almost always in the form of deals, planks or laths; such square timber as is still shipped goes almost entirely to Great Britain. Wood pulp for the manufacture of paper is exported chiefly to the United States. To that country fresh fish is sent in large quantities, and there is an important trade in canned salmon between British Columbia and Great Britain. Few of the manufacturers do more than compete with the foreigner for an increasing share of the home market. In this they have won increased success, at least five-sixths of the manufactured goods used being produced within the country, but a desire for further protection is loudly expressed. Though the chief foreign commerce is with Great Britain and the United States, the Dominion has trade relations with all the chief countries of the world and maintains commercial agents among them. Her total foreign trade (import and export) was in 1906 over £100,000,000.

Shipping.—The chief seaports from east to west are Halifax, N.S., Sydney, N.S., St John, N.B., Quebec and Montreal on the Atlantic; and Vancouver, Esquimalt and Victoria, B.C., on the Pacific. Halifax is the ocean terminus of the Intercolonial railway; St John, Halifax and Vancouver of the Canadian Pacific railway. Prince Rupert, the western terminus of the Grand Trunk Pacific railway, was in 1906 only an uninhabited harbour, but was being rapidly developed into a flourishing city. Though Halifax and St John are open in winter, much of the winter trade eastwards is done through American harbours, especially Portland, Maine, owing to the shorter railway journey. Esquimalt, Halifax, Kingston (Ont.) and Quebec have well-equipped graving-docks. The coast, both of the ocean and of the Great Lakes, is well lighted and protected. The decay of the wooden shipbuilding industry has lessened the comparative importance of the mercantile marine, but there has been a great increase in the tonnage employed in the coasting trade and upon inland waters. Numerous steamship lines ply between Canada and Great Britain; direct communication exists with France, and the steamers of the Canadian Pacific railway run regularly to Japan and to Australia.

Internal Communications.—Her splendid lakes and rivers, the development of her canal system, and the growth of railways have made the interprovincial traffic of Canada far greater than her foreign, and the portfolio of railways and canals is one of the most important in the cabinet. There are, nominally, about 200 railways, but about one-half of these, comprising five-sixths of the mileage, have been amalgamated into four great systems: the Grand Trunk, the Canadian Pacific, the Canadian Northern and the Intercolonial; most of the others have been more or less consolidated. With the first of the four large systems is connected the Grand Trunk Pacific. The Intercolonial, as also a line across Prince Edward Island, is owned and operated by the federal government. Originally built chiefly as a military road, and often the victim of political exigencies, it has not been a commercial success. With the completion of the Grand Trunk Pacific (planned for 1911) and the Canadian Northern, the country would possess three trans-continental railways, and be free from the reproach, so long hurled at it, of possessing length without breadth.

At numerous points along the frontier, connexion is made with the railways of the United States. Liberal aid is given by the federal, provincial and municipal governments to the construction of railways, amounting often to more than half the cost of the road. The government of Ontario has constructed a line to open up the agricultural and mining districts of the north of the province, and is operating it by means of a commission. Practically all the cities[3] and large towns have electric tramways, and electricity is also used as a motive power on many lines uniting the larger cities with the surrounding towns and villages. Since 1903 the Dominion government has instituted a railway commission of three members with large powers of control over freight and passenger rates and other such matters. Telephone and express companies are also subject to its jurisdiction. From its decisions an appeal may be made to the governor-general in council, *i.e.* to the federal cabinet. It has exercised a beneficial check on the railways and has been cheerfully accepted by them. In Ontario a somewhat similar commission, appointed by the local government, exercises extensive powers of control over railways solely within the province, especially over the electric lines.

Despite the increase in railway facilities, the waterways remain important factors in the transportation of the country. Steamers ply on lakes and rivers in every province, and even in the far northern districts of Yukon and Mackenzie. Where necessary obstacles are surmounted by canals, on which over £22,000,000 have been spent, chiefly since federation. The St Lawrence river canal system from Lake Superior to tide water overcomes a difference of about 600 ft., and carries large quantities of grain from the west to Montreal, the head of summer navigation on the Atlantic. These canals have a minimum depth of 14 ft. on the sills, and are open to Canadian and American vessels on equal terms; the equipment is in every respect of the most modern character. So great, however, is the desire to shorten the time and distance necessary for the transportation of grain from Lake Superior to Montreal that an increasing quantity is taken by water as far as the Lake Huron and Georgian Bay ports, and thence by rail to Montreal. Numerous smaller canals bring Ottawa into connexion with Lake Champlain and the Hudson river via Montreal; by this route the logs and sawn lumber of Ontario, Quebec and New Brunswick find their destination. It has long been a Canadian ideal to shorten the distance from Lake Superior to the sea. With this object in view, the Trent Valley system of canals has been built, connecting Lake Ontario with the Georgian Bay (an arm of Lake Huron) via Lake Simcoe. In 1899 and subsequently surveys were made with a view to connecting the Georgian Bay through the intervening water stretches, with the Ottawa river system, and thence to Montreal. In 1903 all tolls were taken off the Canadian canals, greatly to the benefit of trade.

Mining.—The mineral districts occur from Cape Breton to the islands in the Pacific and the Yukon district. Nova Scotia, British Columbia and the Yukon are still the most productive, but the northern parts of Ontario are proving rich in the precious metals. Coal, chiefly bituminous, occurs in large quantities in Nova Scotia, British Columbia and in various parts of the north-west (lignite), though most of the anthracite is imported from the United States, as is the greater part of the bituminous coal used in Ontario. Under the stimulus of federal bounties, the production of pig iron and of steel, chiefly from imported ore, is rapidly increasing. Bounties on certain minerals and metals are also given by some of the provinces. The goldfields of the Yukon, though still valuable, show a lessening production. Sudbury, in Ontario, is the centre of the nickel production of the world, the mines being chiefly in American hands, and the product exported to the United States. Of the less important minerals, Canada is the world’s chief producer of asbestos and corundum. Copper, lead, silver and all the important metals are mined in the Rocky Mountain district. From Quebec westwards, vast regions are still partly, or completely, unexplored.

Lumber.—In spite of great improvidence, and of loss by fire, the forest wealth of Canada is still the greatest in the world. Measures have been taken, both by the provincial and the federal governments, for its preservation, and for re-forestation of depleted areas. Certain provinces prohibit the exportation of logs to the United States, in order to promote the growth of saw-mills and manufactures of wooden-ware within the country, and the latter have of late years developed with great rapidity. The lumber trade of British Columbia has suffered from lack of an adequate market, but is increasing with the greater demand from the provinces of Alberta and Saskatchewan. A great development has also taken place in Ontario and the eastern provinces, through the use of spruce and other trees, long considered comparatively useless, in the manufacture of wood-pulp for paper-making.

Crown Lands.—Large areas of unoccupied land remain in all the provinces (except Prince Edward Island). In Manitoba, Saskatchewan, Alberta, the so-called railway belt of British Columbia and the territories, these crown lands are chiefly owned by the federal parliament; in the other provinces, by the local legislatures. So great is their extent that, in spite of the immigration of recent years, the Dominion government gives a freehold of 160 acres to every *bona fide* settler, subject to certain conditions of residence and the erection of buildings during the first three years. Mining and timber lands are sold or leased at moderate rates. All crown lands controlled by the provinces must be paid for, save in certain districts of

Ontario, where free grants are given, but the price charged is low. The Canadian Pacific railway controls large land areas in the two new provinces; and large tracts in these provinces are owned by land companies. Both the Dominion and the provincial governments have set apart certain areas to be preserved, largely in their wild state, as national parks. Of these the most extensive are the Rocky Mountains Park at Banff, Alberta, owned by the Dominion government, and the "Algonquin National Park," north-east of Lake Simcoe, the property of Ontario.

Fisheries.—The principal fisheries are those on the Atlantic coast, carried on by the inhabitants of Nova Scotia, New Brunswick, Prince Edward Island, and the eastern section of Quebec. Cod, herring, mackerel and lobsters are the fish chiefly caught, though halibut, salmon, anchovies and so-called sardines are also exported. Bounties to encourage deep-sea fishing have been given by the federal government since 1882. In British Columbian waters the main catch is of salmon, in addition to which are halibut, oolachan, herring, sturgeon, cod and shellfish. The lakes of Ontario and Manitoba produce white fish, sturgeon and other fresh-water fish. About 80,000 persons find more or less permanent employment in the fishing industry, including the majority of the Indians of British Columbia.

The business of fur-seal catching is carried on to some extent in the North Pacific and in Bering Sea by sealers from Victoria, but the returns show it to be a decreasing industry, as well as one causing friction with the United States. Indeed, no department of national life has caused more continual trouble between the two peoples than the fisheries, owing to different laws regarding fish protection, and the constant invasion by each of the territorial waters of the other.

Education.—The British North America Act imposes on the provincial legislatures the duty of legislating on educational matters, the privileges of the denominational and separate schools in Ontario and Quebec being specially safeguarded. In 1871, the New Brunswick legislature abolished the separate school system, and a contest arose which was finally settled by the authority of the legislature being sustained, though certain concessions were made to the Roman Catholic dissentients. Subsequently a similar difficulty arose in Manitoba, where the legislature in 1890 abolished the system of separate schools which had been established in 1871. After years of bitter controversy, in which a federal ministry was overthrown, a compromise was arranged in 1897, in which the Roman Catholic leaders have never fully acquiesced. In the provinces of Alberta and Saskatchewan, formed in 1905, certain educational privileges, (though not amounting to a separate school system) were granted to the Roman Catholics.

All the provinces have made sacrifices to insure the spread of education. In 1901, 76% of the total population could read and write, and 86% of those over five years of age. These percentages have gradually risen ever since federation, especially in the province of Quebec, which was long in a backward state. The school systems of all the provinces are, in spite of certain imperfections, efficient and well-equipped, that of Ontario being especially celebrated. A fuller account of their special features will be found under the articles on the different provinces.

Numerous residential schools exist and are increasing in number with the growth of the country in wealth and culture. In Quebec are a number of so-called classical colleges, most of them affiliated with Laval University.

Higher education was originally organized by the various religious bodies, each of which retains at least one university in more or less integral connexion with itself. New Brunswick, Ontario and Manitoba support provincial universities at Fredericton, Toronto and Winnipeg. Those of most importance[4] are:—Dalhousie University, Halifax, N.S. (1818); the University of New Brunswick, Fredericton, N.B. (1800); McGill University, Montreal, Que. (1821); Laval University, Quebec, and Montreal, Que. (1852); Queen's University, Kingston, Ont. (1841); the University of Toronto, Toronto, Ont. (1827); 152
Trinity University, Toronto, Ont. (1852); Victoria University, Toronto, Ont. (1836); the University of Ottawa, Ottawa, Ont. (1848); the University of Manitoba, Winnipeg, Man. (1877).

Of these McGill (see MONTREAL) is especially noted for the excellence of its training in practical and applied science. Many of the students, especially in the departments of medicine and theology, complete their education in the United States, Britain or Europe.

Most of the larger towns and cities contain public libraries, that of Toronto being especially well-equipped.

Of the numerous learned and scientific societies, the chief is the Royal Society of Canada, founded in 1881.

Defence.—The command in chief of all naval and military forces is vested in the king, but their control rests with the federal parliament. The naval forces, consisting of a fisheries protection service, are under the minister of marine and fisheries, the land forces under the minister of militia and defence. Prior to 1903, command of the latter was vested in a British officer, but since then has been entrusted to a militia council, of which the minister is president. The fortified harbours of Halifax (N.S.) and Esquimalt (B.C.) were till 1905 maintained and garrisoned by the imperial government, but have since been taken over by Canada. This has entailed the increase of the permanent force to about 5000 men. Previously, it had numbered about 1000 (artillery, dragoons, infantry) quartered in various schools, chiefly to aid in the training of the militia. In this all able-bodied citizens between the ages of 18 and 60 are nominally enrolled, but the active militia consists of about 45,000 men of all ranks, in a varying state of efficiency. These cannot be compelled to serve outside the Dominion, though special corps may be enlisted for this purpose, as was done during the war in South Africa (1899-1902). At Quebec is a Dominion arsenal, rifle and ammunition factories. Cadet corps flourish in most of the city schools. At Kingston (Ont.) is the Royal Military College, to the successful graduates of which a certain number of commissions in the British service is annually awarded.

Justice and Crime.—Justice is well administered throughout the country, and even in the remotest mining camps there has been little of the lawlessness seen in similar districts of Australia and the United States. For this great credit is due to the "North-west mounted police," the "Riders of the Plains," a highly efficient body of about seven hundred men, under the control of the federal government. Judges are appointed for life by the Dominion parliament, and cannot be removed save by impeachment before that body, an elaborate process never attempted since federation, though more than once threatened. From the decisions of the supreme court of Canada appeal may be made to the judicial committee of the imperial privy council.

AUTHORITIES.—The Canadian Geological Survey has published (Ottawa, since 1845) a series of reports covering a great number of subjects. Several provinces have bureaus or departments of mines, also issuing reports. The various departments of the federal and the provincial governments publish annual reports and frequent special reports, such as the decennial report on the census, from which a vast quantity of information may be obtained. Most of this is summed up in the annual *Statistical Year Book of Canada* and in the *Official Handbook of the Dominion of Canada*, issued at frequent intervals by the Department of the Interior. See also J.W. White (the Dominion geographer), *Atlas of Canada* (1906); J. Castell Hopkins, *Canada: an Encyclopaedia* (6 vols., 1898-1900); *The Canadian Annual Review* (yearly since 1902), replacing H.J. Morgan's *Canadian Annual Register* (1878-1886); Sir J.W. Dawson, *Handbook of Canadian Geology* (1889); George Johnson, *Alphabet of First Things in Canada* (3rd ed., 1898); A.G. Bradley, *Canada in the Twentieth Century* (1903); *Transactions of the Royal Society of Canada* (yearly since 1883); R.C. Breckenridge, *The Canadian Banking System* (1895); A. Shortt, *History of Canadian Banking* (1902-1906); Sir S. Fleming, *The Intercolonial* (1876); John Davidson, "Financial Relations of Canada and the Provinces" (*Economic Journal*, June 1905); *Transactions of the Royal Society of Canada, passim*, for valuable papers by H.M. Ami, A.P. Coleman, G.M. Dawson, W.F. Ganong, B.J. Harrington and others; also articles in *Canadian Economics* and in the *Handbook of Canada,* published on the occasion of visits of the British Association.

(W. L. G.)

Canada is pre-eminently an agricultural country. Of the total population (estimated in 1907 at 6,440,000) over 50% are directly engaged in practical agriculture. In addition large numbers are engaged in industries arising out of agriculture; among these are manufacturers of agricultural implements, millers of flour and oatmeal, curers and packers of meat, makers of cheese and butter, and persons occupied in the transportation and commerce of grain, hay, live stock, meats, butter, cheese, milk, eggs, fruit and various other products. The country is splendidly formed for the production of food. Across the continent there is a zone about 3500 m. long and as wide as or wider than France, with (over a large part of this area) a climate adapted to the production of foods of superior quality. Since the opening of the 20th century, great progress has been made in the settlement and agricultural development of the western territories between the provinces of Manitoba and British Columbia. The three "North-West Provinces" (Manitoba, Saskatchewan, Alberta) have a total area of 369,869,898 acres, of which 12,853,120 acres are water. In 1906 their population was 808,863, nearly double what it was in 1901. The land in this vast area varies in virginal fertility, but the best soils are very rich in the constituents of plant food. Chemical analyses made by Mr F.T. Shutt have proved that soils from the North-West Provinces contain an average of 18,000 lb of nitrogen, 15,580 lb of potash and 6,700 lb of phosphoric acid per acre, these important elements of plant food being therefore present in much greater abundance than they are in ordinary cultivated European soils of good quality. The prairie lands of Manitoba and Saskatchewan produce wheat of the finest quality. Horse and cattle ranching is practised in Alberta, where the milder winters allow of the outdoor wintering of live stock to a greater degree than is possible in the colder parts of Canada. The freezing of the soil in winter, which at first sight seems a drawback, retains the soluble nitrates which might otherwise be drained out. The copious snowfall protects vegetation, supplies moisture, and contributes nitrogen to the soil. The geographical position of Canada, its railway systems and steamship service for freight across the Atlantic and Pacific oceans, are favourable to the extension of the export trade in farm products to European and oriental countries. Great progress has been made in the development of the railway systems of Canada, and the new transcontinental line from the Atlantic to the Pacific, passing through Saskatchewan via Saskatoon, and Alberta via Edmonton, renders possible of settlement large areas of fertile wheat-growing soil. The canal system of Canada, linking together the great natural waterways, is also of much present and prospective importance in cheapening the transportation of agricultural produce.

Crops

Of *wheat* many varieties are grown. The methods of cultivation do not involve the application of so much hand labour per acre as in Europe. The average yield of wheat for the whole of Canada is nearly 20 bushels per acre. In 1901 the total production of wheat in Canada was 55½ million bushels. In 1906 the estimated total production was 136 million bushels. The total wheat acreage, which at the census of 1901 was 4,224,000, was over 6,200,000 in 1906, an increase of nearly two million acres in five years.

Up to the close of the 19th century, Ontario was the largest wheat-growing province in Canada. In 1900 the wheat acreage in Ontario was 1,487,633, producing 28,418,907 bushels, an average yield of 19.10 bushels per acre. Over three-quarters of this production was of fall or winter wheat, the average yield of which in Ontario over a series of years since 1883 had been about 20 bushels per acre. But the predominance in wheat-growing has now shifted to the new prairie regions of the west. A census taken in 1906 shows that the total acreage of wheat in the North-West Provinces was 5,062,493, yielding 110,586,824 bushels, an average in a fairly normal season of 21.84 bushels per acre. Of this total wheat acreage, 2,721,079 acres were in Manitoba, 2,117,484 acres in Saskatchewan, and 223,930 acres in Alberta, with average yields per acre at the rates of 20.02 bushels in Manitoba, 23.70 in Saskatchewan and 26.49 in Alberta. In these provinces spring wheat is almost universally sown, except in Alberta where fall or winter wheat is also sown to a considerable extent. Summer fallowing for wheat is a practice that has gained ground in the North-West Provinces. Land ploughed and otherwise tilled, but left unseeded during the summer, is sown with wheat in the succeeding autumn or spring. Wheat on summer fallow land yielded, according to the North-West census of 1906, from 2 to 8 bushels per acre more than that sown on other land. Summer fallowing is, however, subject to one drawback: the strong growth which it induces is apt to retard the ripening of the grain. Canada is clearly destined to rank as one of the most important grain-producing countries of the world. The northern limits of the wheat-growing areas have not been definitely ascertained; but samples of good wheat were grown in 1907 at Fort Vermilion on the Peace river, nearly 600 m. north of Winnipeg in lat. 58.34 and at Fort Simpson on the Mackenzie river in lat. 61.52, more than 800 m. north of Winnipeg and about 1000 m. north of the United States boundary. As a rule the weather during the harvesting period permits the grain to be gathered safely without damage from sprouting. Occasionally in certain localities in the north-west the grain is liable to injury from frost in late summer; but as the proportion of land under cultivation increases the climate becomes modified and the danger from frost is appreciably less. The loss from this cause is also less than formerly, because any grain unfit for export is now readily purchased for the feeding of animals in Ontario and other parts of eastern Canada.

Suitable machinery for cleaning the grain is everywhere in general use, so that weed seeds are removed before the wheat is ground. This gives Canadian wheat excellent milling properties, and enables the millers to turn out flour uniform in quality and of high grade as to keeping properties. Canadian flour has a high reputation in European markets. It is known as flour from which bakers can make the best quality of bread, and also the largest quantity per barrel, the quantity of albuminoids being greater in Canadian flour than in the best brands of European. Owing to its possession of this characteristic of what millers term "strength," *i.e.* the relative capacity of flour to make large loaves of good quality, Canadian flour is largely in demand for blending with the flour of the softer English wheats. For this reason some of the strong Canadian wheats have commanded in the home market 5s. and 6s. a quarter more than English-grown wheat. At the general census of 1901 the number of flouring and grist mill establishments, each employing five persons and over, was returned at 400, the number of employes being 4251 and the value of products $31,835,873. A special census of manufactures in 1906 shows that these figures had grown in 1905 to 832 establishments, 5619 employes and $56,703,269 value of the products. There is room for a great extension in the cultivation of wheat and the manufacture and exportation of flour.

In the twelve months of 1907 Canada exported 37,503,057 bushels of wheat of the value of $34,132,759 and 1,858,485 barrels of flour of the value of $7,626,408. The corresponding figures in 1900 were—wheat, 16,844,650 bushels, value, $11,995,488, and flour, 768,162 bushels, value, $2,791,885.

Oats of fine quality are grown in large crops from Prince Edward Island on the Atlantic coast to Vancouver Island on the Pacific coast. Over large areas the Canadian soil and climate are admirably adapted for producing oats of heavy weight per bushel. In all the provinces of eastern Canada the acreage under oats greatly exceeds that under wheat. The annual average oat crop in all Canada is estimated at about 248 million bushels. As the total annual export of oats is now less than three million bushels the home consumption is large, and this is an advantage in maintaining the fertility of the soil. In 1907 the area under oats in Ontario was 2,932,509 acres and yielded 83,524,301 bushels, the area being almost as large as that of the acreage under hay and larger than the combined total of the other principal cereals grown in the province. Canadian oatmeal is equal in quality to the best. It is prepared in different forms, and in various degrees of fineness.

Barley was formerly grown for export to the United States for malting purposes. After the raising of the duty on barley under the McKinley and Dingley tariffs that trade was practically destroyed and Canadian farmers were obliged to find other uses for this crop. Owing to the development of the trade with the mother-country in dairying and meat products, barley as a home feeding material has become more indispensable than ever. Before the adoption of the McKinley tariff

about nine million bushels of barley were exported annually, involving the loss of immense stores of plant food. In 1907, with an annual production of nearly fifty million bushels, only a trifling percentage was exported, the rest being fed at home and exported in the form of produce without loss from impoverishment of the soil. The preparation of pearl or pot barley is an incidental industry.

Rye is cultivated successfully, but is seldom used for human food. Flour from wheat, meal from oats, and meal from Indian corn are preferred.

Buckwheat flour is used in considerable quantities in some districts for the making of buckwheat cakes, eaten with maple syrup. These two make an excellent breakfast dish, characteristic of Canada and some of the New England states. There are also numerous forms of preparations from cereals, sold as breakfast foods, which, owing to the high quality of the grains grown in Canada and the care exercised in their manufacture, compare favourably with similar products in other countries.

Peas in large areas are grown free from serious trouble with insect pests. Split peas for soup, green peas as vegetables and sweet peas for canning are obtained of good quality.

Vegetables are grown everywhere, and form a large part of the diet of the people. There is a comparatively small export, except in the case of turnips and potatoes and of vegetables which have been canned or dried. Besides potatoes, which thrive well and yield large quantities of excellent quality, there are turnips, carrots, parsnips and beets. The cultivation of sugar beets for the manufacture of sugar has been established in Ontario and in southern Alberta, where in 1906 an acreage under this crop of 3344 yielded 27,211 tons, an average of 8.13 tons per acre. Among the common vegetables used in the green state are peas, beans, cabbage, cauliflowers, asparagus, Indian corn, onions, leeks, tomatoes, lettuce, radish, celery, parsley, cucumbers, pumpkins, squash and rhubarb. Hay, of good quality of timothy (*Phleum pratense*), and also of timothy and clover, is grown over extensive areas. For export it is put up in bales of about 150 lb each. Since 1899 a new form of pressing has been employed, whereby the hay is compressed to stow in about 70 cub. ft. per ton. This has been a means of reducing the ocean freight per ton. The compact condition permits the hay to be kept with less deterioration of quality than under the old system of more loose baling. Austrian brome grass (*Bromus inermis*) and western rye grass (*Agropyrum tenerum*) are both extensively grown for hay in the North-West Provinces.

Live stock.

The almost universal adoption of electrical traction in towns has not led to the abandonment of the breeding of horses to the extent that was at one time anticipated. Heavy draught horses are reared in Ontario, and to a less but increasing extent in the North-West Provinces, the breeds being mainly the Clydesdale and the Shire. Percherons are also bred in different parts of Canada, and a few Belgian draught horses have been introduced. Good horses suitable for general work on farms and for cabs, omnibuses, and grocery and delivery wagons, are plentiful for local markets and for export. Thoroughbred and pure bred hackney stallions are maintained in private studs and by agricultural associations throughout the Dominion, and animals for cavalry and mounted infantry remounts are produced in all the provinces including those of the North-West. Useful carriage horses and saddle horses are bred in many localities. Horse ranching is practised largely in Alberta. There are no government stud farms. The total number of horses in the Dominion was estimated on the basis of census returns at 2,019,824 for the year 1907, an increase of 609,309 since 1901.

Cattle, sheep, swine and poultry are reared in abundance. The bracing weather of Canadian winters is followed by the warmth and humidity of genial summers, under which crops grow in almost tropical luxuriance, while the cool evenings and nights give the plants a robustness of quality which is not to be found in tropical regions, and also make life for the various domestic animals wholesome and comfortable. In the North-West Provinces there are vast areas of prairie land, over which cattle pasture, and from which thousands of fat bullocks are shipped annually. Throughout other parts bullocks are fed on pasture land, and also in stables on nourishing and succulent feed such as hay, Indian corn fodder, Indian corn silage, turnips, carrots, mangels, ground oats, barley, peas, Indian corn, rye, bran and linseed oil cake. The breeding of cattle, adapted for the production of prime beef and of dairy cows for the production of milk, butter and cheese, has received much attention. There is government control of the spaces on the steamships in which the cattle are carried, and veterinary inspection prevents the exportation of diseased animals.

A considerable trade has been established in the exportation of dressed beef in cold storage, and also in the exportation of meat and other foods in hermetically sealed receptacles. By the Meat and Canned Foods Act of 1907 of the Dominion parliament and regulations thereunder, the trade is carried on under the strictest government supervision, and no canned articles of food may be exported unless passed as absolutely wholesome and officially marked as such by government inspectors. There is a considerable trade in “lunch tongues.”

The cattle breeds are principally those of British origin. For beef, shorthorns, Herefords, Galloways and Aberdeen-Angus cattle are bred largely, whilst for dairying purposes, shorthorns, Ayrshires, Jerseys, Guernseys and Holstein-Friesians prevail. The French-Canadian cattle are highly esteemed in eastern Canada, especially by the farmers of the French provinces. They are a distinct breed of Jersey and Brittany type, and are stated to be descended from animals imported from France by the early settlers. The estimated number of cattle in Canada in 1907 was 7,439,051, an increase of 2,066,547 over the figures of the census of 1901.

All parts of the Dominion are well adapted for sheep; but various causes, amongst which must be reckoned the prosperity of other branches of agriculture, including wheat-growing and dairying, have in several of the provinces contributed to prevent that attention to this branch which its importance deserves, though there are large areas of rolling, rugged yet nutritious pastures well suited to sheep-farming. In the maritime provinces and in Prince Edward Island sheep and lambs are reared in large numbers. In Ontario sheep breeding has reached a high degree of perfection, and other parts of the American continent draw their supplies of pure bred stock largely from this province. All the leading British varieties are reared, the Shropshire, Oxford Down, Leicester and Cotswold breeds being most numerous. There are also excellent flocks of Lincolns and Southdowns. The number of sheep and lambs in Canada was estimated for the year 1907 at 2,830,785, as compared with 2,465,565 in 1901.

Pigs, mostly of the Yorkshire, Berkshire and Tamworth breeds, are reared and fattened in large numbers, and there is a valuable export trade in bacon. Canadian hogs are fed, as a rule, on feeds suited for the production of what are known as “fleshy sides.” Bacon with an excess of fat is not wanted, except in the lumber camps; consequently the farmers of Canada have cultivated a class of swine for bacon having plenty of lean and firm flesh. The great extension of the dairy business has fitted in with the rearing of large numbers of swine. Experimental work has shown that swine fattened with a ration partly of skim-milk were lustier and of a more healthy appearance than swine fattened wholly on grains. Slaughtering and curing are carried on chiefly at large packing houses. The use of mechanical refrigerating plants for chilling the pork has made it practicable to cure the bacon with the use of a small percentage of salt, leaving it mild in flavour when delivered in European markets. Regular supplies are exported during every week of the year. Large quantities of lard, brawn and pigs’ feet are exported. In 1907 the number of pigs in Canada was estimated at 3,530,060, an increase of 1,237,385 over the census record of 1901. Turkeys thrive well, grow to a fine size and have flesh of tender quality. Chickens are raised in large numbers, and poultry-keeping has developed greatly since the opening of the 20th century. Canadian eggs are usually packed in cases containing thirty dozens each. Cardboard fillers are used which provide a separate compartment for each egg. There are cold storage warehouses at various points in Canada, at which the eggs are collected, sorted and packed before shipment. These permit the eggs to be landed in Europe in a practically fresh condition as to flavour, with the shells

quite full.

Dairy products.

Canada has been called the land of milk and honey. Milk is plentiful, and enters largely into the diet of the people. With a climate which produces healthy, vigorous animals, notably free from epizootic diseases, with a fertile soil for the growth of fodder crops and pasture, with abundance of pure air and water, and with a plentiful supply of ice, the conditions in Canada are ideal for the dairying industry. Large quantities of condensed milk, put up in hermetically sealed tins, are sold for use in mining camps and on board steamships. The cheese is chiefly of the variety known as "Canadian Cheddar." It is essentially a food cheese rather than a mere condiment, and 1 lb of it will furnish as much nourishing material as 2¼ lb of the best beefsteak. The industry is largely carried on by co-operative associations of farmers. The dairy factory system was introduced into Canada in 1864, and from that time the production and exportation of cheese grew rapidly. Legislation was passed to protect Canadian dairy produce from dishonest manipulation, and soon Canadian cheese obtained a deservedly high reputation in the British markets. In 1891 cheese factories and creameries numbered 1733, and in 1899 there were 3649. In 1908 there were 4355 of these factories, of which 1284 were in Ontario, 2806 in Quebec, and 265 in the remaining seven provinces of Canada. Those in Ontario are the largest in size. Amongst the British imports of cheese the Canadian product ranks first in quality, whilst in quantity it represents about 72% of the total value of the cheese imports, and 84% of the total value of the imports of that kind of cheese which is classed as Cheddar. In 1906 the total exports of cheese to all countries from Canada reached 215,834,543 lb of the value of $24,433,169.

Butter for export is made in creameries, where the milk, cream and butter are handled by skilled makers. The creameries are provided with special cold storage rooms, into which the butter is placed on the same day in which it is made. From them it is carried in refrigerator railway cars and in cold storage chambers on steamships to its ultimate destination. For the export trade it is packed in square boxes made of spruce or some other odourless wood. These are lined with parchment paper, and contain each 56 lb net of butter. The total export of butter from Canada in 1906 was 34,031,525 lb., of the value of $7,075,539. According to a census of manufactures taken in 1906, the total value of factory cheese and butter made in Canada during that year was $32,402,265.

Fruits.

There are large districts lying eastward of the Great Lakes and westward of the Rocky Mountains, where apples of fine quality can be grown; and there are other smaller areas in which pears, peaches and grapes are grown in quantities in the open air. The climate is favourable to the growth of plums, cherries, strawberries, raspberries, currants, gooseberries, etc. There are many localities in which cranberries are successfully grown, and in which blueberries also grow wild in great profusion.

Apples and pears are the chief sorts of fruit exported. The high flavour, the crisp, juicy flesh and the long-keeping qualities of the Canadian apples are their chief merits. Apples are exported in barrels and also in boxes containing about one bushel each. Large quantities are also evaporated and exported. Establishments for evaporating fruit are now found in most of the larger apple-growing districts, and canning factories and jam factories have been established in many parts of Canada, and are conducted with advantage and profit.

The chief fruit-growing districts have long been in southern and western Ontario and in Nova Scotia; but recently much attention has been devoted to fruit-growing in British Columbia, where large areas of suitable land are available for the cultivation of apples, pears and other fruits. In some parts of the semi-arid districts in the interior of the province irrigation is being successfully practised for the purpose of bringing land under profitable cultivation for fruit. Collections of fruit grown in British Columbia have received premier honours at the competitive exhibitions of the Royal Horticultural Society in London, where their high quality and fine colour have been greatly appreciated.

Wine is made in considerable quantities in the principal vine-growing districts, and in several localities large vineyards have been planted for this purpose. An abundance of cider is also made in all the large apple-growing districts.

Honey is one of the minor food-products of Canada, and in many localities bees have abundance of pasturage. Canadian honey for colour, flavour and substance is unsurpassed. Maple sugar and syrup are made in those areas of the country where the sugar-maple tree flourishes. The syrup is used chiefly as a substitute for jam or preserved fruits, and the sugar is used in country homes for sweetening, for cooking purposes and for the making of confectionery. The processes of manufacture have been improved by the introduction of specially constructed evaporators, and quantities of maple sugar and syrup are annually exported.

Tobacco is a new crop which has been grown in Canada since 1904. Its cultivation promises to be successful in parts of Ontario, Quebec and British Columbia.

State aid.

The department of agriculture of the Dominion government renders aid to agriculture in many ways, maintaining the experimental farms and various effective organizations for assisting the live-stock, dairying and fruit-growing industries, for testing the germination and purity of agricultural seeds, and for developing the export trade in agricultural and dairy produce. The health of animals branch, through which are administered the laws relating to the contagious diseases of animals, and the control of quarantine and inspection stations for imported animals, undertakes also valuable experiments on the diseases of farm livestock, including glanders in horses, tuberculosis in cattle, &c. The policy of slaughtering horses reacting to the mallein test has been successfully initiated by Canada, the returns for 1908 from all parts of the country indicating a considerable decrease from the previous year in the number of horses destroyed and the amount of compensation paid. A disease of cattle in Nova Scotia, known as the Pictou cattle disease, long treated as contagious, has now been demonstrated by the veterinary officers of the department to be due to the ingestion of a weed, the ragwort, *Senecio Jacobea*. Hog cholera or swine fever has been almost eradicated. A laboratory is maintained for bacteriological and pathological researches and for the preparation of preventive vaccines. Canada is entirely free from rinderpest, pleuro-pneumonia and foot-and-mouth disease.

The work of the live-stock branch is directed towards the improvement of the stock-raising industry, and is carried on through the agencies of expert teachers and stock judges, the systematic distribution of pure-bred breeding stock, the yearly testing of pure-bred dairy herds, the supervision of the accuracy of the registration of pure-bred animals and the nationalization of live-stock records. The last two objects are secured by act of the Dominion parliament passed in 1905. Under this act a record committee, appointed annually by the pedigree stud, herd and flock book associations of Canada, perform the duties of accepting the entries of pure-bred animals for the respective pedigree registers, and are provided with an office and with stationery and franking privileges by the government. Pedigree certificates are certified as correct by an officer of the department of agriculture, so that in Canada there exist national registration and government authority for the accuracy of pedigree livestock certificates. The government promotes the extension of markets for farm products; it maintains officers in the United Kingdom who make reports from time to time on the condition in which Canadian goods are delivered from the steamships, and also on what they can learn from importing and distributing merchants regarding the preferences of the market for different qualities of farm goods and different sorts of packages. Through this branch of the public service a complete chain of cold-storage accommodation between various points in Canada and markets in Europe, particularly in Great Britain, has been arranged. The government offered a bonus to those owners of creameries who would provide cold-storage accommodation at them and keep the room in use for a period of three years. It also arranged with the various railway companies to run refrigerator cars weekly on the main lines leading to Montreal and other export points. The food-products from any shippers are received into these cars at the various railway stations at the usual rates, without extra charge for icing or cold-storage service. The government offered subventions to those who would provide cold-storage

warehouses at various points where these were necessary, and also arranged with the owners of ocean steamships to provide cold-storage chambers on them by means of mechanical refrigerators. The policy of encouraging the provision of ample cold-storage accommodation has been developed still further by the Cold Storage Act of the Dominion parliament passed in 1907, under which subsidies are granted in part payment of the cost of erecting and equipping cold-storage warehouses in Canada for the preservation of perishable food-products.

Besides furnishing technical and general information as to the carrying on of dairying operations, the government has established and maintained illustration cheese factories and creameries in different places for the purpose of introducing the best methods of co-operative dairying in both the manufacturing and shipping of butter and cheese. Inspectors are employed to give information regarding the packing of fruit, and also to see to the enforcement of the Fruit Marks Acts, which prohibit the marking of fruit with wrong brands and packing in any fraudulent manner.

The seed branch of the department of agriculture was established in 1900 for the purpose of encouraging the production and use of seeds of superior quality, thereby improving all kinds of field and garden crops grown in Canada. Seeds are tested in the laboratory for purity and germination on behalf of farmers and seed merchants, and scientific investigations relating to seeds are conducted and reported upon. In the year 1906-1907 6676 samples of seeds were tested. Encouragement to seed-growing is given by the holding of seed fairs, and bulletins are issued on weeds, the methods of treating seed-wheat against smut and on other subjects. Collections of weed seeds are issued to merchants and others to enable them readily to identify noxious weed seeds. The Seed Control Act of 1905 brings under strict regulations the trade in agricultural seeds, prohibiting the sale for seeding of cereals, grasses, clovers or forage plants unless free from weeds specified, and imposing severe penalties for infringements.

The census and statistics office, reorganized as a branch of the department of agriculture in 1905, undertakes a complete census of population, of agriculture, of manufactures and of all the natural products of the Dominion every ten years, a census of the population and agriculture of the three North-West Provinces every five years, and various supplemental statistical inquiries at shorter intervals.

Experimental farms were established in 1887 in different parts of the Dominion, and were so located as to render efficient help to the farmers in the more thickly settled districts, and at the same time to cover the varied climatic and other conditions which influence agriculture in Canada. The central experimental farm is situated at Ottawa, near the boundary line between Quebec and Ontario, where it serves as an aid to agriculture in these two important provinces. One of the four branch farms then established is at Nappan, Nova Scotia, near the boundary between that province and New Brunswick, where it serves the farmers of the three maritime provinces. A second branch experimental farm is at Brandon in Manitoba, a third is at Indian Head in Saskatchewan and the fourth is at Agassiz in the coast climate of British Columbia. In 1906-1907 two new branch farms were established. One is situated at Lethbridge, southern Alberta, where problems will be investigated concerning agriculture upon irrigated land and dry farming under conditions of a scanty rainfall. The other is at Lacombe, northern Alberta, about 70 m. south of Edmonton, in the centre of a good agricultural district on the Canadian Pacific railway. Additional branch farms in different parts of the Dominion are in process of establishment. At all these farms experiments are conducted to gain information as to the best methods of preparing the land for crop and of maintaining its fertility, the most useful and profitable crops to grow, and how the various crops grown can be disposed of to the greatest advantage. To this end experiments are conducted in the feeding of cattle, sheep and swine for flesh, the feeding of cows for the production of milk, and Of poultry both for flesh and eggs. Experiments are also conducted to test the merits of new or untried varieties of cereals and other field crops, of grasses, forage plants, fruits, vegetables, plants and trees; and samples, particularly of the most promising cereals, are distributed freely among farmers for trial, so that those which promise to be most profitable may be rapidly brought into general cultivation. Annual reports and occasional bulletins are published and widely distributed, giving the results of this work. Farmers are invited to visit these experimental farms, and a large correspondence is conducted with those interested in agriculture in all parts of the Dominion, who are encouraged to ask advice and information from the officers of the farms.

Experimental farms.

The governments of the several provinces each have a department of agriculture. Among other provincial agencies for imparting information there are farmers' institutes, travelling dairies, live-stock associations, farmers', dairymen's, seed-growers', and fruit-growers' associations, and agricultural and horticultural societies. These are all maintained or assisted by the several provinces. Parts of the proceedings and many of the addresses and papers presented at the more important meetings of these associations are published by the provincial governments, and distributed free to farmers who desire to have them. There are also annual agricultural exhibitions of a highly important character, where improvements in connexion with agricultural and horticultural products, live-stock, implements, &c., are shown in competition. The Dominion government makes in turn to one of the chief local agricultural exhibition societies a grant of $50,000 for the purposes of the national representation of agriculture and live-stock. The exhibition receiving the grant loses its local character, and thus becomes the Dominion exhibition or fair for that year.

Agricultural organizations and education.

There are several important agricultural colleges for the practical education of young men in farming, foremost amongst them being the Ontario Agricultural College at Guelph. Agricultural colleges are also maintained at Truro, Nova Scotia, and Winnipeg, Manitoba. In most of the provinces are dairy schools where practical instruction and training are given. Since the beginning of the 20th century agricultural education and rural training in Canada have been greatly stimulated by the munificence of Sir William C. Macdonald of Montreal. A donation by him of $10,000, distributed to boys and girls on Canadian farms for prizes in a competition for the selection of seed grain, as recommended by Professor J.W. Robertson, led to the Macdonald-Robertson Seed Growers' Association. This soon assumed national proportions in the Canadian Seed Growers' Association, which, with the seed branch of the department of agriculture mentioned above, has done much to raise to a uniform standard of excellence the grain grown over large areas of the Canadian wheat-fields. The Macdonald Institute at Guelph, Ontario, the buildings and equipment of which Sir William provided at a cost of $182,500, and the Macdonald College at Ste Anne de Bellevue, 20 m. west of Montreal, have been established to promote the cause of rural education upon the lines of nature study, with school gardens, manual training domestic science, &c., which on both sides of the Atlantic are now being found so effective in the hands of properly trained and enthusiastic teachers. The property of the Macdonald College at Ste Anne de Bellevue comprises 561 acres, of which 74 acres are devoted to campus and field-research plots, 100 acres to a *petite culture* farm and 387 acres to a live-stock and grain farm. The college includes a school for teachers, a school of theoretical and practical agriculture and a school of household science for the training of young women. The land, buildings and equipment of the college, which cost over $2,500,000, were presented by Sir William Macdonald, who in addition has provided for the future maintenance of the work by a trust fund of over $2,000,000. In connexion with the public elementary schools throughout Canada, where the principles of agriculture are taught to some extent, manual training centres, provided out of funds supplied by the same public-spirited donor, are now maintained by local and provincial public school authorities.

(E. H. G.)

History

About A.D. 1000 Leif Ericsson, a Norseman, led an expedition from Greenland to the shores probably of what is now Canada, but the first effective contact of Europeans with Canada was not until the end of the 15th century. John Cabot

Discovery. (*q.v.*), sailing from Bristol, reached the shores of Canada in 1497. Soon after fishermen from Europe began to go in considerable numbers to the Newfoundland banks, and in time to the coasts of the mainland of America. In 1534 a French expedition under Jacques Cartier, a seaman of St Malo, sent out by Francis I., entered the Gulf of St Lawrence. In the following year Cartier sailed up the river as far as the Lachine Rapids, to the spot where Montreal now stands. During the next sixty years the fisheries and the fur trade received some attention, but no colonization was undertaken.

French colony. At the beginning of the 17th century we find the first great name in Canadian history. Samuel de Champlain (*q.v.*), who had seen service under Henry IV. of France, was employed in the interests of successive fur-trading monopolies and sailed up the St Lawrence in 1603. In the next year he was on the Bay of Fundy and had a share in founding the first permanent French colony in North America—that of Port Royal, now Annapolis, Nova Scotia. In 1608 he began the settlement which was named Quebec. From 1608 to his death in 1635 Champlain worked unceasingly to develop Canada as a colony, to promote the fur trade and to explore the interior. He passed southward from the St Lawrence to the beautiful lake which still bears his name and also westward, up the St Lawrence and the Ottawa, in the dim hope of reaching the shores of China. He reached Lake Huron and Lake Ontario, but not the great lakes stretching still farther west.

The era was that of the Thirty Years' War (1618-48), and during that great upheaval England was sometimes fighting France. Already, in 1613, the English from Virginia had almost completely wiped out the French settlement at Port Royal, and when in 1629 a small English fleet appeared at Quebec, Champlain was forced to surrender. But in 1632 Canada was restored to France by the treaty of St Germain-en-Laye. Just at this time was formed under the aegis of Cardinal Richelieu the "Company of New France," known popularly as "The Company of One Hundred Associates." With 120 members it was granted the whole St Lawrence valley; for fifteen years from 1629 it was to have a complete monopoly of trade; and products from its territory were to enter France free of duty. In return the company was to take to New France 300 colonists a year; only French Catholics might go; and for each settlement the company was to provide three priests. Until 1663 this company controlled New France.

It was an era of missionary zeal in the Roman Catholic church, and Canada became the favourite mission. The Society of Jesus was only one of several orders—Franciscans (Recollets), Sulpicians, Ursulines, &c.—who worked in New France. The Jesuits have attracted chief attention, not merely on account of their superior zeal and numbers, but also because of the tragic fate of some of their missionaries in Canada. In the voluminous *Relations* of their doings the story has been preserved. Among the Huron Indians, whose settlements bordered on the lake of that name, they secured a great influence. But there was relentless war between the Hurons and the Iroquois occupying the southern shore of Lake Ontario, and when in 1649 the Iroquois ruined and almost completely destroyed the Hurons, the Jesuit missionaries also fell victims to the conquerors' rage. Missionaries to the Iroquois themselves met with a similar fate and the missions failed. Commercial life also languished. The company planned by Richelieu was not a success. It did little to colonize New France, and in 1660, after more than thirty years of its monopoly, there were not more than 2000 French in the whole country. In 1663 the charter of the company was revoked. No longer was a trading company to discharge the duties of a sovereign. New France now became a royal province, with governor, intendant, &c., on the model of the provinces of France.

In 1664 a new "Company of the West Indies" (*Compagnie des Indes Occidentales*) was organized to control French trade and colonization not only in Canada but also in West Africa, South America and the West Indies. At first it promised well. In 1665 some 2000 emigrants were sent to Canada; the European population was soon doubled, and Louis XIV. began to take a personal interest in the colony. But once more, in contrast with English experience, the great trading company proved a failure in French hands as a colonizing agent, and in 1674 its charter was summarily revoked by Louis XIV. Henceforth in name, if not in fact, monopoly is ended in Canada.

By this time French explorers were pressing forward to unravel the mystery of the interior. By 1659 two Frenchmen, Radisson and Groseillers, had penetrated beyond the great lakes to the prairies of the far West; they were probably the first Europeans to see the Mississippi. By 1666 a French mission was established on the shores of Lake Superior, and in 1673 Joliet and Marquette, explorers from Canada, reached and for some distance descended the Mississippi. Five years later Cavelier de la Salle was making his toilsome way westward from Quebec to discover the true character of the great river and to perform the feat, perilous in view of the probable hostility of the natives, of descending it to the sea. In 1682 he accomplished his task, took possession of the valley of the Mississippi in the name of Louis XIV. and called it Louisiana. Thus from Canada as her basis was France reaching out to grasp a continent.

There was a keen rivalry between church and state for dominance in this new empire. In 1659 arrived at Quebec a young prelate of noble birth, Francois Xavier de Laval-Montmorency, who had come to rule the church in Canada. An ascetic, who practised the whole cycle of medieval austerities, he was determined that Canada should be ruled by the church, and he desired for New France a Puritanism as strict as that of New England. His especial zeal was directed towards the welfare of the Indians. These people showed, to their own ruin, a reckless liking for the brandy of the white man. Laval insisted that the traders should not supply brandy to the natives. He declared excommunicate any one who did so and for a time he triumphed. More than once he drove from Canada governors who tried to thwart him. In 1663 he was actually invited to choose a governor after his own mind and did so, but with no cessation of the old disputes. In 1672 Louis de Buade, comte de Frontenac (*q.v.*), was named governor of New France, and in him the church found her match. Yet not at once; for, after a bitter struggle, he was recalled in 1682. But Canada needed him. He knew how to control the ferocious Iroquois, who had cut off France from access to Lake Ontario; to check them he had built a fort where now stands the city of Kingston. With Frontenac gone, these savages almost strangled the colony. On a stormy August night in 1689 1500 Iroquois burst in on the village of Lachine near Montreal, butchered 200 of its people, and carried off more than 100 to be tortured to death at their leisure. Then the strong man Frontenac was recalled to face the crisis.

Struggles with England. It was a critical era. James II. had fallen in England, and William III. was organizing Europe against French aggression. France's plan for a great empire in America was now taking shape and there, as in Europe, a deadly struggle with England was inevitable. Frontenac planned attacks upon New England and encouraged a ruthless border warfare that involved many horrors. Him, in return, the English attacked. Sir William Phips sailed from Boston in 1690, conquered Acadia, now Nova Scotia, and then hazarded the greater task of leading a fleet up the St Lawrence against Quebec. On the 16th of October 1690 thirty-four English ships, some of them only fishing craft, appeared in its basin and demanded the surrender of the town. When Frontenac answered defiantly, Phips attacked the place; but he was repulsed and in the end sailed away unsuccessful.

Each side had now begun to see that the vital point was control of the interior, which time was to prove the most extensive fertile area in the world. La Salle's expedition had aroused the French to the importance of the Mississippi, and they soon had a bold plan to occupy it, to close in from the rear on the English on the Atlantic coast, seize their colonies and even deport the colonists. The plan was audacious, for the English in America outnumbered the French by twenty to one. But their colonies were democracies, disunited because each was pursuing its own special interests, while the French were united under despotic leadership. Frontenac attacked the Iroquois mercilessly in 1696 and forced these proud savages to sue for peace. But in the next year was made the treaty of Ryswick, which brought a pause in the conflict, and in 1698 Frontenac died.

After Frontenac the Iroquois, though still hostile to France, are formidable no more, and the struggle for the continent is

frankly between the English and the French. The peace of Ryswick proved but a truce, and when in 1701, on the death of the exiled James II., Louis XIV. flouted the claims of William III. to the throne of England by proclaiming as king James's son, renewed war was inevitable. In Europe it saw the brilliant victories of Marlborough; in America it was less decisive, but France lost heavily. Though the English, led by Sir Hovenden Walker, made in 1711 an effort to take Quebec which proved abortive, they seized Nova Scotia; and when the treaty of Utrecht was made in 1713, France admitted defeat in America by yielding to Britain her claims to Hudson Bay, Newfoundland and Nova Scotia. But she still held the shores of the St Lawrence, and she retained, too, the island of Cape Breton to command its mouth. There she built speedily the fortress of Louisbourg, and prepared once more to challenge British supremacy in America. With a sound instinct that looked to future greatness, France still aimed, more and more, at the control of the interior of the Continent. The danger from the Iroquois on Lake Ontario had long cut her off from the most direct access to the West, and from the occupation of the Ohio valley leading to the Mississippi, but now free from this savage scourge she could go where she would. In 1701 she founded Detroit, commanding the route from Lake Erie to Lake Huron. Her missionaries and leaders were already at Sault Ste Marie commanding the approach to Lake Superior, and at Michilimackinac commanding that to Lake Michigan. They had also penetrated to what is now the Canadian West, and it was a French Canadian, La Vérendrye, who, by the route leading past the point where now stands the city of Winnipeg, pressed on into the far West until in 1743, first recorded of white men, he came in sight of the Rocky Mountains. In the south of the continent France also crowned La Salle's work by founding early in the 18th century New Orleans at the mouth of the Mississippi. It was a far cry from New Orleans to Quebec. If France could link them by a chain of settlements and shut in the English to their narrow strip of Atlantic seaboard there was good promise that North America would be hers.

The project was far-reaching, but France could do little to make it effective. Louis XV. allowed her navy to decline and her people showed little inclination for emigration to the colonies. In 1744, when the war of the Austrian Succession broke out, the New England colonies planned and in 1745 effected the capture of Louisbourg, the stronghold of France in Cape Breton Island, which menaced their commerce. But to their disgust, when the peace of Aix-la-Chapelle was made in 1748, this conquest was handed back to France. She continued her work of building a line of forts on the great lakes—on the river Niagara, on the Ohio, on the Mississippi; and the English colonies, with the enemy thus in their rear, grew ever more restive. In 1753 Virginia warned the French on the Ohio that they were encroaching on British territory. The next year, in circumstances curiously like those which were repeated when the French expedition under Marchand menaced Britain in Egypt by seeking to establish a post on the Upper Nile, George Washington, a young Virginian officer, was sent to drive the French from their Fort Duquesne on the Ohio river, where now stands Pittsburgh. The result was sharp fighting between English and French in a time of nominal peace. In 1755 the British took the stern step of deporting the Acadian French from Nova Scotia. Though this province had been ceded to Great Britain in 1713 many of the Acadians had refused to accept British sovereignty. In 1749 the British founded Halifax, began to colonize Nova Scotia, and, with war imminent, deemed it prudent to disperse the Acadians, chiefly along the Atlantic seaboard (see Nova Scotia: *History*). In 1756 the Seven Years' War definitely began. France had no resources to cope with those of Britain in America, and the British command of the sea proved decisive. On the 13th of September 1759 Wolfe won his great victory before Quebec, which involved the fall of that place, and a year later at Montreal the French army in Canada surrendered. By the peace of Paris, 1763, the whole of New France was finally ceded to Great Britain.

English possesion.

With only about 60,000 French in Canada at the time of the conquest it might have seemed as if this population would soon be absorbed by the incoming British. Some thought that, under a Protestant sovereign, the Canadian Catholics would be rapidly converted to Protestantism. But the French type proved stubbornly persistent and to this day dominates the older Canada. The first English settlers in the conquered country were chiefly petty traders, not of a character to lead in social or public affairs. The result was that the government of the time co-operated rather with the leaders among the French.

After peace was concluded in 1763, Canada was governed under the authority of a royal proclamation, but sooner or later a constitution specially adapted to the needs of the country was inevitable. In 1774 this was provided by the Quebec Act passed by the Imperial parliament. Under this act the western territory which France had claimed, extending as far as the Mississippi and south to the Ohio, was included with Canada in what was called the Province of Quebec. This vast territory was to be governed despotically from Quebec; the Roman Catholic church was given its old privileges in Canada; and the French civil law was established permanently side by side with the English criminal law. The act linked the land-owning class in Canada and the church by ties of self-interest to the British cause. The *habitant*, placed again under their authority, had less reason to be content.

In 1775 began the American Revolution. Its leaders tried to make the revolt continental, and invaded Canada, hoping that the French would join them. They took Montreal and besieged Quebec during the winter of 1775-1776; but the prudent leadership of Sir Guy Carleton, afterwards Lord Dorchester, saved Quebec and in 1776 the revolutionary army withdrew unsuccessful from Canada. Since that time any prospect of Canada's union to the United States has been very remote.

But the American Revolution profoundly influenced the life of Canada. The country became the refuge of thousands of American loyalists who would not desert Great Britain. To Nova Scotia, to what are now New Brunswick (*q.v.*) and Ontario (*q.v.*) they fled in numbers not easily estimated, but probably reaching about 40,000. Until this time the present New Brunswick and Ontario had contained few European settlers; now they developed, largely under the influence of the loyalists of the Revolution. This meant that the American type of colonial life would be reproduced in Canada; but it meant also bitter hostility on the part of these colonists to the United States, which refused in any way to compensate the loyalists for their confiscated property. Great Britain did something; the loyalists received liberal grants of land and cash compensation amounting to nearly £4,000,000.

A prevailingly French type of government was now no longer adequate in Canada, and in 1791 was passed by the British parliament the Constitutional Act, separating Canada at the Ottawa river into two parts, each with its own government; Lower Canada, chiefly French, retaining the old system of laws, with representative institutions now added, and Upper Canada, on the purely British model. (For the history of Lower and Upper Canada, now Quebec and Ontario, the separate articles must be consulted.) Each province had special problems; the French in Lower Canada aimed at securing political power for their own race, while in Upper Canada there was no race problem, and the great struggle was for independence of official control and in all essential matters for government by the people. It may be doubted whether at this time it would have been safe to give these small communities complete self-government. But this a clamorous radical element demanded insistently, and the issue was the chief one in Canada for half a century.

But before this issue matured war broke out between Great Britain and the United States in 1812 from causes due chiefly to Napoleon's continental policy. The war seemed to furnish a renewed opportunity to annex Canada to the American Union, and Canada became the chief theatre of conflict. The struggle was most vigorous on the Niagara frontier. But in the end the American invasion failed and the treaty made at Ghent in 1814 left the previous status unaltered.

In 1837 a few French Canadians in Lower Canada, led by Louis Joseph Papineau (*q.v.*), took up arms with the wild idea of establishing a French republic on the St Lawrence. In the same year William Lyon Mackenzie (*q.v.*) led a similar armed revolt in Upper Canada against the domination of the ruling officialdom called, with little reason, the "Family Compact."

Lord Durham.

Happening, as these revolts did, just at the time of Queen Victoria's accession, they attracted wide attention, and in 1838 the earl of Durham (*q.v.*) was sent to govern Canada and report on the affairs of British North America. Clothed as he was with large powers, he undertook in the interests of leniency and

reconciliation to banish, without trial, some leaders of the rebellion in Lower Canada. For this reason he was censured at home and he promptly resigned, after spending only five months in the country. But his *Report*, published in the following year, is a masterly survey of the situation and included recommendations that profoundly influenced the later history of Canada. He recommended the union of the two Canadian provinces at once, the ultimate union of all British North America and the granting to this large state of full self-government. The French element he thought a menace to Canada's future, and partly for this reason he desired all the provinces to unite so that the British element should be dominant.

To carry out Lord Durham's policy the British government passed in 1840 an Act of Union joining Upper and Lower Canada, and sent out as governor Charles Poulett Thompson, who was made Baron Sydenham and Toronto In the single parliament each province was equally represented. By this time there was more than a million people in Canada, and the country was becoming important. Lord Sydenham died in 1841 before his work was completed, and he left Canada still in a troubled condition. The French were suspicious of the Union, aimed avowedly at checking their influence, and the complete self-government for which the "Reformers" in English-speaking Canada had clamoured was not yet conceded by the colonial office. But rapidly it became obvious that the provinces united had become too important to be held in leading strings. The issue was finally settled in 1849 when the earl of Elgin was governor and the Canadian legislature, sitting at Montreal, passed by a large majority the Rebellion Losses Bill, compensating citizens, some of them French, in Lower Canada, for losses incurred at the hands of the loyal party during the rebellion a decade earlier. The cry was easily raised by the Conservative minority that this was to vote reward for rebellion. They appealed to London for intervention. The mob in Montreal burned the parliament buildings and stoned Lord Elgin himself because he gave the royal assent to the bill. He did so in the face of this fierce opposition, on the ground that, in Canadian domestic affairs, the Canadian parliament must be supreme.

The union of the two provinces did not work well. Each was jealous of the other and deadlocks frequently occurred. Commercially, after 1849, Canada was prosperous. In 1854 Lord Elgin negotiated a reciprocity treaty with the United States which gave Canadian natural products free entrance to the American market. The outbreak of the Civil War in the United States in 1861 increased the demand for such products, and Canada enjoyed an extensive trade with her neighbour. But, owing largely to the unfriendly attitude of Great Britain to the northern side during the war, the United States cancelled the treaty, when its first term of ten years ended in 1865, and it has never been renewed.

Under the party system in Canada cabinets changed as often as, until recently, they did in France, and the union of the two provinces did not give political stability. The French and English were sufficiently equal in strength to make the task of government well nigh impossible. In 1864 came the opportunity for change, when New Brunswick, Nova Scotia and Prince Edward Island were considering a federal union. Canada suggested a wider plan to include herself and, in October 1864, a conference was held at Quebec. The conference outlined a plan of federation which subsequently, with slight modifications, passed the imperial parliament as "The British North America Act," and on the 1st of July 1867, the Dominion of Canada came into existence. It was born during the era of the American Civil War, and was planned to correct defects which time had revealed in the American federation. The provinces in Canada were conceded less power than have the states in the American union; the federal government retaining the residuum of power not conceded.

(G. M. W.)

Canada since federation.

When federation was accomplished in 1867 the Dominion of Canada comprised only the four provinces of Ontario, Quebec, New Brunswick and Nova Scotia. Lord Monck was appointed the first governor-general, and at his request the Hon. John Alexander Macdonald undertook the formation of an administration. A coalition cabinet was formed, including the foremost Liberals and Conservatives drawn from the different provinces. Under a proclamation issued from Windsor Castle by Queen Victoria on the 22nd of May the new constitution came into effect on the 1st of July. This birthday of the Dominion has been fixed by statute as a public holiday, and is annually observed under the name of "Dominion Day." Seventy-two senators—half Conservatives and half Liberals—were appointed, and lieutenant-governors were named for the four provinces. The prime minister was created a K.C.B., and minor honours were conferred on other ministers in recognition of their services in bringing about the union.

Nova Scotia question.

The first general election for the Dominion House of Commons was held during the month of August, and except in the province of Nova Scotia was favourable to the administration, which entered upon its parliamentary work with a majority of thirty-two. The first session of parliament was opened on the 8th of November, but adjourned on the 21st of December till the 12th of March 1868, chiefly on account of the fact that members of the Dominion parliament were allowed, in Ontario and Quebec, to hold seats in the local legislatures, so that it was difficult for the different bodies to be in session simultaneously. It was not till 1873 that an act was passed making members of the local legislatures ineligible for seats in the House of Commons. Immediately after the completion of federation a serious agitation for repeal of the union arose in Nova Scotia, which had been brought into the federal system by a vote of the existing legislature, without any direct preliminary appeal to the people. Headed by Joseph Howe (*q.v.*), the advocates of repeal swept the province at the Dominion election. Out of 19 members then elected 18 were pledged to repeal, Dr Tupper, the minister responsible for carrying the Act of Union, alone among the supporters of federation securing a seat. The local assembly, in which 36 out of 38 members were committed to repeal, passed an address to Her Majesty praying her not to "reduce this free, happy and hitherto self-governed province to the degraded condition of a servile dependency of Canada," and sent Howe with a delegation to London to lay the petition at the foot of the throne. Howe enlisted the support of John Bright and other members of parliament, but the imperial government was firm, and the duke of Buckingham, as colonial secretary, soon informed the governor-general in a despatch that consent could not be given for the withdrawal of Nova Scotia from the Dominion. Meanwhile Howe, convinced of the impossibility of effecting separation, and fearing disloyal tendencies which had manifested themselves in some of its advocates, entered into negotiations with Dr Tupper in London, and later with the Dominion government, for better financial terms than those originally arranged for Nova Scotia in the federal system. The estimated amount of provincial debt assumed by the general government was increased by $1,186,756, and a special annual subsidy of $82,698 was granted for a period of ten years. These terms having been agreed to, Howe, as a pledge of his approval and support, accepted a seat as secretary of state in the Dominion cabinet. By taking this course he sacrificed much of his remarkable popularity in his native province, but confirmed the work of consolidating the Dominion. It was many years before the bitterness of feeling aroused by the repeal agitation entirely subsided in Nova Scotia.

A gloom was cast over the first parliament of the Dominion by the assassination in 1868 of one of the most brilliant figures in the politics of the time, D'Arcy McGee (*q.v.*) His murderer, a Fenian acting under the instructions of the secret society to which he belonged, was discovered, and executed in 1869.

The reorganization of the various departments of state, in view of the wider interests with which they had to deal, occupied much of the attention of the first parliament of the Dominion. In 1867 the postal rates were reduced and unified. In 1868 a militia system for the whole Dominion was organized, the tariff altered and systematized, and a Civil Service Act passed. The banking system of the country was put on a sound footing by a series of acts culminating in 1871, and in the same year a uniform system of decimal currency was established for the whole Dominion. While the new machinery of state was thus being put in operation other large questions presented themselves.

The construction of the Inter-Colonial railway as a connecting link between the provinces on the seaboard and those along the St Lawrence and the Great Lakes was a part of the federation compact, a clause of the British North America Act

Inter-Colonial railway.

providing that it should be begun within six months after the date of union. The guarantee of the imperial government made easy the provision of the necessary capital, but as this was coupled with a voice in the decision of the route, it complicated the latter question, about which a keen contest arose. The most direct and therefore commercially most promising line of construction passed near the boundary of the United States. Recent friction with that country made this route objected to by the imperial and many Canadian authorities. Ultimately the longer, more expensive, but more isolated route along the shores of the Gulf of St Lawrence was adopted. The work was taken in hand at once, and pressed steadily forward to completion. It has since been supplemented by other lines built for more distinctly commercial ends. Though not for many years a financial success, the Inter-Colonial railway, which was opened in 1876, has in a marked way fulfilled its object by binding together socially and industrially widely separated portions of the Dominion.

Within a month of the meeting of the first parliament of the Dominion a question of vast importance to the future of the country was brought forward by the Hon. W. McDougall in a series of resolutions which were adopted, and on which was based an address to the queen praying that Majesty would unite Rupert's Land and the North-West Territories to Canada. A delegation consisting of Sir G.E. Cartier and the Hon. W. McDougall was in 1868 sent to England to negotiate with the Hudson's Bay Company (*q.v.*) for the extinction of its claims, and to arrange with the imperial government for the transfer of the territory. After prolonged discussions the company agreed to surrender to the crown, in consideration of a payment of £300,000, the rights and interests in the north-west guaranteed by its charter, with the exception of a reservation of one-twentieth part of the fertile belt, and 45,000 acres of land adjacent to the trading posts of the company. For the purposes of this agreement the "fertile belt" was to be bounded as follows:—"On the south by the U.S. boundary, on the west by the Rocky Mountains, on the north by the northern branch of the Saskatchewan river, on the east by Lake Winnipeg, the Lake of the Woods, and the waters connecting them." An act authorizing the change of control was passed by the imperial parliament in July 1868; the arrangement made with the Hudson's Bay Company was accepted by the Canadian parliament in June 1869; and the deed of surrender from the Hudson's Bay Company to Her Majesty is dated November 19th, 1869. In anticipation of the formal transfer to the Dominion an act was passed by the Canadian parliament in the same month providing for the temporary government of Rupert's Land and the North-West Territories. On the 28th of September the Hon. W. McDougall was appointed the first governor, and left at once to assume control on the 1st of December, when it had been understood that the formal change of possession would take place.

Hudson's Bay Company territories.

Meanwhile a serious condition of affairs was developing in the Red river settlement, the most considerable centre of population in the newly acquired territory. The half-breeds regarded with suspicion a transfer of control concerning which they had not been consulted. They resented the presence of the Canadian surveyors sent to lay out roads and townships, and the tactless way in which some of these did their work increased the suspicion that long-established rights to the soil would not be respected. A population largely Roman Catholic in creed, and partly French in origin and language, feared that an influx of new settlers would overthrow cherished traditions. Some were afraid of increased taxation. A group of immigrants from the United States fomented disturbance in the hope that it would lead to annexation. Louis Riel, a fanatical half-breed, placed himself at the head of the movement. His followers established what they called a "provisional government" of which he was chosen president, and when the newly appointed governor reached the boundary line he was prevented from entering the territory. Several of the white settlers who resisted this rebellious movement were arrested and kept in confinement. One of these, a young man named Thomas Scott, having treated Riel with defiance, was court-martialled for treason to the provisional government, condemned, and on the 4th of March 1870, shot in cold blood under the walls of Fort Garry. This crime aroused intense excitement throughout the country, and the Orange body, particularly, to which Scott belonged, demanded the immediate punishment of his murderer and the suppression of the rebellion. An armed force, composed partly of British regulars and partly of Canadian volunteers, was made ready and placed under the command of Colonel Garnet Wolseley, afterwards Lord Wolseley. As a military force could not pass through the United States, the expedition was compelled to take the route up Lake Superior, and from the head of that lake through 500 m. of unbroken and difficult wilderness. In August 1870, the force reached Fort Garry, to find the rebels scattered and their leader, Riel, a fugitive in the neighbouring states. Meanwhile, during the progress of the expedition, an act had been passed creating Manitoba a province, with full powers of self-government, and the arrival of the military was closely followed by that of the first governor, Mr (later Sir) Adams G. Archibald, who succeeded in organizing the administration on a satisfactory basis. Fort Garry became Winnipeg, and there were soon indications that it was destined to be a great city, and the commercial doorway to the vast prairies that lay beyond. Meanwhile, till adequate means of transportation were provided, it was seen that city and prairie alike must wait for any large inflow of population.

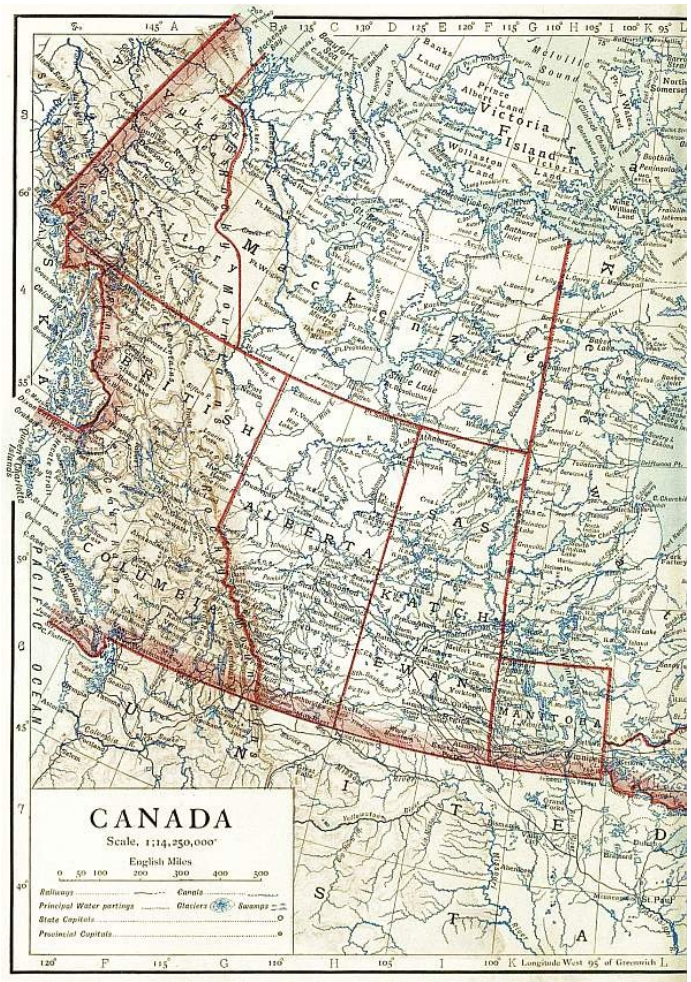
Red river rebellion.

Provision was made in the British North America Act to receive new provinces into the Dominion. Manitoba was the first to be constituted; in 1871 British Columbia, which had hitherto held aloof, determined, under the persuasion of a sympathetic governor, Mr (later Sir) Antony Musgrave, to throw in its lot with the Dominion. Popular feeling in British Columbia itself was not strongly in favour of union, and the terms under which the new province was to be received were the subject of much negotiation with the provincial authorities, and were keenly debated in parliament before the bill in which they were embodied was finally carried. The clause on which there was the widest divergence of opinion was one providing that a trans-continental railway, connecting the Pacific province with the eastern part of the Dominion, should be begun within two, and completed within ten years. To a province which at the time contained a population of only 36,000, and but half of this white, the inducement thus held out was immense. The Opposition in parliament claimed that the contract was one impossible for the Dominion to fulfil. The government of Sir John Macdonald felt, however, that the future of the Dominion depended upon linking together the Atlantic and the Pacific, and in view of the vast unoccupied spaces lying between the Great Lakes and the Rocky Mountains, open to immigration from the United States, their audacity in undertaking the work was doubtless justified. The construction of the Canadian Pacific railway, thus inaugurated, became for several years the chief subject of political contention between opposing parties.

New provinces.

Anticipating the order of chronology slightly, it may be mentioned here that in 1873 Prince Edward Island (*q.v.*), which had in 1865 decisively rejected proposals of the Quebec conference and had in the following year repeated its rejection of federation by a resolution of the legislature affirming that no terms Canada could offer would be acceptable, now decided to throw in its lot with the Dominion. The island had become involved in heavy railway expenditure, and financial necessities led the electors to take a broader view of the question. In the end the federal government assumed the railway debt, arrangements were made for extinguishing certain proprietary rights which had long been a source of discontent, and on the 1st of July 1873 the Dominion was rounded off by the accession of the new province.

Finally in 1878, in order to remove all doubts about unoccupied territory, an imperial order in council was passed in response to an address of the Canadian parliament, annexing to the Dominion all British possessions in North America, except Newfoundland. That small colony, which had been represented at the Quebec conference, also rejected the proposals of 1865, and, in spite of various efforts to arrange satisfactory terms, has steadily held aloof, and so has proved the only obstacle to the complete political unification of British North America.



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A signal proof was soon furnished of the new standing in the empire which federation had given to the Canadian provinces. A heritage of differences and difficulties had been left to be settled between England, Canada and the American Union as the result of the Civil War. In retaliation for the supposed sympathy of Canadians with the South in this struggle the victorious North took steps to abrogate in 1866 the reciprocity treaty of 1854, which had conferred such great advantages on both countries. It followed that the citizens of the United States lost the right which they had received under the treaty to share in the fisheries of Canada. American fishermen, however, showed so little inclination to give up what they had enjoyed so long, that it was found necessary to take vigorous steps to protect Canadian fishing rights, and frequent causes of friction consequently arose. During the progress of the Civil War American feeling had been greatly exasperated by the losses inflicted on commerce by the cruiser “Alabama,” which, it was claimed, was allowed to leave a British port in, violation of international law. On the other hand, Canadian feeling had been equally exasperated by the Fenian raids, organized on American soil, which had cost Canada much expenditure of money and some loss of life. In, addition to these causes of difference there was an unsettled boundary dispute in British Columbia, and questions about the navigation of rivers common to the United States and Canada. In 1869 the government of Canada sent a deputation to England to press upon the imperial government the necessity of asserting Canada’s position in regard to the fisheries, and the desirability of settling other questions in dispute with the republic. The outcome of this application was the appointment of a commission to consider and if possible settle outstanding differences between the three countries. The prime minister of the Dominion, Sir John Macdonald, was asked to act as one of the imperial commissioners in carrying on these negotiations. This was the first time that a colonist had been called upon to assist in the settlement of international disputes. The commission assembled at the American capital in February 1871, and after discussions extending over several weeks signed what is known as the treaty of Washington. By the terms of this treaty the “Alabama” claims and the San Juan boundary were referred to arbitration; the free navigation of the St Lawrence was granted to the United States in return for the free use of Lake Michigan and certain Alaskan rivers; and it was settled that a further commission should decide the excess of value of the Canadian fisheries thrown open to the United States over and above the reciprocal concessions made to Canada. Much to the annoyance of the people of the Dominion the claims for the Fenian raids were withdrawn at the request of the British government, which undertook, to make good to Canada any losses she had suffered. To some of these terms the representative of Canada made a strenuous opposition, and in finally signing the treaty stated that he did so chiefly for imperial interests, although in these he believed Canadian interests to be involved. The clauses relating to the fisheries and the San Juan boundary were reserved for the approval of the Canadian parliament, which, in spite of much violent opposition, ratified them by a large majority. Under the “Alabama” arbitration Great Britain paid to the United States damages to the amount of $15,500,000, while the German Emperor decided the San Juan boundary in favour of the United States. The Fishery Commission, on the other hand, which sat in Halifax, awarded Canada $5,500,000 as the excess value of its fisheries for twelve years, and after much hesitation this sum was paid by the United States into the Canadian treasury. An imperial guarantee of a loan for the construction of railways was the only compensation Canada received for the Fenian raids.

Difficulties with the United States.

The second general election for the Dominion took place in 1872. It was marked by the complete defeat of the Anti-Unionist party in Nova Scotia, only one member of which secured his election, thus exactly reversing the vote of 1867. While Sir John Macdonald’s administration was supported in Nova Scotia, it was weakened in Ontario on account of the clemency shown to Riel, and in Quebec by the refusal to grant a general amnesty to all who had taken part in the rebellion. Two important members of the cabinet, Sir G. Cartier and Sir F. Hincks, were defeated. Opposition to the Washington treaty and dread of the bold railway policy of the government also contributed to weaken its position. But a graver blow, ending in the complete overthrow of the administration, was soon to fall as the result of the election. In 1872 two companies had been formed and received

Canadian Pacific railway question.

charters to build the Canadian Pacific railway. Sir Hugh Allan of Montreal was at the head of the one, and the Hon. David Macpherson of Toronto was president of the other. The government endeavoured to bring about an amalgamation of these rival companies, believing that the united energies and financial ability of the whole country were required for so vast an undertaking. While negotiations to this end were still proceeding the election of 1872 came on with the result already mentioned. Soon after the meeting of parliament, a Liberal member of the House, Mr L.S. Huntingdon, formally charged certain members of the cabinet with having received large sums of money, for use in the election, from Sir Hugh Allan, on condition, as it was claimed, that the Canadian Pacific contract should be given to the new company, of which he became the head on the failure of the plan for amalgamation. These charges were investigated by a royal commission, which was appointed after it had been decided that the parliamentary committee named for that purpose could not legally take evidence under oath. Parliament met in October 1873, to receive the report of the commission. While members of the government were exonerated by the report from the charge of personal corruption, the payment of large sums of money by Sir Hugh Allan was fully established, and public feeling on the matter was so strong that Sir J. Macdonald, while asserting his own innocence, felt compelled to resign without waiting for the vote, of parliament. Lord Dufferin, who had succeeded Lord Lisgar as governor-general in 1872, at once sent for the leader of the Opposition, Mr Alexander Mackenzie (*q.v.*), who succeeded in forming a Liberal administration which, on appealing to the constituencies, was supported by an overwhelming majority, and held power for the five following years.

On the accession to power of the Liberal party, a new policy was adopted for the construction of the trans-continental railway. It was proposed to lessen the cost of construction by utilizing the water stretches along the route, while, on the ground that the contract made was impossible of fulfilment, the period of completion was postponed indefinitely. Meanwhile the surveys and construction were carried forward not by a company, but as a government work. Under this arrangement British Columbia became exceedingly restive, holding the Dominion to the engagement by which it had been induced to enter the union. A representative of the government, Mr (later Sir James) Edgar, sent out to conciliate the province by some new agreement, failed to accomplish his object, and all the influence of the governor-general, Lord Dufferin, who paid a visit at this time to the Pacific coast, was required to quiet the public excitement, which had shown itself in a resolution passed by the legislature for separation from the Dominion unless the terms of union were fulfilled.

Economic "national policy."

Meanwhile a policy destined to affect profoundly the future of the Dominion had, along with that of the construction of the Canadian Pacific railway, become a subject of burning political discussion and party division. During the period of Mr Mackenzie's administration a profound business depression affected the whole continent of America. The Dominion revenue showed a series of deficits for several years in succession. The factories of the United States, unduly developed by an extreme system of protection, sought in Canada a slaughter market for their surplus products, to the detriment or destruction of Canadian industries. Meanwhile the republic, which had for many years drained Canada of hundreds of thousands of artisans to work its factories, steadily declined to consider any suggestion for improving trade relations between the two countries. In these circumstances Sir J. Macdonald brought forward a proposal to adopt what was called a "national policy," or, in other words, a system of protection for Canadian industries. Mr Mackenzie and his chief followers, whose inclinations were towards free trade, pinned their political fortunes to the maintenance of a tariff for revenue only. After some years of fierce discussion in parliament and throughout the country the question was brought to an issue in 1878, when, with a large majority of followers pledged to carry out protection, Sir John Macdonald was restored to power. The new system was laid before parliament in 1879 by the finance minister, Sir Leonard Tilley; and the tariff then agreed upon, although it received considerable modification from time to time, remained, under both Conservative and Liberal administrations, the basis of Canadian finance, and, as Canadians generally believed, the bulwark of their industry. It had almost immediately the effect of lessening the exodus of artisans to the United States, and of improving the revenue and so restoring the national credit.

In October 1878 Lord Dufferin's term of office expired, and his place as governor-general was taken by the marquess of Lorne, whose welcome to the Dominion was accentuated by the fact that he was the son-in-law of the queen, and that his viceroyalty was shared by the princess Louise. The election of 1878 marked the beginning of a long period of Conservative rule—the premiership of Sir J. Macdonald continuing from that time without a break until his death in 1891, while his party remained in power till 1896. This long-continued Conservative supremacy was apparently due to the policy of bold and rapid development which it had adopted, and which appealed to a young and ambitious country more strongly than the more cautious proposals of the Liberal leaders. As soon as the government had redeemed its pledge to establish a system of protection a vigorous railway policy was inaugurated. A contract was made with a new company to complete the Canadian Pacific railway within ten years, on condition of receiving a grant of $25,000,000 and 25,000,000 acres of land, together with those parts of the line already finished under government direction. After fierce debate in parliament these terms were ratified in the session of 1881. The financial difficulties encountered by the company in carrying out their gigantic task were very great, and in 1884 they were compelled to obtain from the Dominion government a loan of $20,000,000 secured on the company's property. This loan was repaid by 1887. Meanwhile the work was carried forward with so much energy that, five years before the stipulated period of completion, on the 7th of November 1886, the last spike was driven by Mr Donald A. Smith (Lord Strathcona), whose fortune had been largely pledged to the undertaking, along with those of other prominent Canadian business men, especially Mr George Stephen (Lord Mountstephen), Mr Duncan McIntyre, and Mr R.B. Angus. Under the energetic management of Mr (later Sir) W.C. Van Home, who was appointed president of the company in 1888, the new railway soon became the most prominent feature in the development of the country; lines of steamships were established on the great lakes and the Pacific; a stream of immigration began to flow into the prairie region; and the increasing prosperity of the railway had a poverful influence in improving the public credit.

Completion of the Canadian Pacific Railway.

Even before the Canadian Pacific railway was fully completed, it proved of great service in a national emergency which suddenly arose in the north-west. With the organization of Manitoba and the opening of improved communication immigrants began to move rapidly westward, and government surveyors were soon busy laying off lands in the Saskatchewan valley. The numbers of the half-breed settlers of this district had been increased by the migration of many of those who had taken part in the first uprising at Fort Garry. Influenced by somewhat similar motives, fearing from the advance of civilization the destruction of the buffalo, on which they chiefly depended for food, with some real grievances and others imaginary, the discontented population sent for Riel, who had been living, since his flight from Fort Garry, in the United States. He returned to put himself at the head of a second rebellion. At first he seemed inclined to act with moderation and on lines of constitutional agitation, but soon, carried away by fanaticism, ambition and vanity, he turned to armed organization against the government. To half-breed rebellion was added the imminent danger of an Indian uprising, to which Riel looked for support. The authorities at Ottawa were at first careless or sceptical in regard to the danger, the reality of which was only brought home to them when a body of mounted police, advancing to regain a small post at Duck Lake, of which the rebels had taken possession, was attacked and twelve of their number killed. Volunteers and militia were at once called out in all the old provinces of Canada, and were quickly conveyed by the newly constructed line of railway to the neighbourhood of the point of disturbance. Major-general Middleton, of the imperial army, who was then in command of the Canadian militia, led the expedition. Several minor engagements with half-breeds or Indians preceded the final struggle at Batoche, where Gabriel Dumont, Riel's military lieutenant, had skilfully entrenched his forces. After a cautious advance the eagerness of the troops finally overcame the hesitation of the commander in exposing his men, the rifle pits were carried with a rush, and the rebellion crushed at a single stroke. Dumont succeeded in escaping across the United States boundary; Riel was captured, imprisoned, and in due course tried for treason. This second rebellion carried on under his leadership had lasted about

Riel's rebellion.

three months, had cost the country many valuable lives, and in money about five millions of dollars. Clear as was his guilt, Riel's trial, condemnation and execution on the 16th of November 1885, provoked a violent political storm which at one time threatened to overthrow the Conservative government. The balance of power between parties in parliament was held by the province of Quebec, and there racial and religious feeling evoked no slight sympathy for Riel. But while a section of Quebec was eager to secure the rebel's pardon, Ontario was equally bent on the execution of justice, so that in the final vote on the question in parliament the defection of French Conservatives was compensated for by the support of Ontario Liberals. In the end 25 out of 53 French members voted in justification of Kiel's punishment. With him were executed several Indian chiefs who had been concerned in a massacre of whites. Painful as were the circumstances connected with this rebellion, it is certain that the united action of the different provinces in suppressing it tended to consolidate Canadian sentiment, and the short military campaign had the effect of fixing public attention upon the immense fertile territory then being opened up.

Macdonald's fiscal policy.

The general election of 1882 turned chiefly upon endorsement of the national policy of protection; in that of 1887 the electoral test was again applied to the same issue, while Sir John Macdonald also asked for approval of the government's action in exacting from Riel the full penalty of his guilt. On both issues the Conservative policy was upheld by the electors, and Macdonald was continued in power with a large parliamentary majority. From the election of 1887 the Riel agitation ceased to seriously influence politics, but the fiscal controversy continued under new forms. Between 1887 and 1891 a vigorous agitation was kept up under Liberal auspices in favour of closer trade relations with the United States, at first under the name of Commercial Union and later under that of Unrestricted Reciprocity. The object in both cases was to break down tariff barriers between the United States and Canada, even though that should be at the expense of discrimination against Great Britain. The Conservative party took the position that commercial union, involving as it would a common protective tariff against all other countries, including the motherland, would inevitably lead to political unification with the United States. The question after long and vehement discussion was brought to a final issue in the election of 1891, and Sir John Macdonald's government was again sustained. From that time protection became the settled policy of the country. On their accession to power in 1896 it was adopted by the Liberals, who joined to it a preference for the products of the mother country. Under the protective policy thus repeatedly confirmed, Canada gradually became more independent of the American market than in earlier times, and enjoyed great commercial prosperity. Soon after the election of 1891 Sir John Macdonald (*q.v.*) died, after an active political career of more than forty years. Under his direction the great lines of policy which have governed the development of Canada as a confederated state within the empire were inaugurated and carried forward with great success, so that his name has become indissolubly connected with the history of the Dominion at its most critical stage.

Macdonald's successors.

During the years which succeeded the death of Sir John Macdonald a succession of losses weakened the position of the Conservative party which had held power so long. The Hon. J.C.C. Abbott, leader of the party in the Senate, became prime minister on Macdonald's death in 1891, but in 1892 was compelled by ill-health to resign, and in 1893 he died. His successor, Sir John Thompson, after a successful leadership of about two years, died suddenly of heart disease at Windsor Castle, immediately after being sworn of the imperial privy council. Charges of corruption in the administration of the department of public works, which led to the expulsion of one member of parliament, involved also the resignation from the cabinet of Sir Hector Langevin, leader of the French Conservatives, against whom carelessness at least in administration had been established. The brief premiership of Sir Mackenzie Bowell, between 1894 and 1896, was marked by much dissension in the Conservative ranks, ending finally in a reconstruction of the government in 1896 under Sir Charles Tupper. Breaks had been made in the Liberal ranks also by the death in 1892 of the Hon. Alexander Mackenzie and the withdrawal of the Hon. Edward Blake from Canadian politics to accept a seat in the British parliament as a member of the Home Rule party. But the appeal made to the electors in 1896 resulted in a decisive victory for the Liberal party, and marked the beginning of a long period of Liberal rule.

Laurier.

Sir Wilfrid Laurier (*q.v.*) became prime minister, and strengthened the cabinet which he formed by drawing into it from provincial politics the premiers of Ontario, New Brunswick and Nova Scotia. The administration thus established underwent many changes, but after winning three general elections it was still in power in 1909. The period of Sir Wilfrid Laurier's rule was one of striking progress in material growth, and a marked development of national feeling. While the federation of the provinces favoured the growth of a strong sentiment of Canadian individuality, the result of unification had been to strengthen decidedly the ties that bind the country to the empire. This was as true under Liberal as under Conservative auspices—as Canadians understood the meaning of these party names. The outbreak of the South African war in 1899 furnished an occasion for a practical display of Canadian loyalty to imperial interests. Three contingents of troops were despatched to the seat of war and took an active part in the events which finally secured the triumph of the British arms. These forces were supplemented by a regiment of Canadian horse raised and equipped at the sole expense of Lord Strathcona, the high commissioner of the Dominion in London. The same spirit was illustrated in other ways. In bringing about a system of penny postage throughout the empire; in forwarding the construction of the Pacific cable to secure close and safe imperial telegraphic connexion; in creating rapid and efficient lines of steamship communication with the motherland and all the colonies; in granting tariff preference to British goods and in striving for preferential treatment of inter-imperial trade; in assuming responsibility for imperial defence at the two important stations of Halifax and Esquimalt,—Canada, under the guidance of Sir Wilfrid Laurier and his party, took a leading part and showed a truly national spirit.

Canadian expansion.

The opening years of the 20th century were marked by a prolonged period of great prosperity. A steady stream of emigrants from Europe and the United States, sometimes rising in number to 300,000 in a single year, began to occupy the vast western prairies. So considerable was the growth of this section of the Dominion that in 1905 it was found necessary to form two new provinces, Alberta and Saskatchewan, from the North-West Territories, the area of each being 275,000 sq. m. Each province has a lieutenant-governor and a single legislative chamber, with a representation of four members in the Senate and five in the House of Commons of the Dominion parliament. The control of the public lands is retained by the general government on the ground that it has been responsible for the development of the country by railway construction and emigration. With the rapid increase of population, production in Canada also greatly increased; exports, imports and revenue constantly expanded, and capital, finding abundant and profitable employment, began to flow freely into the country for further industrial development. New and great railway undertakings were a marked feature of this period. The Canadian Pacific system was extended until it included 12,000 m. of line. The Canadian Northern railway, already constructed from the Great Lakes westward to the neighbourhood of the Rockies, and with water and rail connexions reaching eastward to Quebec, began to transform itself into a complete transcontinental system, with an extension to the Hudson Bay. That this line owed its inception and construction chiefly to the joint enterprise of two private individuals, Messrs Mackenzie and Mann, was a striking proof of the industrial capacities of the country. To a still more ambitious line, the Grand Trunk Pacific, extending from the Atlantic to the Pacific, aiming at extensive steamship connexion on both oceans, and closely associated with the Grand Trunk system of Ontario and Quebec, the government of Canada gave liberal support as a national undertaking. The eastern section of 1875 m., extending from Winnipeg to Moncton, where connexion is secured with the winter ports of Halifax and St John, was, under the act of incorporation, to be built by the government, and then leased for fifty years, under certain conditions, to the Grand Trunk Pacific Company. The western portion, of 1480 m., from Winnipeg to the Pacific, was to be built, owned and operated by the company itself, the government guaranteeing bonds to the extent of 75% of the whole cost of construction. The discovery of large deposits of nickel at Sudbury; of extremely rich gold mines on the head-waters of the Yukon, in a region previously considered well-nigh worthless for human habitation; of extensive areas of gold, copper and

silver ores in the mountain regions of British Columbia; of immense coal deposits in the Crow's Nest Pass of the same province and on the prairies; of veins of silver and cobalt of extraordinary richness in northern Ontario—all deeply affected the industrial condition of the country and illustrated the vastness of its undeveloped resources. The use of wood-pulp in the manufacture of paper gave a greatly enhanced value to many millions of acres of northern forest country. The application of electricity to purposes of manufacture and transportation made the waterfalls and rapids in which the country abounds the source of an almost unlimited supply of energy capable of easy distribution for industrial purposes over wide areas.

Relations with the United States.

Since confederation a series of attempts has been made with varying degrees of success to settle the questions in dispute between the Dominion and the United States, naturally arising from the fact that they divide between them the control of nearly the whole of a large continent and its adjoining waters. Considering the vastness of the interests involved, there is much cause for satisfaction in the fact that these differences have been settled by peaceful arbitrament rather than by that recourse to force which has so often marked the delimitation of rights and territory on other continents The Washington Treaty of 1871 has already been referred to. Its clauses dealing with the fisheries and trade lasted for fourteen years, and were then abrogated by the action of the United States. Various proposals on the part of Canada for a renewal of the reciprocity were not entertained. After 1885 Canada was therefore compelled to fall back upon the treaty of 1818 as the guarantee of her fishing rights. It became necessary to enforce the terms of that convention, under which the fishermen of the United States could not pursue their avocations within the three miles' limit, tranship cargoes of fish in Canadian ports, or enter them except for shelter, water, wood or repairs. On account of infractions of the treaty many vessels were seized and some were condemned. In 1887 a special commission was appointed to deal with the question. On this commission Mr Joseph Chamberlain, Sir Sackville West and Sir Charles Tupper represented British and Canadian interests; Secretary T.F. Bayard, Mr W. le B. Putnam and Mr James B. Angell acted for the United States. The commission succeeded in agreeing to the terms of a treaty, which was recommended to Congress by President Cleveland as supplying "a satisfactory, practical and final adjustment, upon a basis honourable and just to both parties, of the difficult and vexed questions to which it relates." This agreement, known as the Chamberlain-Bayard treaty, was rejected by the Senate, and as a consequence it became necessary to carry on the fisheries under a *modus vivendi* renewed annually.

In 1886 a difference about international rights on the high seas arose on the Pacific coast in connexion with the seal fisheries of Bering Sea. In that year several schooners, fitted out in British Columbia for the capture of seals in the North Pacific, were seized by a United States cutter at a distance of 60 m. from the nearest land, the officers were imprisoned and fined, and the vessels themselves subjected to forfeiture. The British government at once protested against this infraction of international right, and through long and troublesome negotiations firmly upheld Canada's claims in the matter. The dispute was finally referred to a court of arbitration, on which Sir John Thompson, premier of the Dominion, sat as one of the British arbitrators. It was decided that the United States had no jurisdiction in the Bering Sea beyond the three miles' limit, but the court also made regulations to prevent the wholesale slaughter of fur-bearing seals. The sum of $463,454 was finally awarded as compensation to the Canadian sealers who had been unlawfully seized and punished. This sum was paid by the United States in 1898.

As the result of communications during 1897 between Sir Wilfrid Laurier and Secretary Sherman, the governments of Great Britain and the United States agreed to the appointment of a joint high commission, with a view of settling all outstanding differences between the United States and Canada. The commission, which included three members of the Canadian cabinet and a representative of Newfoundland, and of which Lord Herschell was appointed chairman, met at Quebec on the 23rd of August 1898. The sessions continued in Quebec at intervals until the 10th of October, when the commission adjourned to meet in Washington on the 1st of November, where the discussions were renewed for some weeks. Mr Nelson Dingley, an American member of the commission, died during the month of January, as did the chairman, Lord Herschell, in March, as the result of an accident, soon after the close of the sittings of the commission. The Alaskan boundary, the Atlantic and inland fisheries, the alien labour law, the bonding privilege, the seal fishery in the Bering Sea and reciprocity of trade in certain products were among the subjects considered by the commission. On several of these points much progress was made towards a settlement, but a divergence of opinion as to the methods by which the Alaskan boundary should be determined put an end for the time to the negotiations.

In 1903 an agreement was reached by which the question of this boundary, which depended on the interpretation put upon the treaty of 1825 between Russia and England, should be submitted to a commission consisting of "six impartial jurists of repute," three British and three American. The British commissioners appointed were: Lord Alverstone, lord chief justice of England; Sir Louis Jette, K.C., of Quebec; and A.B. Aylesworth, K.C., of Toronto. On the American side were appointed: the Hon. Henry C. Lodge, senator for Massachusetts; the Hon. Elihu Root, secretary of war for the United States government; and Senator George Turner. Canadians could not be persuaded that the American members fulfilled the condition of being "impartial jurists," and protest was made, but, though the imperial government also expressed surprise, no change in the appointments was effected. The commission met in London, and announced its decision in October. This was distinctly unfavourable to Canada's claims, since it excluded Canadians from all ocean inlets as far south as the Portland Channel, and in that channel gave to Canada only two of the four islands claimed. A statement made by the Canadian commissioners, who refused to sign the report, of an unexplained change of opinion on the part of Lord Alverstone, produced a widespread impression for a time that his decision in favour of American claims was diplomatic rather than judicial. Later Canadian opinion, however, came to regard the decision of the commission as a reasonable compromise. The irritation caused by the decision gradually subsided, but at the moment it led to strong expressions on the part of Sir Wilfrid Laurier and others in favour of securing for Canada a fuller power of making her own treaties. While the power of making treaties must rest ultimately in the hands that can enforce them, the tendency to give the colonies chiefly interested a larger voice in international arrangements had become inevitable. The mission of a Canadian cabinet minister, the Hon. R. Lemieux, to Japan in 1907, to settle Canadian difficulties with that country, illustrated the change of diplomatic system in progress.

Education.

Under the British North American Act the control of education was reserved for the provincial governments, with a stipulation that all rights enjoyed by denominational schools at the time of confederation should be respected. Provincial control has caused some diversity of management; the interpretation of the denominational agreement has led to acute differences of opinion which have invaded the field of politics. In all the provinces elementary, and in some cases secondary, education is free, the funds for its support being derived from local taxation and from government grants. The highly organized school system of Ontario is directed by a minister of education, who is a member of the provincial cabinet. The other provinces have boards of education, and superintendents who act under the direction of the provincial legislatures. In Quebec the Roman Catholic schools, which constitute the majority, are chiefly controlled by the local clergy of that church. The Protestant schools are managed by a separate board. In Ontario as well as in Quebec separate schools are allowed to Roman Catholics. In Nova Scotia, New Brunswick, Prince Edward Island, Manitoba and British Columbia the public schools are strictly undenominational. This position was only established in New Brunswick and Manitoba after violent political struggles, and frequent appeals to the highest courts of the empire for decisions on questions of federal or provincial jurisdiction. The right of having separate schools has been extended to the newly constituted provinces of Alberta and Saskatchewan.

Secondary education is provided for by high schools and collegiate institutes in all towns and cities, and by large residential institutions at various centres, conducted on the principle of the English public schools. The largest of these is

Upper Canada College at Toronto. Each province has a number of normal and model schools for the training of teachers. For higher education there are also abundant facilities. M'Gill University at Montreal has been enlarged and splendidly endowed by the munificence of a few private individuals, Toronto University by the provincial legislature of Ontario; Queen's University at Kingston largely by the support of its own graduates and friends. University work in the maritime provinces, instead of being concentrated, as it might well be, in one powerful institution, is distributed among five small, but within their range efficient universities. The agricultural college at Guelph and the experimental farms maintained by the federal government give excellent training and scientific assistance to farmers. Sir William Macdonald in 1908 built and endowed, at an expenditure of at least £700,000, an agricultural college and normal school at St Anne's, near Montreal. While the older universities have increased greatly in influence and efficiency, the following new foundations have been made since confederation:—University of Manitoba, Winnipeg, 1877; Presbyterian College, Winnipeg, 1870; Methodist College, Winnipeg, 1888; Wesleyan College, Montreal, 1873; Presbyterian College, Montreal, 1868; School of Practical Science, Toronto, 1877; Royal Military College, Kingston, 1875; M'Master University, Toronto, 1888. All the larger universities have schools of medicine in affiliation, and have the power of conferring medical degrees. Since 1877 Canadian degrees have been recognized by the Medical Council of Great Britain.

Indian tribes.

In her treatment of the aboriginal inhabitants of the country (numbering 93,318 in 1901) Canada has met with conspicuous success. Since the advance of civilization and indiscriminate slaughter have deprived them of the bison, so long their natural means of subsistence, the north-west tribes have been maintained chiefly at the expense of the country. As a result of the great care now used in watching over them there has been a small but steady increase in their numbers. Industrial and boarding schools, established in several of the provinces, by separating the children from the degrading influences of their home life, have proved more effectual than day schools for training them in the habits and ideas of a higher civilization. (See Indians, North American.)

Constitution.

The constitution of the Dominion embodies the first attempt made to adapt British principles and methods of government to a federal system. The chief executive authority is vested in the sovereign, as is the supreme command of the military and naval forces. The governor-general represents, and fulfils the functions of, the crown, which appoints him. He holds office for five years, and his powers are strictly limited, as in the case of the sovereign, all executive acts being done on the advice of his cabinet, the members of which hold office only so long as they retain the confidence of the people as expressed by their representatives in parliament. The governor-general has, however, the independent right to withhold his assent to any bill which he considers in conflict with imperial interests. The following governors-general have represented the crown since the federation of the provinces, with the year of their appointment: Viscount Monck, 1867; Sir John Young (afterwards Baron Lisgar), 1868; the earl of Dufferin, 1872; the marquess of Lome (afterwards duke of Argyll), 1878; the marquess of Lansdowne, 1883; Lord Stanley of Preston (afterwards earl of Derby), 1888; the earl of Aberdeen, 1893; the earl of Minto, 1898; Earl Grey, 1904. The upper house, or Senate, is composed of members who hold office for life and are nominated by the governor-general in council. It originally consisted of 72 members, 24 from Quebec, 24 from Ontario, and 24 from the maritime provinces, but this number has been from time to time slightly increased as new provinces have been added. The House of Commons consists of representatives elected directly by the people. The number of members, originally 196, is subject to change after each decennial census. The basis adopted in the British North America Act is that Quebec shall always have 65 representatives, and each of the other provinces such a number as will give the same proportion of members to its population as the number 65 bears to the population of Quebec at each census. In 1908 the number of members was 218.

Members of the Senate and of the House of Commons receive an annual indemnity of $2500, with a travelling allowance. Legislation brought forward in 1906 introduced an innovation in assigning a salary of $7000 to the recognized leader of the Opposition, and pensions amounting to half their official income to ex-cabinet ministers who have occupied their posts for five consecutive years. This pension clause has since been repealed. One principal object of the framers of the Canadian constitution was to establish a strong central government. An opposite plan was therefore adopted to that employed in the system of the United States, where the federal government enjoys only the powers granted to it by the sovereign states. The British North America Act assigns to the different provinces, as to the central parliament, their spheres of control, but all residuary powers are given to the general government. Within these limitations the provincial assemblies have a wide range of legislative power. In Nova Scotia and Quebec the bicameral system of an upper and lower house is retained; in the other provinces legislation is left to a single representative assembly. For purely local matters municipal institutions are organized to cover counties and townships, cities and towns, all based on an exceedingly democratic franchise.

The creation of a supreme court engaged the attention of Sir John Macdonald in the early years after federation, but was only finally accomplished in 1876, during the premiership of Alexander Mackenzie. This court is presided over by a chief justice, with five puisne judges, and has appellate civil and criminal jurisdiction for the Dominion. By an act passed in 1891 the government has power to refer to the supreme court any important question of law affecting the public interest. The right of appeal from the supreme court, thus constituted, to the judicial committee of the privy council marks, in questions judicial, Canada's place as a part of the British empire.

The appointment, first made in 1897, of the chief justice of Canada, along with the chief justices of Cape Colony and South Australia, as colonial members of the judicial committee still further established the position of that body as the final court of appeal for the British people. The grave questions of respective jurisdiction which have from time to time arisen between the federal and provincial governments have for the most part been settled by appeal to one or both of these judicial bodies. Some of these questions have played a considerable part in Canadian politics, but are of too complicated a nature to be dealt with in the present brief sketch. They have generally consisted in the assertion of provincial rights against federal authority. The decision of the courts has always been accepted as authoritative and final.

An excellent bibliography of Canadian history will be found in the volume *Literature of American History*, published by the American Library Association. The annual *Review of Historical Publications Relating to Canada*, published by the University of Toronto, gives a critical survey of the works on Canadian topics appearing from year to year.

(G. R. P.)

Literature

1. *English-Canadian Literature* is marked by the weaknesses as well as the merits of colonial life. The struggle for existence, the conquering of the wilderness, has left scant room for broad culture or scholarship, and the very fact that Canada is a colony, however free to control her own affairs, has stood in the way of the creation of anything like a national literature. And yet, while Canada's intellectual product is essentially an offshoot of the parent literature of England, it is not entirely devoid of originality, either in manner or matter. There is in much of it a spirit of freedom and youthful vigour characteristic of the country. It is marked by the wholesomeness of Canadian life and Canadian ideals, and the optimism of a land of limitless potentialities.

The first few decades of the period of British rule were lean years indeed so far as native literature is concerned. This period of unrest gave birth to little beyond a flood of political pamphlets, of no present value save as material for the historian. We may perhaps except the able though thoroughly partisan writings of Sir John Beverley Robinson and Bishop Strachan on the one side, and Robert Fleming Gourlay and William Lyon Mackenzie on the other. In the far West, however, a little group of adventurous fur-traders, of whom Sir Alexander Mackenzie, David Thompson, Alexander Henry and Daniel

Williams Harmon may be taken as conspicuous types, were unfolding the vast expanse of the future dominion. They were men of action, not of words, and had no thought of literary fame, but their absorbingly interesting journals are none the less an essential part of the literature of the country.

Barring the work of Francis Parkman, who was not a Canadian, no history of the first rank has yet been written in or of Canada. Canadian historians have not merely lacked so far the genius for really great historical work, but they have lacked the point of view; they have stood too close to their subject to get the true perspective. At the same time they have brought together invaluable material for the great historian of the future. Robert Christie's *History of Lower Canada* (1848-1854) was the first serious attempt to deal with the period of British rule. William Kingsford's (1819-1898) ambitious work, in ten volumes, comes down like Christie's to the Union of 1841, but goes back to the very beginnings of Canadian history. In the main it is impartial and accurate, but the style is heavy and sometimes slovenly. J.C. Dent's (1841-1888) *Last Forty Years* (1880) is practically a continuation of Kingsford. Dent also wrote an interesting though one-sided account of the rebellion of 1837. Histories of the maritime provinces have been written by Thomas Chandler Haliburton, Beamish Murdoch and James Hannay. Haliburton's is much the best of the three. The brief but stirring history of western Canada has been told by Alexander Begg (1840-1898); and George Bryce (b. 1844) and Beckles Willson (b. 1869) have written the story of the Hudson's Bay Company. Much scholarship and research have been devoted to local and special historical subjects, a notable example of which is Arthur Doughty's exhaustive work on the siege of Quebec. J. McMullen (b. 1820), Charles Roberts (b. 1860) and Sir John Bourinot (1837-1902) have written brief and popular histories, covering the whole field of Canadian history more or less adequately. Alpheus Todd's (1821-1884) *Parliamentary Government in England* (1867-1869) and *Parliamentary Government in the British Colonies* (1880) are standard works, as is also Bourinot's *Parliamentary Procedure and Practice* (1884).

Biography has been devoted mainly to political subjects. The best of these are Joseph Pope's *Memoirs of Sir John Macdonald* (1894), W.D. le Sueur's *Frontenac* (1906), Sir John Bourinot's *Lord Elgin* (1905), Jean McIlwraith's *Sir Frederick Haldimand* (1904), D.C. Scott's *John Graves Simcoe* (1905), A.D. de Celles' *Papineau and Cartier*(1904), Charles Lindsey's *William Lyon Mackenzie* (1862), J.W. Longley's *Joseph Howe* (1905) and J.S. Willison's *Sir Wilfrid Laurier* (1903).

In *belles lettres* very little has been accomplished, unless we may count Goldwin Smith (*q.v.*) as a Canadian. As a scholar, a thinker, and a master of pure English he has exerted a marked influence upon Canadian literature and Canadian life.

While mediocrity is the prevailing characteristic of most of what passes for poetry in Canada, a few writers have risen to a higher level. The conditions of Canadian life have not been favourable to the birth of great poets, but within the limits of their song such men as Archibald Lampman (1861-1891), William Wilfred Campbell (b. 1861), Charles Roberts, Bliss Carman (b. 1861) and George Frederick Cameron have written lines that are well worth remembering. Lampman's poetry is the most finished and musical. He fell short of being a truly great poet, inasmuch as great poetry must, which his does not, touch life at many points, but his verses are marked by the qualities that belonged to the man—sincerity, purity, seriousness. Campbell's poetry, in spite of a certain lack of compression, is full of dramatic vigour: Roberts has put some of his best work into sonnets and short lyrics, while Carman has been very successful with the ballad, the untrammelled swing and sweep of which he has finely caught; the simplicity and severity of Cameron's style won the commendation of even so exacting a critic as Matthew Arnold. One remarkable drama—Charles Heavysege's (1816-1876) *Saul* (1857)—belongs to Canadian literature. Though unequal in execution, it contains passages of exceptional beauty and power. The sweetness and maturity of Isabella Valency Crawford's (1851-1887) verse are also very worthy of remembrance. The *habitant* poems of Dr W.H. Drummond (1854-1907) stand in a class by themselves, between English and French Canadian literature, presenting the simple life of the *habitant* with unique humour and picturesqueness.

The first distinctively Canadian novel was John Richardson's (1796-1852) *Wacousta* (1832), a stirring tale of the war of 1812. Richardson afterwards wrote half a dozen other romances, dealing chiefly with incidents in Canadian history. Susanna Moodie (1803-1885) and Katharine Parr Traill (1802-1899), sisters of Agnes Strickland, contributed novels and tales to one of the earliest and best of Canadian magazines, the *Literary Garland* (1838-1847). *The Golden Dog*, William Kirby's (1817-1906) fascinating romance of old Quebec, appeared in 1877, in a pirated edition. Twenty years later the first authorized edition was published. James de Mille (1833-1880) was the author of some thirty novels, the best of which is *Helena's Household* (1868), a story of Rome in the 1st century. *The Dodge Club* (1869), a humorous book of travel, appeared, curiously enough, a few months before *Innocents Abroad*. De Mille's posthumous novel, *A Strange Manuscript found in a Copper Cylinder* (1888), describes a singular race whose cardinal doctrine is that poverty is honourable and wealth the reverse. Sir Gilbert Parker (b. 1862) stands first among contemporary Canadian novelists. He has made admirable use in many of his novels of the inexhaustible stores of romantic and dramatic material that lie buried in forgotten pages of Canadian history. Of later Canadian novelists mention may be made of Sara Jeannette Duncan (Mrs Everard Cotes, b. 1862), Ralph Connor (Charles W. Gordon, b. 1866), Agnes C. Laut (b. 1872), W.A. Fraser (b. 1859) and Ernest Thompson Seton (b. 1860). Thomas Chandler Haliburton (*q.v.*) stands in a class by himself. In many respects his is the most striking figure in Canadian literature. He is best known as a humorist, and as a humorist he ranks with the creators of "My Uncle Toby" and "Pickwick." But there is more than humour in Haliburton's books. He lacked, in fact, but one thing to make him a great novelist: he had no conception of how to construct a plot. But he knew human nature, and knew it intimately in all its phases; he could construct a character and endow it with life; his people talk naturally and to the point; and many of his descriptive passages are admirable. Those who read Haliburton's books only for the sake of the humour will miss much of their value. His inimitable *Clockmaker* (1837), as well as the later books, *The Old Judge* (1849), *The Attaché* (1843), *Wise Saws and Modern Instances* (1853) and *Nature and Human Nature* (1855), are mirrors of colonial life and character.

For general treatment of English-Canadian literature, reference may be made to Sir John Bourinot's *Intellectual Development of the Canadian People* (1881); G. Mercer Adam's *Outline History of Canadian Literature* (1887); "Native Thought and Literature," in J.E. Collins's *Life of Sir John A. Macdonald* (1883); "Canadian Literature," by J.M. Oxley, in the *Encyclopaedia Americana*, vol. ix. (1904); A. MacMurchy's *Handbook of Canadian Literature* (1906); and articles by J. Castell Hopkins, John Reade, A.B. de Mille and Thomas O'Hagan, in vol. v. of *Canada: an Encyclopaedia of the Country* (1898-1900); also to Henry J. Morgan's *Bibliotheca Canadensis* (1867) and *Canadian Men and Women of the Time* (1898); W.D. Lighthall, *Songs of the Great Dominion*; Theodore Rand's *Treasury of Canadian Verse* (1900); C.C. James's *Bibliography of Canadian Verse* (1898); L.E. Horning's and L.J. Burpee's *Bibliography of Canadian Fiction* (1904); S.E. Dawson's *Prose Writers of Canada* (1901); "Canadian Poetry," by J.A. Cooper, in *The National*, 29, p. 364; "Recent Canadian Fiction," by L.J. Burpee, in *The Forum*, August 1899. For individual authors, see Haliburton's *A Centenary Chaplet* (1897), with a bibliography; "Haliburton," by F. Blake Crofton, in *Canada: an Encyclopaedia of the Country*; C.H. Farnham's *Life of Francis Parkman* and H.D. Sedgwick's *Francis Parkman* (1901); and articles on "Parkman," by E.L. Godkin, in *The Nation*, 71, p. 441; by Justin Winsor in *The Atlantic*, 73, p. 660; by W.D. Howells, *The Atlantic*, 34, p. 602; by John Fiske, *The Atlantic*, 73, p. 664; by J.B. Gilder in *The Critic*, 23, p. 322; "Goldwin Smith as a Critic," by H. Spencer, *Contemp. Review*, 41, p. 519; "Goldwin Smith's Historical Works," by C.E. Norton, *North American Review*, 99, p. 523; "Poetry of Charles Heavysege," by Bayard Taylor, *Atlantic*, 16, p. 412; "Charles Heavysege," by L.J. Burpee, in *Trans. Royal Society of Canada*, 1901; "Archibald Lampman," by W.D. Howells, *Literature* (N.Y.), 4, p. 217; "Archibald Lampman," by L.J. Burpee, in *North American Notes and Queries* (Quebec), August and September 1900; "Poetry of Bliss Carman," by J.P. Mowbray, *Critic*, 41, p. 308; "Isabella Valency Crawford," in *Poet-Lore* (Boston), xiii. No. 4; *Roberts and the Influences of his Time* (1906), by James Cappon; "William Wilfred Campbell," *Sewanee Review*, October 1900; "Kingsford's History of Canada," by G.M. Wrong, *N.A. Review*, I p. 550; "Books of Gilbert Parker," by C.A. Pratt, *Critic*, 33, p. 271.

(L. J. B.)

2. *French-Canadian Literature* at the opening of the 20th century might be described as entirely the work of two generations, and it was separated from the old régime by three more generations whose racial sentiment only found expression in the traditional songs and tales which their forefathers of the 17th century had brought over from the *mère patrie*. Folk-lore has always been the most essentially French of all imaginative influences in Canadian life; and the songs are the quintessence of the lore. Not that the folk-songs have no local variants. Indian words, like *moccasin* and *toboggan*, are often introduced. French forms are freely turned into pure Canadianisms, like *cageux*, raftsman, *boucane*, brushwood smoke, *portage*, &c. New characters, which appeal more directly to the local audience, sometimes supplant old ones, like the *quatre vieux sauvages* who have ousted the time-honoured *quatre-z-officiers* from the Canadian version of *Malbrouk*. There are even a few entire songs of transatlantic origin. But all these variants together are mere stray curios among the crowding souvenirs of the old home over sea. No other bridge can rival *le Pont d'Avignon*. "*Ici*" in *C'est le ban vin qui danse ici* can be nowhere else but in old France—*le ban vin* alone proves this. And the Canadian folk-singer, though in a land of myriad springs, still goes *à la claire fontaine* of his ancestral fancy; while the lullabies his mother sang him, like the love-songs with which he serenades his *blonde*, were nearly all sung throughout the Normandy of *le Grand Monarque*. The *habitant* was separated from old-world changes two centuries ago by difference of place and circumstances, while he has hitherto been safeguarded from many new-world changes by the segregative influences of race, religion, language and custom; and so his folk-lore still remains the intimate *alter et idem* of what it was in the days of the great pioneers. It is no longer a living spirit among the people at large; but in secluded villages and "back concessions" one can still hear some charming melodies as old and pure as the verses to which they are sung, and even a few quaint survivals of Gregorian tunes. The best collection, more particularly from the musical point of view, is *Les Chansons populaires du Canada*, started by Ernest Gagnon (1st ed. 1865).

Race-patriotism is the distinguishing characteristic of French-Canadian literature, which is so deeply rooted in national politics that L.J. Papineau, the most insistent demagogue of 1837, must certainly be named among the founders, for the sake of speeches which came before written works both in point of time and popular esteem. Only 360 volumes had been published during 80 years, when, in 1845, the first famous book appeared—François Xavier Garneau's (1809-1866) *Histoire du Canada*. It had immense success in Canada, was favourably noticed in France, and has influenced all succeeding men of letters. Unfortunately, the imperfect data on which it is based, and the too exclusively patriotic spirit in which it is written, prevent it from being an authoritative history: the author himself declares "*Vous verrez si la défaite de nos ancêtres ne vaut pas toutes las victoires*." But it is of far-reaching importance as the first great literary stimulus to racial self-respect. "*Le Canada français avait perdu ses Ictlres de noblesse; Garneau les lui a rendues*." F.X. Garneau is also remembered for his poems, and he was followed by his son Alfred Garneau (1836-1904).

A. Gérin-Lajoie was a mere lad when the exile of some compatriots inspired *Le Canadien errant*, which immediately became a universal folk-song. Many years later he wrote discriminatingly about those *Dix ans au Canada* (1888) that saw the establishment of responsible government. But his fame rests on *Jean Rivard* (1874), the prose bucolic of the *habitant*. The hero, left at the head of a fatherless family of twelve when nearly through college, turns from the glut of graduates swarming round the prospects of professional city-bred careers, steadfastly wrests a home from the wilderness, helps his brothers and sisters, marries a *habitante* fit for the wife of a pioneer, brings up a large family, and founds a settlement which grows into several parishes and finally becomes the centre of the electoral district of "Rivardville," which returns him to parliament. These simple and earnest *Scènes de la vie réelle* are an appealing revelation of that eternal secret of the soil which every people wishing to have a country of its own must early lay to heart; and *Jean Rivard, le défricheur*, will always remain the eponym of the new *colons* of the 19th century.

Philippe de Gaspé's historical novel, *Les Anciens Canadiens* (1863), is the complement of Garneau and Gérin-Lajoie. Everything about the author's life helped him to write this book. Born in 1784, and brought up among reminiscent eye-witnesses of the old régime, he was an eager listener, with a wonderful memory and whole-hearted pride in the glories of his race and family, a kindly *seigneur*, who loved and was loved by all his *censitaires*, a keen observer of many changing systems, down to the final Confederation of 1867, and a man who had felt both extremes of fortune (*Mémoires*, 1866). The story rambles rather far from its well-worn plot. But these very digressions give the book its intimate and abiding charm; for they keep the reader in close personal touch with every side of Canadian life, with songs and tales and homely forms of speech, with the best features of seigniorial times and the strong guidance of an ardent church, with *voyageurs, coureurs de bois*, Indians, soldiers, sailors and all the strenuous adventurers of a wild, new, giant world. The poet of this little band of authors was Octave Crémazie, a Quebec bookseller, who failed in business and spent his last years as a penniless exile in France. He is usually rather too derivative, he lacks the saving grace of style, and even his best Canadian poems hardly rise above fervent occasional verse. Yet he became a national poet, because he was the first to celebrate occasions of deeply felt popular emotion in acceptable rhyme, and he will always remain one because each occasion touched some lasting aspiration of his race. He sings what Garneau recounts—the love of mother country, mother church and Canada. The *Guerre de Crimée, Guerre d'ltalie*, even *Castel-fidardo*, are duly chronicled. An ode on *Mgr. de Montmorency-Laval*, first bishop of Quebec, brings him nearer to his proper themes, which are found in full perfection in the *Chant du vieux soldat canadien*, composed in 1856 to honour the first French man-of-war that visited British Quebec, and *Le Drapeau de Carillon* (1858), a centennial paean for Montcalm's Canadians at Ticonderoga. Much of the mature work of this first generation, and of the juvenilia of the second, appeared in *Les Soirées canadiennes* and *Le Foyer canadien*, founded in 1862 and 1863 respectively. The abbé Ferland was an enthusiastic editor and historian, and Etienne Parent should be remembered as the first Canadian philosopher.

At Confederation many eager followers began to take up the work which the founders were laying down. The abbé Casgrain devoted a life-time to making the French-Canadians appear as the chosen people of new-world history; but, though an able advocate, he spoilt a really good case by trying to prove too much. His *Pèlerinage au pays d'Evangéline* (1888) is a splendid defence of the unfortunate Acadians; and all his books attract the reader by their charm of style and personality. But his *Montcalm et Lévis* (1891) and other works on the conquest, are all warped by a strong bias against both Wolfe and Montcalm, and in favour of Vandreuil, the Canadian-born governor; while they show an inadequate grasp of military problems, and practically ignore the vast determining factor of sea-power altogether. Benjamin Sulte's comprehensive *Histoire des Canadiens-français* (1882) is a well-written, many-sided work. Thomas Chapais' monographs are as firmly grounded as they are finely expressed; his *Jean Talon* (1904) is of prime importance; and his *Montcalm* (1901) is the generous *amende honorable* paid by French-Canadian literature to a much misrepresented, but admirably wrought, career. A. Gérin-Lajoie's cry of "back to the land" was successfully adapted to modern developments in *Le Saguenay* (1896) and *L'Outaouais supérieur* (1889) by Arthur Buies, who showed what immense inland breadths of country lay open to suitable "Jean Rivards" from the older settlements along the St Lawrence. In oratory, which most French-Canadians admire beyond all other forms of verbal art, Sir Wilfrid Laurier has greatly surpassed L.J. Papineau, by dealing with more complex questions, taking a higher point of view, and expressing himself with a much apter flexibility of style.

Among later poets may be mentioned Pierre Chauveau (1820-1890), Louis Fiset, (b. 1827), and Adolphe Poisson (b. 1849). Louis Fréchette (1830-1908) has, however, long been the only poet with a reputation outside of Canada. In 1879 *Les Fleurs boréales* won the Prix Monthyon from the French Academy. In 1887 *La Légende d'un peuple* became the acknowledged epic of a race. He occasionally nods; is rather strident in the patriotic vein; and too often answers the untoward call of rhetoric when his subject is about to soar into the heights of poetry. But a rich vocabulary, a mastery of verse-forms quite beyond the range of Crémazie, real originality of conception, individual distinction of style, deep insight into the soul of his people, and, still more, the glow of warm-blooded life pulsing through the whole poem, all combine to give him the greatest

place at home and an important one in the world at large. *Les Vengeances* (1875), by Leon Pamphile Le May, and *Les Aspirations* (1904), by W. Chapman, worthily represent the older and younger contemporaries. Dr Nérée Beauchemin keeps within somewhat narrow limits in *Les Floraisons matutinales* (1897); but within them he shows true poetic genius, a fine sense of rhythm, rhyme and verbal melody, a *curiosa felicitas* of epithet and phrase, and so sure an eye for local colour that a stranger could choose no better guide to the imaginative life of Canada.

A Canadian drama hardly exists; among its best works are the pleasantly epigrammatic plays of F.G. Marchand. Novels are not yet much in vogue; though Madame Conan's *L'Oublié* (1902) has been crowned by the Academy; while Dr Choquette's *Les Ribaud* (1898) is a good dramatic story, and his *Claude Paysan* (1899) is an admirably simple idyllic tale of the hopeless love of a soil-bound *habitant*, told with intense natural feeling and fine artistic reserve. Chief-Justice Routhier, a most accomplished occasional writer, is very French-Canadian when arraigning *Les Grands Drames* of the classics (1889) before his ecclesiastical court and finding them guilty of Paganism.

The best bibliographies are Philéas Gagnon's *Essai de bibliographie canadienne* (1895), and Dr N.E. Dionne's list of publications from the earliest times in the *Transactions of the Royal Society of Canada* for 1905.

(W. Wo.)

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1 The census is taken every ten years, save in these three provinces, where it is taken every five. Their population in 1906 was:—Manitoba, 360,000; Saskatchewan, 257,000; Alberta, 184,000.

2 The areas assigned to Prince Edward Island, Nova Scotia, New Brunswick and British Columbia are exclusive of the territorial seas, that to Quebec is exclusive of the Gulf of St Lawrence (though including the islands lying within it), and that to Ontario is exclusive of the Canadian portion of the Great Lakes. About 500,000 sq. m. belong to the Arctic region and 125,755 sq. m. are water.

3 In Canada a city must have over 10,000 inhabitants, a town over 2000.

4 The date of foundation is given in brackets.

CANAL (from Lat. *canalis*, "channel" and "kennel" being doublets of the word), an artificial water course used for the drainage of low lands, for irrigation (*q.v.*), or more especially for the purpose of navigation by boats, barges or ships. Probably the first canals were made for irrigation, but in very early times they came also to be used for navigation, as in Assyria and Egypt. The Romans constructed various works of the kind, and Charlemagne projected a system of waterways connecting the Main and the Rhine with the Danube, while in China the Grand Canal, joining the Pei-ho and Yang-tse-Kiang and constructed in the 13th century, formed an important artery of commerce, serving also for irrigation. But although it appears from Marco Polo that inclines were used on the Grand Canal, these early waterways suffered in general from the defect that no method being known of conveniently transferring boats from one level to another they were only practicable between points that lay on nearly the same level; and inland navigation could not become generally useful and applicable until this defect had been remedied by the employment of locks. Great doubts exist as to the person, and even the nation, that first introduced locks. Some writers attribute their invention to the Dutch, holding that nearly a century earlier than in Italy locks were used in Holland where canals are very numerous, owing to the favourable physical conditions. On the other hand, the contrivance has been claimed for engineers of the Italian school, and it is said that two brothers Domenico of Viterbo constructed a lock-chamber enclosed by a pair of gates in 1481, and that in 1487 Leonardo da Vinci completed six locks uniting the canals of Milan. Be that as it may, however, the introduction of locks in the 14th or 15th century gave a new character to inland navigation and laid the basis of its successful extension.

The Languedoc Canal (Canal du Midi) may be regarded as the pioneer of the canals of modern Europe. Joining the Bay of Biscay and the Mediterranean it is 148 m. long and rises 620 ft. above sea-level with 119 locks, its depth being about 6½ ft. It was designed by Baron Paul Riquet de Bonrepos (1604-1680) and was finished in 1681. With it and the still earlier Briare canal (1605-1642) France began that policy of canal construction which has provided her with over 3000 m. of canals, in addition to over 4600 m. of navigable rivers. In Russia Peter the Great undertook the construction of a system of canals about the beginning of the 18th century, and in Sweden a canal with locks, connecting Eskilstuna with Lake Malar, was finished in 1606. In England the oldest artificial canal is the Foss Dyke, a relic of the Roman occupation. It extends from Lincoln to the river Trent near Torksey (11 m.), and formed a continuation of the Caer Dyke, also of Roman origin but now filled up, which ran from Lincoln to Peterborough (40 m.). Camden in his *Britannia* says that the Foss Dyke was deepened and to some extent rendered navigable in 1121. Little, however, was done in making canals in Great Britain until the middle of the 18th century, though before that date some progress had been made in rendering some of the larger rivers navigable. In 1759 the duke of Bridgewater obtained powers to construct a canal between Manchester and his collieries at Worsley, and this work, of which James Brindley was the engineer, and which was opened for traffic in 1761, was followed by a period of great activity in canal construction, which, however, came to an end with the introduction of railways. According to evidence given before the royal commission on canals in 1906 the total mileage of existing canals in the United Kingdom was 3901. In the United States the first canal was made in 1792-1796 at South Hadley, Massachusetts, and the canal-system, though its expansion was checked by the growth of railways, has attained a length of 4200 m., most of the mileage being in New York, Ohio, and Pennsylvania. The splendid inland navigation system of Canada mainly consists of natural lakes and rivers, and the artificial waterways are largely "lateral" canals, cut in order to enable vessels to avoid rapids in the rivers. (See the articles on the various countries for accounts of the canal-systems they possess.)

The canals that were made in the early days of canal-construction were mostly of the class known as *barge* or *boat canals*, and owing to their limited depth and breadth were only available for vessels of small size. But with the growth of commerce the advantage was seen of cutting canals of such dimensions as to enable them to accommodate sea-going ships. Such *ship-canals*, which from an engineering point of view chiefly differ from barge-canals in the magnitude of the works they involve, have mostly been constructed either to shorten the voyage between two seas by cutting through an intervening isthmus, or to convert important inland places into seaports. An early example of the first class is afforded by the Caledonian Canal (*q.v.*), while among later ones may be mentioned the Suez Canal (*q.v.*), the Kaiser Wilhelm, Nord-Ostsee or Kiel Canal, connecting Brunsbüttel at the mouth of the Elbe with Kiel (*q.v.*) on the Baltic, and the various canals that have been proposed across the isthmus that joins North and South America (see Panama Canal). Examples of the second class are the Manchester Ship Canal and the canal that runs from Zeebrugge on the North Sea to Bruges (*q.v.*).

Construction.—In laying out a line of canal the engineer is more restricted than in forming the route of a road or a railway. Since water runs downhill, gradients are inadmissible, and the canal must either be made on one uniform level or must be adapted to the general rise or fall of the country through which it passes by being constructed in a series of level reaches at varying heights above a chosen datum line, each closed by a lock or some equivalent device to enable vessels to be transferred from one to another. To avoid unduly heavy earthwork, the reaches must closely follow the bases of hills and the windings of valleys, but from time to time it will become necessary to cross a sudden depression by the aid of an embankment or aqueduct, while a piece of rising ground or a hill may involve a cutting or a tunnel. Brindley took the Bridgewater canal over the Irwell at Barton by means of an aqueduct of three stone arches, the centre one having a span of 63 ft., and T. Telford arranged that the Ellesmere canal should cross the Dee valley at Pont-y-Cysyllte partly by

embankment and partly by aqueduct. The embankment was continued till it was 75 ft. above the ground, when it was succeeded by an aqueduct, 1000 ft. long and 127 ft. above the river, consisting of a cast iron trough supported on iron arches with stone piers. Occasionally when a navigable stream has to be crossed, a swing viaduct is necessary to allow shipping to pass. The first was that built by Sir E. Leader Williams to replace Brindley's aqueduct at Barton, which was only high enough to give room for barges (see Manchester Ship Canal). One of the earliest canal tunnels was made in 1766-1777 by Brindley at Harecastle on the Trent and Mersey canal; it is 2880 yds. long, 12 ft. high and 9 ft. wide, and has no tow-path, the boats being propelled by men lying on their backs and pushing with their feet against the tunnel walls ("leggers"). A second tunnel, parallel to this but 16 ft. high and 14 ft. wide, with a tow-path, was finished by Telford in 1827. Standedge tunnel, on the Huddersfield canal, is over 3 m. long, and is also worked by leggers.

Dimensions.

The dimensions of a canal, apart from considerations of water-supply, are regulated by the size of the vessels which are to be used on it. According to J.M. Rankine, the depth of water and sectional area of waterway should be such as not to cause any material increase of the resistance to the motion of the boats beyond what would be encountered in open water, and he gives the following rules as fulfilling these conditions:—

Least breadth of bottom	= 2 × greatest breadth of boat.
Least depth of water	= 1½ ft. + greatest draught of boat.
Least area of waterway	= 6 × greatest midship section of boat.

The ordinary inland canal is commonly from 25 to 30 ft. wide at the bottom, which is flat, and from 40 to 50 ft. at the water level, with a depth of 4 or 5 ft., the angle of slope of the sides varying with the nature of the soil. To retain the water in porous ground, and especially on embankments, a strong watertight lining of puddle or tempered clay must be provided on the bed and sides of the channel. Puddle is made of clay which has been finely chopped up with narrow spades, water being supplied until it is in a semi-plastic state. It is used in thin layers, each of which is worked so as to be firmly united with the lower stratum. The full thickness varies from 2 to 3 ft. To prevent the erosion of the sides at the water-line by the wash from the boats, it may be necessary to pitch them with stones or face them with brushwood. In some of the old canals the slopes have been cut away and vertical walls built to retain the towing-paths, with the result of adding materially to the sectional area of the waterway.

Water supply.

A canal cannot be properly worked without a supply of water calculated to last over the driest season of the year. If there be no natural lake available in the district for storage and supply, or if the engineer cannot draw upon some stream of sufficient size, he must form artificial reservoirs in suitable situations, and the conditions which must be attended to in selecting the positions of these and in constructing them are the same as those for drinking-water supply, except that the purity of the water is not a matter of moment. They must be situated at such an elevation that the water from them may flow to the summit-level of the canal, and if the expense of pumping is to be avoided, they must command a sufficient catchment area to supply the loss of water from the canal by evaporation from the surface, percolation through the bed, and lockage. If the supply be inadequate, the draught of the boats plying on the canal may have to be reduced in a dry season, and the consequent decrease in the size of their cargoes will both lessen the carrying capacity of the canal and increase the working expenses in relation to the tonnage handled. Again, since the consumption of water in lockage increases both with the size of the locks and the frequency with which they are used, the difficulty of finding a sufficient water supply may put a limit to the density of traffic possible on a canal or may prohibit its locks from being enlarged so as to accommodate boats of the size necessary for the economical handling of the traffic under modern conditions. It may be pointed out that the up consumes more water than the down traffic. An ascending boat on entering a lock displaces a volume of water equal to its submerged capacity. The water so displaced flows into the lower reach of the canal, and as the boat passes through the lock is replaced by water flowing from the upper reach. A descending boat in the same way displaces a volume of water equal to its submerged capacity, but in this case the water flows back into the higher reach where it is retained when the gates are closed.

Waste-weirs and stop-gates.

An essential adjunct to a canal is a sufficient number of waste-weirs to discharge surplus water accumulating during floods, which, if not provided with an exit, may overflow the tow-path, and cause a breach in the banks, stoppage of the traffic, and damage to adjoining lands. The number and positions of these waste-weirs must depend on the nature of the country through which the canal passes. Wherever the canal crosses a stream a waste-weir should be formed in the aqueduct; but independently of this the engineer must consider at what points large influxes of water may be apprehended, and must at such places form not only waste-weirs of sufficient size to carry off the surplus, but also artificial courses for its discharge into the nearest streams. These waste-weirs are placed at the top water-level of the canal, so that when a flood occurs the water flows over them and thus relieves the banks.

Stop-gates are necessary at short intervals of a few miles for the purpose of dividing the canal into isolated reaches, so that in the event of a breach the gates may be shut, and the discharge of water confined to the small reach intercepted between two of them, instead of extending throughout the whole line of canal. In broad canals these stop-gates may be formed like the gates of locks, two pairs of gates being made to shut in opposite directions. In small works they may be made of thick planks slipped into grooves formed at the narrow points of the canal under road bridges, or at contractions made at intermediate points to receive them. Self-acting stop-gates have been tried, but have not proved trustworthy. When repairs have to be made stop-gates allow of the water being run off by "off-lets" from a short reach, and afterwards restored with but little interruption of the traffic. These off-lets are pipes placed at the level of the bottom of the canal and provided with valves which can be opened when required. They are generally formed at aqueducts or bridges crossing rivers, where the contents of the canal between the stop-gates can be run off into the stream.

Locks.

Locks are chambers, constructed of wood, brickwork, masonry or concrete, and provided with gates at each end, by the aid of which vessels are transferred from one reach of the canal to another. To enable a boat to ascend, the upper gates and the sluices which command the flow of water from the upper reach are closed. The sluices at the lower end of the lock are then opened, and when the level of the water in the lock has fallen to that of the lower reach, the boat passes in to the lock. The lower gates and sluices being then closed, the upper sluices are opened, and when the water rising in the lock has floated the boat up the level of the upper reach the upper gates are opened and it passes out. For a descending boat the procedure is reversed. The sluices by which the lock is filled or emptied are carried through the walls in large locks, or consist of openings in the gates in small ones. The gates are generally of oak, fitting into recesses of the walls when open, and closing against sills in the lock bottom when shut. In small narrow locks single gates only are necessary; in large locks pairs of gates are required, fitting together at the head or "mitre-post" when closed. The vertical timber at the end of the gate is known as the "heel-post," and at its foot is a casting that admits an iron pivot which is fixed in the lock bottom, and on which the gate turns. Iron straps round the head of the heel-post are let into the lock-coping to support the gate. The gates are opened and closed by balance beams projecting over the lock side, by gearing or in cases where they are very large and heavy by the direct action of a hydraulic ram. In order to economize water canal locks are made only a few inches wider than the vessels they have to accommodate. The English canal boat is about 70 or 75 ft. long and 7 or 8 ft. in beam; canal barges are the same length but 14 or 15 ft. in width, so that locks which will hold one of them will admit two of the narrower canal boats side by side. In general canal locks are just long enough to accommodate the longest vessels using the navigation. In some cases, however, provision is made for admitting a train of barges; such long locks have sometimes intermediate gates by which the effective length is

reduced when a single vessel is passing. The lift of canal locks, that is, the difference between the level of adjoining reaches, is in general about 8 or 10 ft., but sometimes is as little as 1½ ft. On the Canal du Centre (Belgium) there are locks with a lift of 17 ft., and on the St Denis canal near La Villette basins in Paris there is one with a lift of 32½ ft. In cases where a considerable difference of level has to be surmounted the locks are placed close together in a series or "flight," so that the lower gates of one serve also as the upper gates of the next below. To save water, expecially where the lift is considerable, side ponds are sometimes employed; they are reservoirs into which a portion of the water in a lock-chamber is run, instead of being discharged into the lower reach, and is afterwards used for partially filling the chamber again. Double locks, that is, two locks placed side by side and communicating by a passage which can be opened or closed at will, also tend to save water, since each serves as a side pond to the other. The same advantage is gained with double flights of locks, and time also is saved since vessels can pass up and down simultaneously.

Inclines.

A still greater economy of water can be effected by the use of inclined planes or vertical lifts in place of locks. In China rude inclines appear to have been used at an early date, vessels being carried down a sloping plane of stonework by the aid of a flush of water or hauled up it by capstans. On the Bude canal (England) this plan was adopted in an improved form, the small flat-bottomed boats employed being fitted with wheels to facilitate their course over the inclines. Another variant, often adopted as an adjunct to locks where many small pleasure boats have to be dealt with, is to fit the incline itself with rollers, upon which the boats travel. In some cases the boats are conveyed on a wheeled trolley or cradle running on rails; this plan was adopted on the Morris canal, built in 1825-1831, in the case of 23 inclines having gradients of about 1 in 10, the rise of each varying from 44 to 100 ft. Between the Ourcq canal and the Marne, near Meaux, the difference of level is about 40 ft., and barges weighing about 70 tons are taken from the one to the other on a wheeled cradle weighing 35 tons by a wire rope over an incline nearly 500 yards long. But heavy barges are apt to be strained by being supported on cradles in this way, and to avoid this objection they are sometimes drawn up the inclines floating in a tank or caisson filled with water and running on wheels. This arrangement was utilized about 1840 on the Chard canal (England), and 10 years later it was adapted at Blackhill on the Monkland canal (Scotland) to replace a double flight of locks, in consequence of the traffic having been interrupted by insufficiency of water. There the height to be overcome was 96 ft. Two pairs of rails, of 7 ft. gauge, were laid down on a gradient of 1 in 10, and on these ran two carriages having wrought iron, water-tight caissons with lifting gates at each end, in which the barges floated partially but not wholly supported by water. The carriages, with the barge and water, weighed about 80 tons each, and were arranged to counterbalance each other, one going up as the other was going down. The power required was provided by two high pressure steam engines of 25 h.p., driving two large drums round which was coiled, in opposite directions, the 2-inch wire rope that hauled the caissons. An incline constructed on the Union canal at Foxton (England) to replace 10 locks giving a total rise of 75 ft., accommodates barges of 70 tons, or two canal boats of 33 tons. It is in some respects like the Monkland canal incline, but the movable caissons work on four pairs of rails on an incline of 1 in 14, broadside on, and the boats are entirely waterborne. Steam power is employed, with an hydraulic accumulator which enables hydraulic power to be used in keeping the caisson in position at the top of the incline while the boats are being moved in or out, a water-tight joint being maintained with the final portion of the canal during the operation. The gates in the caisson and canal are also worked by hydraulic power. The incline is capable of passing 200 canal boats in 12 hours, and the whole plant is worked by three men.

Lifts.

Vertical lifts can only be used instead of locks with advantage at places where the difference in level occurs in a short length of canal, since otherwise long embankments or aqueducts would be necessary to obtain sites for their construction. An early example was built in 1809 at Tardebigge on the Worcester and Birmingham canal. It consisted of a timber caisson, weighing 64 tons when full of water, counterpoised by heavy weights carried on timber platforms. The lift of 12 ft. was effected in about three minutes by two men working winches. Seven lifts, erected on the Grand Western canal between Wellington and Tiverton about 1835, consisted of two chambers with a masonry pier between them. In each chamber there worked a timber caisson, suspended at either end of a chain hung over large pulleys above. As one caisson descended the other rose, and the apparatus was worked by putting about a ton more water in the descending caisson than in the ascending one. At Anderton a lift was erected in 1875 to connect the Weaver navigation with the Trent and Mersey canal, which at that point is 50 ft. higher than the river. The lift is a double one, and can deal with barges up to 100 tons. The change is made while the vessels are floating in 5 ft. of water contained in a wrought iron caisson, 75 ft. long and 15½ ft. wide. An hydraulic ram 3 ft. in diameter supports each caisson, the bottom of which is strengthened so as to transfer the weight to the side girders. The descending caisson falls owing to being filled with 6 in. greater depth of water than the ascending one, the weight on the rams (240 tons) being otherwise constant, since the barge displaces its own weight of water; an hydraulic accumulator is used to overcome the loss of weight in the descending caisson when it begins to be immersed in the lower level of the river. The two presses in which the rams work are connected by a 5-in. pipe, so that the descent of one caisson effects the raising of the other. A similar lift, completed in 1888 at Fontinettes on the Neuffossé canal in France, can accommodate vessels of 250 tons, a total weight of 785 tons being lifted 43 ft.; and a still larger example on the Canal du Centre at La Louvière in Belgium has a rise of 50 ft., with caissons that will admit vessels up to 400 tons, the total weight lifted amounting to over 1000 tons. This lift, with three others of the same character, overcomes the rise of 217 ft., which occurs in this canal in the course of 4⅓ m.

Animal power.

Haulage.—The horse or mule walking along a tow-path and drawing or "tracking" a boat or barge by means of a towing rope, still remains the typical method of conducting traffic on the smaller canals; on ship-canals vessels proceed under their own steam or are aided by tugs. Horse traction is very slow. The maximum speed on a narrow canal is about 3½ m. an hour, and the average speed, which, of course, depends largely on the number of locks to be passed through, very much less. It has been calculated that in England on the average one horse hauls one narrow canal boat about 2 m. an hour loaded or 3 m. empty, or two narrow canal boats 1½ m. loaded and 2½ m. empty. Efforts have accordingly been made not only to quicken the rate of transit, but also to move heavier loads, thus increasing the carrying capacity of the waterways. But at speeds exceeding about 3½ m. an hour the "wash" of the boat begins to cause erosion of the banks, and thus necessitates the employment of special protective measures, such as building side walls of masonry or concrete. For a canal of given depth there is a particular speed at which a boat can be hauled with a smaller expenditure of energy than at a higher or a lower speed, this maximum being the speed of free propagation of the primary wave raised by the motion of the boat (see Wave). About 1830 when, in the absence of railways, canals could still aspire to act as carriers of passengers, advantage was taken of this fact on the Glasgow and Ardrossan canal, and subsequently on some others, to run fast passenger boats, made lightly of wrought iron and measuring 60 ft. in length by about 6 ft. in breadth. Provided with two horses they started at a low speed behind the wave, and then on a given signal were jerked on the top of the wave, when their speed was maintained at 7 or 8 m. an hour, the depth of the canal being 3 or 4 ft. This method, however, is obviously inapplicable to heavy barges, and in their case improved conditions of transport had to be sought in other directions.

Mechanical power.

Steam towage was first employed on the Forth and Clyde canal in 1802, when a tug-boat fitted with steam engines by W. Symington drew two barges for a distance of 19½ m. in 6 hours in the teeth of a strong headwind. As a result of this successful experiment it was proposed to employ steam tugs on the Bridgewater canal; but the project fell through owing to the death of the duke of Bridgewater, and the directors of the Forth and Clyde canal also decided against this method because they feared damage to the banks. Steam tugs are only practicable on navigations on which there are either no locks or they are large enough to admit the tug and its train of barges simultaneously; otherwise the advantages are more than counterbalanced by the delays at locks. On the Bridgewater canal, which has an average width of 50 ft. with a depth of 5½ ft., is provided with vertical stone walls in place

of sloping banks, and has no locks for its entire length of 40 m. except at Runcorn, where it joins the Mersey, tugs of 50 i.h.p., with a draught of 4 ft., tow four barges, each weighing 60 tons, at a rate of nearly 3 m. an hour. On the Aire and Calder navigation, where the locks have a minimum length of 215 ft., a large coal traffic is carried in trains of boat-compartments on a system designed by W.H. Bartholomew. The boats are nearly square in shape, except the leading one which has an ordinary bow; they are coupled together by knuckle-joints fitted into hollow stern-posts, so that they can move both laterally and vertically, and a wire rope in tension on each side enables the train to be steered. No boat crews are required, the crew of the steamer regulating the train. If the number of boats does not exceed 11 they can be pushed, but beyond that number they are towed. Each compartment carries 35 tons, and the total weight in a train varies from 700 to 900 tons. On the arrival of a train at Goole the boats are detached and are taken over submerged cradles under hydraulic hoists which lift the boat with the cradle sufficiently high to enable it to be turned over and discharge the whole cargo at once into a shoot and thence into sea-going steamers. Another method of utilizing steam-power, which was also first tried on the Forth and Clyde canal by Symington in 1789, is to provide each vessel with a separate steam engine, and many barges are now running fitted in this way. Experiments have also been made with internal combustion engines in place of steam engines. In some cases, chiefly on rivers having a strong current, recourse has been had to a submerged chain passed round a drum on a tug: this drum is rotated by steam power and thus the tug is hauled up against the current. To obviate the inconvenience of passing several turns of the chain round the drum in order to get sufficient grip, the plan was introduced on the Seine and Oise in 1893 of passing the chain round a pulley which could be magnetized at will, the necessary adhesion being thus obtained by the magnetic attraction exercised on the iron chain; and it was also adopted about the same time in combination with electrical haulage on a small portion of the Bourgogne canal, electricity being employed to drive the motor that worked the pulley. Small locomotives running on rails along the towpath were tried on the Shropshire Union canal, where they were abandoned on account of practical difficulties in working, and also on certain canals in France and Germany, where, however, the financial results were not satisfactory. On portions of the Teltow canal, joining the Havel and the Spree, electrical tractors run on rails along both banks, taking their power from an overhead wire; they attain a speed of 2½ m. an hour when hauling two 600-ton barges. The electrical supply is also utilized for working the lock gates and for various other purposes along the route of the canal. In the Mont-de-Rilly tunnel, at the summit level of the Aisne-Marne canal, a system of cable-traction was established in 1894, the boats being taken through by being attached to an endless travelling wire rope supported by pulleys on the towpath.

When railways were being carried out in England some canal companies were alarmed for their future, and sold their canals to the railway companies, who in 1906 owned 1138 m. of canals out of a total length in the United Kingdom of 3901 m. As some of these canals are links in the chain of internal water communication complaints have frequently arisen on the question of through traffic and tolls. The great improvements carried out in America and on the continent of Europe by state aid enable manufacturers to get the raw material they use and goods they export to and from their ports at much cheaper rates than those charged on British canals. The association of chambers of commerce and other bodies having taken up the matter, a royal commission was appointed in 1906 to report on the canals and water-ways of the kingdom, with a view to considering how they could be more profitably used for national purposes. Its Report was published in December 1909.

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(E. L. W.)

CANAL DOVER, a city of Tuscarawas county, Ohio, U.S.A., on the Tuscarawas river, about 70 m. S. by E. of Cleveland. Pop. (1890) 3470; (1900) 5422 (930 foreign-born); (1910) 6621. It is served by the Baltimore & Ohio and the Pennsylvania railways, and by the Ohio canal, and is connected with Cleveland by an inter-urban electric line. It lies on a plateau about 880 ft. above sea-level and commands pleasant views of diversified scenery. Coal and iron ore abound in the vicinity, and the city manufactures iron, steel, tin plate, electrical and telephone supplies, shovels, boilers, leather, flour, brick and tile, salt, furniture and several kinds of vehicles. The municipality owns and operates its water-works. Canal Dover was laid out as a town in 1807, and was incorporated as a village in 1842, but its charter was soon allowed to lapse and was not revived until 1867. Canal Dover became a city under the Ohio municipal code of 1903.

CANALE (or CANALETTO), **ANTONIO** (1697-1768), Venetian painter, born on the 18th of October 1697, was educated under his father Bernard, a scene-painter of Venice, and for some time followed his father's line of art. In 1719 he went to Rome, where he employed himself chiefly in delineating ancient ruins, and particularly studied effects of light and shade, in which he became an adept. He was the first painter who made practical use of the camera lucida. On returning home he devoted his powers to views in his native city, which he painted with a clear and firm touch and the most facile mastery of colour in a deep tone, introducing groups of figures with much effect. In his latter days he resided some time in England. His pictures, in their particular range, still remain unrivalled for their magnificent perspective. The National Gallery, London, has five pictures by him, notably the "View on the Grand Canal, Venice," and the "Regatta on the Grand Canal." He died on the 20th of August 1768. Bellotto (commonly named Bernardo), who is also sometimes called CANALETTO (1724-1780), was his nephew and pupil, and painted with deceptive resemblance to the style of the more celebrated master.

CANALIS (also "canal" and "channel"; from the Latin), in architecture, the sinking between the fillets of the volute of the Ionic capital: in the earliest examples, though sunk below the fillets, it is slightly convex in section.

CANANDAIGUA, a village and the county-seat of Ontario county, New York, U.S.A., 30 m. S.E. of Rochester. Pop. (1890)

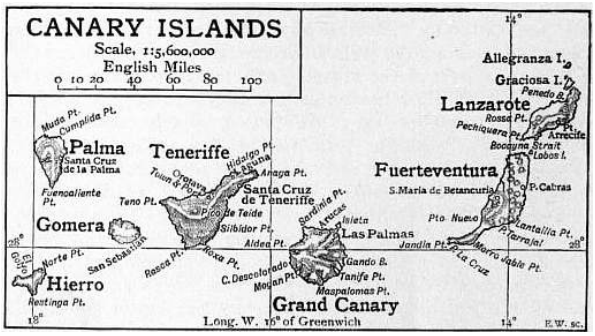
5868; (1900) 6151; (1910) 7217. It is served by the New York Central and Hudson River, and the Northern Central (Pennsylvania system) railways, and is connected with Rochester by an inter-urban electric line. Among the manufactures are pressed bricks, tile, beer, ploughs, flour, agate and tin-ware. The village, picturesquely situated at the north end of Canandaigua Lake, a beautiful sheet of water about 15 m. long with a breadth varying from a mile to a mile and a half, is a summer resort. It has a county court house; the Canandaigua hospital of physicians and surgeons; the Frederick Ferris Thompson memorial hospital, with a bacteriological laboratory supported by the county; the Clark Manor House (a county home for the aged), given by Mrs Frederick Ferris Thompson in memory of her mother and of her father, Myron Holley Clark (1806-1892), president of the village of Canandaigua in 1850-1851 and governor of New York in 1855-1857; the Ontario Orphan Asylum; Canandaigua Academy; Granger Place school for girls; Brigham Hall (a private sanatorium for nervous and mental diseases); Young Men's Christian Association building (1905); and two libraries, the Wood (public) library and the Union School library, founded in 1795. There is a public playground in the village with free instruction by a physical director; and a swimming school, endowed by Mrs F.F. Thompson, gives free lessons in swimming. The village owns its water-supply system. A village of the Seneca Indians, near the present Canandaigua, bearing the same name, which means "a settlement was formerly there" (not, as Lewis Morgan thought, "chosen spot"), was destroyed by Gen. John Sullivan in 1779. There are boulder memorials of Sullivan's expedition and of the treaty signed here on the 11th of November 1794 by Timothy Pickering, on behalf of the United States with the Six Nations—a treaty never ratified by the Senate. Canandaigua was settled in 1789 and was first incorporated in 1812.

CANARD (the Fr. for "duck"), a sensational or extravagant story, a hoax or false report, especially one circulated by newspapers. This use of the word in France dates from the 17th century, and is supposed by Littré to have originated in the old expression, "*vendre un canard à moitié*" (to half-sell a duck); as it is impossible to "half-sell a duck," the phrase came to signify to take in, or to cheat.

CANARY (*Serinus canarius*), a well-known species of passerine bird, belonging to the family *Fringillidae* or finches (see FINCH). It is a native of the Canary Islands and Madeira, where it occurs abundantly in the wild state, and is of a greyish-brown colour, slightly varied with brighter hues, although never attaining the beautiful plumage of the domestic bird. It was first domesticated in Italy during the 16th century, and soon spread over Europe, where it is now the most common of cage-birds. During the years of its domestication, the canary has been the subject of careful artificial selection, the result being the production of a bird differing widely in the colour of its plumage, and in a few of its varieties even in size and form, from the original wild species. The prevailing colour of the most admired varieties of the canary is yellow, approaching in some cases to orange, and in others to white; while the most robust birds are those which, in the dusky green of the upper surface of their plumage, show a distinct approach to the wild forms. The least prized are those in which the plumage is irregularly spotted and speckled. In one of the most esteemed varieties, the wing and tail feathers are at first black—a peculiarity, however, which disappears after the first moulting. Size and form have also been modified by domestication, the wild canary being not more than 5½ in. in length, while a well-known Belgian variety usually measures 8 in. There are also hooped or bowed canaries, feather-footed forms and top-knots, the latter having a distinct crest on the head; but the offspring of two such top-knotted canaries, instead of showing an increased development of crest, as might be expected, are apt to be bald on the crown. Most of the varieties, however, of which no fewer than twenty-seven were recognized by French breeders so early as the beginning of the 18th century, differ merely in the colour and the markings of the plumage. Hybrids are also common, the canary breeding freely with the siskin, goldfinch, citril, greenfinch and linnet. The hybrids thus produced are almost invariably sterile. It is the female canary which is almost invariably employed in crossing, as it is difficult to get the females of the allied species to sit on the artificial nest used by breeders. In a state of nature canaries pair, but under domestication the male bird has been rendered polygamous, being often put with four or five females; still he is said to show a distinct preference for the female with which he was first mated. It is from the others, however, that the best birds are usually obtained. The canary is very prolific, producing eggs, not exceeding six in number, three or four times a year; and in a state of nature it is said to breed still oftener. The work of building the nest, and of incubation, falls chiefly on the female, while the duty of feeding the young rests mainly with the cock bird. The natural song of the canary is loud and clear; and in their native groves the males, especially during the pairing season, pour forth their song with such ardour as sometimes to burst the delicate vessels of the throat. The males appear to compete with each other in the brilliancy of their melody, in order to attract the females, which, according to the German naturalist Johann Matthaus Bechstein (1757-1822) always select the best singers for their mates. The canary readily imitates the notes of other birds, and in Germany and especially Tirol, where the breeding of canaries gives employment to a large number of people, they are usually placed for this purpose beside the nightingale.

(A. N.)

CANARY ISLANDS (*Canarias*), a Spanish archipelago in the Atlantic Ocean; about 60 m. W. of the African coast, between 27° 40′ and 29° 30′ N., and between 13° 20′ and 18° 10′ W. Pop. (1900) 358,564; area 2807 sq. m. The Canary Islands resemble a roughly-drawn semicircle, with its convex side facing south-wards, and with the island of Hierro detached on the south-west. More precisely, they may be considered as two groups, one of which, including Teneriffe, Grand Canary, Palma, Hierro and Gomera, consists of mountain peaks, isolated and rising directly from an ocean of great depth; while the other, comprising Lanzarote, Fuerteventura and six uninhabited islets, is based on a single submarine plateau, of far less depth. Teneriffe and Gomera, the only members of the principal group which have a common base, may be regarded as the twin peaks of one great volcanic mass. Ever since the researches of Leopold von Buch the Canary Islands have been classical ground to the student of volcanic action. Buch considered them to be representative of his "craters of elevation." In common with the other West African islands they are of volcanic origin. The lavas consist chiefly of trachytes and basalts.



Climate.—From April to October a north or north-east wind blows upon the islands, beginning about 10 A.M. and continuing until 5 or 6 P.M. In summer this wind produces a dense stratum of sea-cloud (*cumuloni*), 500 ft. thick, whose lower surface is about 2500 ft. above the sea at Teneriffe. This does not reach up to the mountains, which have on every side a stratum of their own, about 1000 ft. thick, the lower surface being about 3500 ft. above the level of the sea. Between these two distinct strata there is a gap, through which persons on a vessel near the island may obtain a glimpse of the peak. The sea-cloud conceals from view the other islands, except those whose mountains pierce through it. On the south-west coasts there is no regular sea or land breeze. In winter they are occasionally visited by a hot south-east wind from Africa, which is called the *Levante*, and produces various disagreeable consequences on the exposed parts of the person, besides injuring the vegetation, especially on the higher grounds. Locusts have sometimes been brought by this wind. In 1812 it is said that locusts covered some fields in Fuerteventura to the depth of 4 ft. Hurricanes, accompanied by waterspouts, sometimes cause much devastation; but, on the whole, the islands are singularly free from such visitations. The climate generally is mild, dry and healthy. On the lower grounds the temperature is equable, the daily range seldom exceeding 6° Fahr. At Santa Cruz the mean for the year is about 71°. The rainy season occurs at the same period as in southern Europe. The dry season is at the time of the trade-winds, which extend a few degrees farther north than this latitude.

Fauna.—The indigenous mammals of the Canary Islands are very few in number. The dog, swine, goat and sheep were alone found upon the island by the Spanish conquerors: The race of large dogs which is supposed to have given a name to the islands has been long extinct. A single skeleton has been found, which is deposited in one of the museums at Paris. The ferret, rabbit, cat, rat, mouse and two kinds of bat have become naturalized. The ornithology is more interesting, on account at once of the birds native to the islands, and the stragglers from the African coast, which are chiefly brought over in winter, when the wind has blown for some time from the east. Among the indigenous birds are some birds of prey, as the African vulture, the falcon, the buzzard, the sparrow-hawk and the kite. There are also two species of owl, three species of sea-mew, the stockdove, quail, raven, magpie, chaffinch, goldfinch, blackcap, canary, titmouse, blackbird, house-swallow, &c. As to the insects, mention may be made of a species of gnat or mosquito which is sometimes troublesome, especially to strangers. The list of reptiles is limited to three varieties of lizard and one species of frog. The only fresh-water fish is the eel. Marine fishes are not numerous, the reason perhaps being that the steepness of the coast does not allow seaweed to grow in sufficient quantity to support the lower forms of marine animal life. Whales and seals are occasionally seen. The cuttle-fish is abundant, and is sought for as an article of food.

Flora.—The position of mountainous islands like the Canaries, in the subtropical division of the temperate zone, is highly favourable to the development, within a small space, of plants characteristic of both warm and cold climates. Von Buch refers to five regions of vegetation in Teneriffe:—(1) From the sea to the height of 1300 ft. This he styles the African region. The climate in the hottest parts is similar to that of Egypt. Here grow, among the introduced plants, the coffee tree, the date-palm, the sugar-cane, the banana, the orange tree, the American agave and two species of cactus; and among indigenous plants, the dragon tree on the north-west of Teneriffe. A leafless and fantastic euphorbia, *E. canariensis*, and a shrubby composite plant, *Cacalia kleinia*, give a character to the landscape about Santa Cruz. (2) Between 1300 ft. and 2800 ft. This is the region of south European vegetation, the climate answering to that of southern France and central Italy. Here nourish vines and cereals. (3) The region of indigenous trees, including various species of laurel, an *Ardisia, Ilex, Rhamnus, Olea, Myrica*, and other trees found wild also at Madeira. The clouds rest on this region during the day, and by their humidity support a vegetation amongst the trees, partly of shrubs, and partly of ferns. It extends to the height of 4000 ft. (4) The region of the beautiful *Pinus canariensis*, extending to the height of 6400 ft.; here the broad-leaved trees have ceased to grow, but arborescent heaths are found throughout its whole extent, and specimens of *Juniperus oxycedrus* may be met with. (5) The region of Retama (*Cytisus nubigenus*), a species of white-flowering and sweet-scented broom, which is found as high as 11,000 ft. At the upper edge of this region a lilac-coloured violet clings to the soil, and above there is nothing but a little lichen. The number of wild flowering plants may be estimated at 900, upwards of 270 of which are peculiar to the Canaries. The forms of vegetation must in the main be considered North African. The character of the vegetation in Lanzarote and Fuerteventura, islands composed of extensive plains and low hills, with few springs, is different from that of the other islands, which are more elevated and have many springs. The wood is less abundant, and the vegetation less luxuriant.

Inhabitants.—The Guanches (*q.v.*), who occupied the Canaries at the time of the Spanish invasion, no longer exist as a separate race, for the majority were exterminated, and the remainder intermarried with their conquerors. The present inhabitants are slightly darker than the people of Spain, but in other respects are scarcely distinguishable from them. The men are of middle height, well-made and strong; the women are not striking in respect of beauty, but they have good eyes and hair. Spanish is the only language in use. The birth-rate is uniformly high and the death-rate low; and, despite the emigration of many families to South America and the United States, the census of 1900 showed that the population had increased by over 75,000 since 1877. The excess of females over males, which in 1900 amounted to upwards of 22,000, is partly explained by the fact that few women emigrate. Fully 80% of the inhabitants could neither read nor write in 1900; but education progresses more rapidly than in many other Spanish provinces. Good schools are numerous, and the return of emigrants and their children who have been educated in the United States, tends to raise the standard of civilization. The sustenance of the poorer classes is chiefly composed of fish, potatoes and *gofio*, which is merely Indian corn or wheat roasted, ground and kneaded with water or milk. The land is, in great part, strictly entailed.

Government.—The archipelago forms one Spanish province, of which the capital is Santa Cruz de Tenerife, the residence of the civil governor, who has under his command one of the two districts into which the archipelago is divided, this first district comprising Teneriffe, Palma, Gomera and Hierro. The other district includes Grand Canary, Lanzarote, Fuerteventura, and has at its head a sub-governor, residing in Las Palmas, on Grand Canary, who is independent of the governor except in regard to elections and municipal administration. The chief finance office is at Santa Cruz de Tenerife. The court of appeal, created in 1526, is in Las Palmas. The captain-general and second commandant of the archipelago reside in Santa Cruz de Tenerife, and there is a brigadier-governor of Grand Canary, residing in Las Palmas, besides eight inferior military commandants. The province furnishes no men for the Spanish peninsular army, but its annual conscription

provides men for the local territorial militia, composed of regiments of infantry, squadrons of mounted rifles and companies of garrison artillery—about 5000 men all told. The archipelago is divided into two naval districts, commanded by royal navy captains. Roman Catholicism is the official religion, and ecclesiastical law is the same as in other Spanish provinces. The convents have been suppressed, and in many cases converted to secular uses. Laguna and Las Palmas are episcopal sees, in the archbishopric of Seville.

Industry and Commerce.—Owing to the richness of the volcanic soil, agriculture in the Canaries is usually very profitable. Land varies in value according to the amount of water available, but as a rule commands an extraordinarily high price. In the *Terrenos de secano*, or non-irrigable districts, the average price of an acre ranges from £7 to £17; in the *Terrenes de riego*, or irrigable land, it ranges from £100 to £250. Until 1853 wine was the staple product, and although even the finest brand (known as *Vidonia*) never equalled the best Madeira vintages, it was largely consumed abroad, especially in England. The annual value of the wine exported often exceeded £500,000. In 1853, however, the grape disease attacked the vineyards; and thenceforward the production of cochineal, which had been introduced in 1825, took the place of viticulture so completely that, twenty years later, the exports of cochineal were worth £556,000. France and England were the chief purchasers. This industry declined in the later years of the 19th century, and was supplanted by the cultivation of sugar-cane, and afterwards of bananas, tomatoes, potatoes and onions. Bananas are the most important crop. Other fruits grown in smaller quantities include oranges, figs, dates, pineapples, guavas, custard-apples and prickly pears. Tobacco-planting is encouraged by the Spanish government, and the sugar trade is maintained, despite severe competition. The grain harvest does not supply the needs of the islanders. Pigs and sheep of a small, coarse-woolled breed, are numerous; and large herds of goats wander in an almost wild state over the higher hills. Fishing is a very important industry, employing over 10,000 hands. The fleet of about 2200 boats operates along some 600 m. of the African coast, between Cape Cantin and the Arguin Bank. Shipbuilding is carried on at Las Palmas; and the minor industries include the manufacture of cloth, drawn-linen (*calado*) work, silk, baskets, hats, &c. A group of Indian merchants, who employ coolie labour, produce silken, jute and cotton goods, Oriental embroideries, wrought silver, brass-ware, porcelain, carved sandal-wood, &c. The United Kingdom heads the import trade in coal, textiles, hardware, iron, soap, candles and colonial products. Timber comes chiefly from North America and Scandinavia, alcohol from Cuba and the United States, wheat and flour from various British possessions, maize from Morocco and Argentina. Large quantities of miscellaneous imports are sent by Germany, Spain, France and Italy. Bananas, tomatoes, potatoes, sugar and wine are exported. The total value of the foreign trade fluctuates very greatly, and the difficulty of forming an estimate is enhanced in many years by the absence of official statistics; but imports and exports together probably amount in a normal year to about £1,000,000. The chief ports are Las Palmas and Santa Cruz, which annually accommodate about 7000 vessels of over 8,000,000 tons. In 1854 all the ports of the Canaries were practically declared free; but on the 1st of November 1904 a royal order prohibited foreign vessels from trading between one island and another. This decree deprived the outlying islands of their usual means of communication, and, in answer to a protest by the inhabitants, its operation was postponed.

History.—There is ground for supposing that the Phoenicians were not ignorant of the Canaries. The Romans learned of their existence through Juba, king of Mauretania, whose account of an expedition to the islands, made about 40 B.C., was preserved by the elder Pliny. He mentions “Canaria, so called from the multitude of dogs of great size,” and “Nivaria, taking its name from perpetual snow, and covered with clouds,” doubtless Teneriffe. Canaria was said to abound in palms and pine trees. Both Plutarch and Ptolemy speak of the Fortunate Islands, but from their description it is not clear whether the Canaries or one of the other island groups in the western Atlantic are meant; see Isles Of The Blest. In the 12th century the Canaries were visited by Arab navigators, and in 1334 they were rediscovered by a French vessel driven among them by a gale. A Portuguese expedition, undertaken about the same time, failed to find the archipelago, and want of means frustrated the project of conquest entertained by a grandson of Alphonso X. of Castile, named Juan de la Cerda, who had obtained a grant of the islands and had been crowned king of them at Avignon, by Pope Clement VI. Two or possibly more Spanish expeditions followed, and a monastic mission was established, but at the close of the 14th century the Guanches remained unconquered and unconverted. In 1402, however, Gadifer de la Salle and Jean de Béthencourt (*q.v.*) sailed with two vessels from Rochelle, and landed early in July on Lanzarote. The relations between these two leaders, and their respective shares in the work of conquest and exploration, have been the subject of much controversy. Between 1402 and 1404 La Salle conquered Lanzarote and part of Fuerteventura, besides exploring other islands; Béthencourt meanwhile sailed to Cadiz for reinforcements. He returned in 1404 with the title of king, which he had secured from Henry III. of Castile. La Salle, thus placed in a position of inferiority, left the islands and appealed unsuccessfully for redress at the court of Castile. In 1405 Béthencourt visited Normandy, and returned with fresh colonists who conquered Hierro. In December 1406 he left the Canaries, entrusting their government to his nephew Maciot de Béthencourt, and reserving for himself a share in any profits obtained, and the royal title. Eight years of misrule followed before Queen Catherine of Castile intervened. Maciot thereupon sold his office to her envoy, Pedro Barba de Campos; sailed to Lisbon and resold it to Prince Henry the Navigator; and a few years afterwards resold it once more to Enrique de Guzman, count of Niebla. Jean de Béthencourt, who died in 1422, bequeathed the islands to his brother Reynaud; Guzman sold them to another Spaniard named Paraza, who was forced to re-sell to Ferdinand and Isabella of Castile in 1476; and Prince Henry twice endeavoured to enforce his own claims. Meanwhile the Guanches remained unconquered throughout the greater part of the archipelago. In 1479 the sovereignty of Ferdinand and Isabella over the Canaries was established by the treaty of Alcaçova, between Portugal and Castile. After much bloodshed, and with reinforcements from the mother country, the Spaniards, under Pedro de Vera, became masters of Grand Canary in 1483. Palma was conquered in 1491, and Teneriffe in 1495, by Alonzo de Lugo. The archipelago was included for administrative purposes in the captaincy-general of Andalusia until 1833, when it was made a separate province. In 1902 a movement in favour of local autonomy was repressed by Spanish troops.

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CANCALE, a fishing port of north-western France in the department of Ille-et-Vilaine on the Bay of Cancale, 9 m. E.N.E. of St Malo by road. Pop. (1906) town 3827, commune 7061. It exports oysters, which are found in its bay in large numbers and of excellent quality, and equips a fleet for the Newfoundland cod-fisheries. The harbour is protected by the rocks known as the Rochers de Cancale. In 1758 an English army under the duke of Marlborough landed here for the purpose of attacking St Malo and pillaged the town. It was again bombarded by the English in 1779.

CANCEL (from the Lat. *cancelli*, a plural diminutive of *cancer*, a grating or lattice, from which are also derived “chancel” and “chancellor”), a word meaning to cross out, from the crossed latticed lines drawn across a legal document to annul it, hence to delete or destroy.

CANCELLI (plural of Lat. *cancellus*, dim. of *cancer*, a crossing bar), in architecture, the term given to barriers which correspond to the modern balustrade or railing, especially the screen dividing the body of a church from the part occupied by the ministers; hence “chancel” (*q.v.*). By the Romans *cancelli* were similarly employed to divide off portions of the courts of law (cf. the English “bar”).

CANCER, LUIS (d. 1549), Spanish missionary to Central America, was born at Barbastro near Saragossa. After working for some time in Dominica and Haiti, he crossed to the mainland, where he had great success in pacifying the Indians whom more violent methods had failed to subdue. He upheld the cause of the natives at an ecclesiastical assembly held in Mexico in 1546, and three years later, on the 26th of June, met his death at their hands on the west coast of Florida.

CANCER (“The Crab”), in astronomy, the fourth sign of the zodiac, denoted by the symbol ♋. Its name may be possibly derived from the fact that when the sun arrives at this part of the ecliptic it apparently retraces its path, resembling in some manner the sidelong motion of a crab. It is also a constellation, mentioned by Eudoxus (4th century B.C.) and Aratus (3rd century B.C.); Ptolemy catalogued 13 stars in it, Tycho Brahe 15 and Hevelius 29. Its most interesting objects are: a large loose cluster of stars, known as *Praesepe* or the Beehive, visible as a nebulous patch to the naked eye, and ζ *Cancri*, a remarkable multiple star, composed of two stars, of magnitudes 5 and 5.7, revolving about each other in 60 years, and a third star of magnitude 5.5 which revolves about these two in an opposite direction in a period of 17½ years; from irregularities in the motion of this star, it is supposed to be a satellite of an invisible body which itself revolves about the two stars previously mentioned, in a period of 600 to 700 years.

CANCER, or Carcinoma (from Lat. *cancer*, Gr. καρκίνωμα, an eating ulcer), the name given to a class of morbid growths or tumours which occur in man, and also in most or all vertebrate animals. The term “malignant disease” is commonly used as synonymous with “cancer.” For the general pathology, &c., of tumours see Tumour.

Cancer exists in various forms, which, although differing from each other in many points, have yet certain common characters to which they owe their special significance.

1. In structure such growths are composed of nucleated cells and free nuclei together with a milky fluid called cancer juice, all contained within a more or less dense fibrous stroma or framework.

2. They have no well-defined limits, and they involve all textures in their vicinity, while they also tend to spread by the lymphatics and veins, and to cause similar growths in distant parts or organs called “secondary cancerous growths.”

3. They are undergoing constant increase, and their progress is usually rapid.

4. Pain is a frequent symptom. When present it is generally of a severe and agonizing character, and together with the local effects of the disease and the resulting condition of ill health or “cachexia,” hastens the fatal termination to which all cancerous growths tend.

5. When such growths are removed by the surgeon they are apt to return either at the same or at some other part.

The chief varieties of cancer are *Scirrhus* or hard cancer, *Encephaloid* or soft cancer and *Epithelial cancer*.

Scirrhus is remarkable for its hardness, which is due to the large amount of its fibrous, and relatively small proportion of its cell elements. It is of comparatively slow growth, but it tends to spread and to ulcerate. Its most common seat by far is the female breast, though it sometimes affects internal organs.

Encephaloid is in structure the reverse of the last, its softness depending on the preponderance of its cell over its fibrous elements. Its appearance and consistence resemble brain substance (hence its name), and it is of such rapid growth as to have given rise to its being occasionally termed *acute cancer*. Its most frequent seats are internal organs or the limbs. Ulceration and haemorrhage are common accompaniments of this form of cancer.

Epithelial cancer is largely composed of cells resembling the natural epithelium of the body. It occurs most frequently in those parts provided with epithelium, such as the skin and mucous membranes, or where those adjoin, as in the lips. This form of cancer does not spread so rapidly nor produce secondary growths in other organs to the same extent as the two other varieties, but it tends equally with them to involve the neighbouring lymphatic glands, and to recur after removal.

Cancer affects all parts of the body, but is much more frequent in some tissues than in others. According to recent statistics prepared by the registrar-general for England and Wales (sixty-seventh annual report) the most frequent seats are, in numerical order, as follows:—*males*—stomach, liver, rectum, intestines, aesophagus, tongue; *females*—uterus, breast, stomach, liver, intestines, rectum. Other statistics give similar, though not identical results. It may be said, broadly, that the most frequent seats are the female sexual organs and after them the digestive tract in both sexes. In children, in

whom cancer is rare, the most frequent seats appear to be—under five, the kidneys and supra-renal bodies; five to ten, the brain; ten to twenty, the arm and leg bones.

Cancer tends to advance steadily to a fatal termination, but its duration varies in different cases according to the part affected and according to the variety of the disease. Soft cancer affecting important organs of the body often proves fatal in a few months, while, on the other hand, cases of hard or epithelial cancer may sometimes last for several years; but no precise limit can be assigned for any form of the disease. In some rare instances growths exhibiting all the signs of cancer may exist for a great length of time without making any progress, and may even dwindle and disappear altogether. This is called “spontaneous cure.”

Cancer research.

Cancer has been the subject of observation from time immemorial, and of the most elaborate investigation by innumerable workers in recent years; but the problems of its origin and character have hitherto baffled inquiry. Modern scientific study of them may be said to have begun with J. Müller’s microscopic work in the structure of cancerous tissue early in the 19th century. A great impetus to this line of investigation was given by the cellular theory of R. Virchow and the pathological researches of Sir J. Paget, and general attention was directed to the microscopic examination of the cells of which cancer is composed. This led to a classification, on which much reliance was once placed, of different kinds of cancer, based on the character of the cells, and particularly to a distinction between *carcinoma*, in which the cells are of the epithelial type, and *sarcoma*, in which they are of the connective tissue type. The distinction, though still maintained, has proved barren; it never had any real significance, either clinical or pathological, and the tendency in recent research is to ignore it. The increased knowledge gained in numerous other branches of biological science has also been brought to bear on the problem of cancer and has led to a number of theories; and at the same time the apparently increasing prevalence of the disease recorded by the vital statistics of many countries has drawn more and more public attention to it. Two results have followed. One is the establishment of special endowed institutions devoted to cancer research; the other is the publication and discussion of innumerable theories and proposed methods of treatment. Popular interest has been constantly fanned by the announcement of some pretended discovery or cure, in which the public is invited to place its trust. Such announcements have no scientific value whatever. In the rare cases in which they are not pure quackery, they are always premature and based on inadequate data.

Organized cancer research stands on a different footing. It may be regarded as the revival at the end of the 19th century of what was unsuccessfully attempted at the beginning. As early as 1792, at the suggestion of Mr. John Howard, surgeon, a ward was opened at the Middlesex hospital in London for the special benefit of persons suffering from cancer. It was fitted up and endowed anonymously by Mr. Samuel Whitbread, M.P. for Bedford, and according to the terms of the benefaction at least six patients were to be continually maintained in it until relieved by art or released by death. The purpose was both philanthropic and scientific, as Mr. Howard explained in bringing forward the suggestion. Two principal objects, he said, presented themselves to his mind, “namely, the relief of persons suffering under this disease and the investigation of a complaint which, although extremely common, is both with regard to its natural history and cure but imperfectly known.” This benefaction was the origin of one of the most complete institutions for the scientific study of cancer that exists to-day.

In 1804 a Society for Investigating the Nature of Cancer was formed by a number of medical men in London, Edinburgh and other towns at the instigation of John Hunter. The aim was collective investigation, and an attempt was made to carry it out by issuing forms of inquiry; but the imperfect means of communication then existing caused the scheme to be abandoned in a short time. Subsequent attempts at collective investigation also failed until recently. About 1900 a movement, which had been for some time gathering force, began to take visible shape simultaneously in different countries. The cancer ward at the Middlesex hospital had then developed into a cancer wing, and to it were added special laboratories for the investigation of cancer, which were opened on the 1st of March 1900. In this establishment the fully equipped means of clinical and laboratory research were united under one roof and manned by a staff of investigators under the direction of Dr W.S. Lazarus Barlow. In the same year the *Deutsche Comité fur Krebsforschung* was organized in Berlin, receiving an annual subsidy of 5000 marks (£250) from the imperial exchequer. This body devoted its energies to making a census of cancer patients in Germany on a definite date. A special ward for cancer was also set apart at the Charité hospital in Berlin, with a state endowment of 53,000 marks (£2560) per annum, and a laboratory for cancer research was attached to the first medical clinique under Professor Ernst von Leyden at the same hospital. A third institution in Germany is a special cancer department at the Royal Prussian Institute for Experimental Therapeutics at Frankfort-on-Main, which has been supported, like the Imperial Cancer Research Fund in England, by private contributions on a generous scale. The fund just mentioned was initiated in October 1901, and its operations took definite shape a year later, when Dr. E.F. Bashford was appointed general superintendent of research. The patron of the foundation was King Edward VII., and the president was the prince of Wales. It had in 1908 a capital endowment of about £120,000, subscribed by private munificence and producing an income of about £7000 a year. The central laboratory is situated in the examination building of the Royal Colleges of Physicians and Surgeons in London, and the work is conducted under the superintendence of an executive committee formed by representatives of those bodies. In the United States a cancer laboratory, which had been established in Buffalo in 1899 under Dr Roswell Park, was formally placed under the control of New York state in June 1901, and is supported by an annual grant of $15,000 (£3000). There are other provisions in the United States connected with Harvard and Cornell universities. At the former the “Caroline Brewer Croft Fund for Cancer Research” started special investigations in the surgical department of the Harvard Medical School in 1900 or the previous year, and in connexion with the Cornell University Medical School there is a small endowment called the “Huntingdon Cancer Research Fund.” There appear to be institutions of a similar character in other countries, in addition to innumerable investigators at universities and other ordinary seats of scientific research.

Some attempt has been made to co-ordinate the work thus carried on in different countries. An international cancer congress was held at Heidelberg and Frankfort in 1906, and a proposal was put forward by German representatives that a permanent international conference on cancer should be established, with headquarters in Berlin. The committee of the Imperial Cancer Research Fund did not fall in with the proposal, being of opinion that more was to be gained in the existing stage of knowledge by individual intercourse and exchange of material between actual laboratory workers.

Theories of cancer.

In spite of the immense concentration of effort indicated by the simultaneous establishment of so many centres of endowed research, and in spite of the light thrown upon the problem from many sides by modern biological science, our knowledge of the origin of cancer is still in such a tentative state that a detailed account of the theories put forward is not called for; it will suffice to indicate their general drift. The actual pathological process of cancer is extremely simple. Certain cells, which are apparently of a normal character and have previously performed normal functions, begin to grow and multiply in an abnormal way in some part of the body. They continue this process so persistently that they first invade and then destroy the surrounding tissues; nothing can withstand their march. They are moreover carried to other parts of the body, where they establish themselves and grow in the same way. Their activity is carried on with relentless determination, though at a varying pace, until the patient dies, unless they are bodily removed. Hence the word “malignant.” The problem is—what are these cells, or why do they behave in this way? The principal answers put forward may be summarized:—(1) they are epithelial cells which grow without ceasing because the connective tissue has lost the capacity to hold their proliferative powers in check (H. Freund, following K. Thiersch and W. Waldeyer); (2) they are embryonic cells accidentally shut off (J.F. Cohnheim); (3) they are epithelial cells with a latent power of unlimited proliferation which becomes active on their being dislocated from the normal association (M.W.H. Ribbert and Borrmann); (4) they are stimulated to unlimited growth by the presence of a parasite (Plimmer, Sanfelice,

Roncali and others); (5) they are fragments of reproductive tissue (G.T. Beatson); (6) they are cells which have lost their differentiated character and assumed elementary properties (von Hausemann, O. Hertwig). The very number and variety of hypotheses show that none is established. Most of them attempt to explain the growth but not the origin of the disease. The hypothesis of a parasitic origin, suggested by recent discoveries in relation to other diseases, has attracted much attention; but the observed phenomena of cancerous growths are not in keeping with those of all known parasitic diseases, and the theory is now somewhat discredited. A more recent theory that cancer is due to failure of the normal secretions of the pancreas has not met with much acceptance.

Some generalizations bearing on the problem have been drawn from the work done in the laboratories of the Imperial Cancer Research Fund. They may be summarily stated thus. Cancer has been shown to be an identical process in all vertebrates (including fishes), and to develop at a time which conforms in a striking manner to the limits imposed by the long or short compass of life in different animals. Cancerous tissue can be artificially propagated in the short-lived mouse by actual transference to another individual, but only to one of the same species. Cancerous tissue thus propagated presents all the characteristic features of the malignant growth of sporadic tumours; it infiltrates and produces extensive secondary growths. Under suitable experimental conditions the aggregate growth of a cancer is undefined, of enormous and, so far as we can judge, of limitless amount. This extraordinary growth is due to the continued proliferation of cancerous cells when transplanted. The processes by which growing cancer cells are transferred to a new individual are easily distinguishable and fundamentally different from all known processes of infection. The artificial propagation of cancer causes no specific symptoms of illness in the animal in which it proceeds. Under artificial propagation cancer maintains all the characters of the original tumours of the primary hosts. *Carcinoma* and *sarcoma* agree in possessing all the pathological and cellular features of malignant new growths. 177

Statistics of cancer.

Simultaneously with the active pursuit of laboratory research much statistical work has been devoted to establishing the broad facts of the prevalence and incidence of cancer on a firm basis. The point of most general interest is the apparently steady increase of the disease in all countries possessing fairly trustworthy records. It will be sufficient to give the figures for England and Wales as an example.

Annual Death-rates from Cancer to a Million Living.
England and Wales.

1871-1875.	1876-1880.	1881-1885.	1886-1890.	1891-1895.	1896-1900.	1901-1904.
445	493	547	631	711	800	861

In forty years the recorded rate had risen from 403 to 861. The question how far these and similar statistics represent a real increase cannot be satisfactorily resolved, because it is impossible to ascertain how much of the apparent increase is due to more accurate diagnosis and improved registration. Some of it is certainly due to those causes, so that the recorded figures cannot be taken to represent the facts as they stand. At the same time it is certain that some increase has taken place in consequence of the increased average length of life; a larger proportion of persons now reach the ages at which cancer is most frequent. Increase due to this fact, though it is a real increase, does not indicate that the cause of cancer is more rife or more potent; it only means that the condition of the population in regard to age is more favourable to its activity. On the whole it seems probable that, when allowance has been made for this factor and for errors due to improved registration, a real increase due to other causes has taken place, though it is not so great as the recorded statistics would indicate.

The long-established conclusions concerning the incidence of the disease in regard to age and sex have been confirmed and rendered more precise by modern statistics. Cancer is a disease of old age; the incidence at the ages of sixty-five to seventy-five is ten times greater than at the ages thirty-five to forty-five. This fact is the source of frequent fallacies when different countries or districts and different periods are compared with each other, unless account is taken of the differences in age and constitution. With regard to sex females are far more liable than males; the respective death-rates per million living for England and Wales in 1904 were—males 740; females 1006. But the two rates show a tendency to approximate; the increase shown over a series of years has been considerably more rapid among males than among females. One result of more careful examination of statistics has been to discredit, though perhaps somewhat hastily, certain observations regarding the prevalence of cancer in special districts and special houses. On the other hand the fuller statistics now available concerning the relative frequency of cancer in the several organs and parts of the body, of which some account is given above, go to confirm the old observation that cancer commonly begins at the seat of some local irritation. By far the most frequent seats of disease are the uterus and breast in women and the digestive tract in both sexes, and these are all particularly subject to such irritation. With regard to the influence of heredity the trend of modern research is to minimize or deny its importance in cancer, as in phthisis, and to explain family histories by other considerations. At most heredity is only thought to confer a predisposition.

Treatment.

The only “cure” for cancer remains removal by operation; but improved methods of diagnosis enable this to be done in many cases at an earlier stage of the disease than formerly; and modern methods of surgery permit not only of operation in parts of the body formerly inaccessible, but also more complete removal of the affected tissues. Numerous forms of treatment by modern therapeutic means, both internal and external, have been advocated and tried; but they are all of an experimental nature and have failed to meet with general acceptance. One of the most recent is treatment by trypsin, a pancreatic ferment. This has been suggested by Dr John Beard of Edinburgh in conformity with the theory, mentioned above, that failure of the pancreatic secretions is the cause of cancer. It has been claimed that the drug exercises a favourable influence in conjunction with operation and even without it. The experience of different observers with regard to results is contradictory; but clinical investigations conducted at Middlesex hospital in a number of cases of undoubted cancer in strict accordance with Dr Beard’s directions, and summarized by Dr Walter Ball and Dr Fairfield Thomas in the *Sixth Report from the Cancer Research Laboratories* (*Archives of Middlesex Hospital*, vol. ix.) in May 1907, resulted in the conclusion “that the course of cancer, considered both as a disease and as a morbid process, is unaltered by the administration of trypsin and amylopsin.” The same conclusion has been reached after similar trials at the cancer hospital. Another experimental method of treatment which has attracted much attention is application of the X-rays. The results vary in a capricious and inexplicable manner; in some cases marked benefit has followed, in others the disease has been as markedly aggravated. Until more is known both of cancer and of X-rays, their use must be considered not only experimental but risky.

(A. Sl.)

CANCRIN, FRANZ LUDWIG VON (1738-1812), German mineralogist and metallurgist, was born on the 21st of February 1738, at Breitenbach, Hesse-Darmstadt. In 1764 he entered the service of the landgrave of Hesse-Darmstadt at

Hanau, becoming professor of mathematics at the military academy, head of the civil engineering department of the state, director of the theatre and (1774) of the mint. A work on the copper mines of Hesse (1767) earned him a European reputation, and in 1783 he accepted from Catherine II. of Russia the directorship of the famous Staraya salt-works, living thenceforth in Russia. In 1798 he became a councillor of state at St Petersburg. He published many works on mineralogy and metallurgy, of which the most important, the *Grundzüge der Berg- und Salzwerkskunde* (13 vols., Frankfort, 1773-1791), has been translated into several languages. His son, Count Georg von Cancrin, or Kankrin (1774-1845), was the eminent Russian minister of finance.

CANDELABRUM (from Lat. *candela*, a taper or candle), the stand on which ancient lamps were placed. The most ancient example is the bronze candelabrum made by Callimachus for the Erechtheum at Athens, to carry the lamp sacred to Minerva. In this case it is probable the lamp was suspended, as in the example from Pompeii, now in the Naples museum; this consisted of a stalk or reed, the upper part moulded with projecting feature to carry the lamps, and a base resting on three lions' or griffins' feet; sometimes there was a disk at the top to carry a lamp, and sometimes there was a hollow cup, in which resinous woods were burnt. The origin of the term suggests that on the top of the disk was a spike to carry a wax or tallow candle (*candela* or *funalia*). Besides these bronze candelabra, of which there are many varieties in museums, the Romans used more ponderous supports in stone or marble, of which many examples were found in the Thermae. These consisted of a base, often triangular, and of similar design to the small sacrificial altars, and a shaft either richly moulded or carved with the acanthus plant and crowned with a large cup or basin. There is a fine example of the latter in the Vatican. The Roman examples seem to have served as models for many of the candelabra in the churches in Italy. The word "candelabrum" is also now used to describe many different forms of lighting with multiple points, and is often applied to hanging lights as well as to those which rise from a stand.

CANDIA, formerly the capital and still the most populous city of Crete (*q.v.*), to which it has given its name. It is situated on the northern shore somewhat nearer the eastern than the western end of the island, in 35° 20′ N. lat. and 25° 9′ E. long. It is still surrounded by its extensive Venetian fortifications; but they have fallen into disrepair, and a good part of the town is in a dilapidated condition, mainly from the effects of earthquakes. The principal buildings are the Venetian loggia (barbarously mutilated by the new régime), the Konak (now Prefecture), the mosques, which are fourteen in number, the new cathedral, the two Greek churches, the Armenian church, the Capuchine monastery, the bazaars and the baths. There are also some beautiful Venetian fountains. The town is the seat of a Greek archbishop. A highly interesting museum has been formed here containing the antiquities found during the recent excavations. The chief trade is in oil and soap, both of which are of excellent quality. The coasting trade, which is of considerable importance, is mainly carried on in Turkish vessels. The manufacture of leather for home consumption is an extensive industry and wine of good quality is produced in the neighbourhood. The harbour, which had grown almost inaccessible, was deepened by Mustapha Pasha between 1820 and 1840. It is formed for the most part by the ancient moles, and was never deep enough to admit the larger vessels even of the Venetians, which were accustomed to anchor in the port of the neighbouring island of Standia. A short distance from St George's Gate there was a small village exclusively inhabited by lepers, who numbered about seventy families, but they have now been transported to Spinalonga. The population of the town is estimated at from 15,000 to 18,000, about half being Mahommedan Greeks. The site of Candia, or, as it was till lately locally known, Megalo castro (the Great Fortress), has been supposed to correspond with that of the ancient *Heracleion*, the seaport of Cnossus, and this appellation has now been officially revived by its Greek inhabitants. The ruins of Cnossus are situated at the distance of about 3 m. to the south-east at the village of Makryteichos or Long Wall. Founded by the Saracens in the 9th century, Candia was fortified by the Genoese in the 12th, and was greatly extended and strengthened by the Venetians in the 13th, 14th and 15th centuries. It was besieged by the Turks under the vizier Achmet in 1667; and, in spite of a most heroic defence, in which the Venetians lost 30,000 in killed and wounded, it was forced to surrender in 1669. (See also Crete.)

CANDIDATE, one who offers himself or is selected by others for an office or place, particularly one who puts up for election to parliament or to any public body. The word is derived from the Latin *candidatus*, clad in white (*candidus*). In Rome, candidates for election to the higher magistracies appeared in the Campus Martius, the Forum and other public places, during their canvass, in togas with the white of the natural wool brightened by chalk.

CANDLE (Lat. *candela*, from *candere*, to glow), a cylindrical rod of solid fatty or waxy matter, enclosing a central fibrous wick, and designed to be burnt for giving light. The oldest materials employed for making candles are beeswax and tallow, while among those of more recent introduction are spermaceti, stearine and paraffin wax. Waxlights (*cereus*, sc. *funis*) were known to the Romans. In the midlde ages wax candles were little used, owing to their expense, except for the ceremonies of the church and other religious purposes (see Lights, Ceremonial Use of), but in the 15th century, with the cheapening of wax, they began to find wider employment. The tallow candle, mentioned by Apuleius as *sebaceus*, was long an article of domestic manufacture. The tallow was melted and strained, and then lengths of cotton or flax fibre, or rushes from which most of the external skin had been stripped, only sufficient being left to support the pith ("rushlights"), were dipped into it, the operation being repeated until the desired thickness had been attained. In Paris, in the 13th century, there was a gild of candlemakers who went from house to house to make tallow candles, the manufacture of wax candles being in the hands of another gild. This separation of the two branches of the trade is also exemplified by the existence of two distinct livery companies in the city of London—the Waxchandlers and the Tallowchandlers; the French *chandelle* properly means tallow candle, candles made of materials less fusible than tallow being called *bougies*, a term said to be derived from the town of Bougie in Algeria, either because wax was produced there or because the Venetians imported wax candles thence into Europe. The old tallow "dips" gave a poor light, and tallow itself is now used only to a limited extent, except as a source of "stearine." This is the trade name for a mixture of solid fatty acids—mainly stearic and palmitic—

manufactured not only from tallow and other animal fats, but also from such vegetable fats as palm-oil. Paraffin wax, a mixture of solid hydrocarbons obtained from crude North American and Rangoon petroleum, and also yielded in large quantities by the Scotch shale oil industry, is, at least in Great Britain, a still more important material of candle-manufacture, which came into use about 1854. Spermaceti, a crystalline fatty substance obtained from the sperm whale (*Physeter macrocephalus*), was introduced as a material for candles about a century earlier. In practice the candlemaker mostly uses mixtures of these materials. For instance, 5-10% of stearine, which is used alone for candles that have to be burnt in hot climates, is mixed with paraffin wax, to counteract the tendency to bend with heat exhibited by the latter substance. Again, the brittleness of spermaceti is corrected by the addition of beeswax, stearine, paraffin wax or ceresin (obtained from the mineral wax ozocerite). In some "composite" candles stearine is mixed with the hard fat ("cocoa-nut stearine") expressed from cocoa-nut oil by hydraulic pressure; and this cocoa-nut stearine is also used for night-lights, which are short thick candles with a thin wick, calculated to burn from six to ten hours.

The stearine or stearic acid industry originated in the discovery made by M.E. Chevreul about 1815, that fats are glycerides or compounds of glycerin with fatty acids, mostly palmitic, stearic and oleic. The object of the candlemaker is to remove this glycerin, not only because it is a valuable product in itself, but also because it is an objectionable constituent of a candle; the vapours of acrolein formed by its decomposition in the flame are the cause of the unpleasant odours produced by tallow "dips." He also removes the oleic acid, which is liquid at ordinary temperatures, from the palmitic and stearic acids, mixtures of which solidify at temperatures varying from about 130° to 155° F., according to the percentage of each present. Several methods are in use for the decomposition of the fats. In the autoclave process the fat, whether tallow, palm-oil or a mixture of the two, mixed with 25 or 30% of water and about 3% of lime, is subjected in an autoclave to steam at a pressure of about 120 ℔ per square inch for eight or ten hours, when nearly all of it is saponified. On standing the product separates into two layers—"sweet water" containing glycerin below, and the fatty acids with a certain amount of lime soap above. The upper layer is then boiled and treated with enough sulphuric acid to decompose the lime soap, the calcium sulphate formed is allowed to subside, and the fatty acids are run off into shallow boxes to be crystallized or "seeded" prior to the separation of the oleic acid, which is effected by pressing the solid blocks from the boxes, first cold and then hot, by hydraulic machinery. In another process saponification is effected by means of concentrated sulphuric acid. The fat is mixed with 4-6% of the acid and treated with steam in boiling water till the hydrolysis is complete, when on standing the glycerin and sulphuric acid sink to the bottom and the fatty acids rise to the top. Owing to the darkness of their colour, when this process is employed, the latter usually have to be distilled before being crystallized. The autoclave process yields about 45% of stearine, one-third of which is recovered from the expressed oleic acid, but with sulphuric acid saponification the amount of stearine is higher— over 60%—and that of oleic acid less, part of it being converted into solid material by the action of the acid. The yield of glycerin is also less. In a combination of the two processes the fat may first be treated by the autoclave process, so as to obtain a full yield (about 10%) of glycerin, and the resulting fatty acids then subjected to acid saponification, so as to get the higher amount of stearine. At the best, however, some 30% of oleic acid remains, and though often sought, no satisfactory method of converting this residue into solid has been discovered. It constitutes "red oil," and is used in soap-making and in woollen manufacture. In the process patented by Ernst Twitchell in 1898, decomposition is effected by boiling the fat with half its bulk of water in presence of a reagent obtained by the action of sulphuric acid on oleic acid and an aromatic hydrocarbon such as benzene.

The wick is a most important part of a candle, and unless it is of proper size and texture either too much or too little fuel will be supplied to the flame, and the candle will gutter or be otherwise unsatisfactory. The material generally employed is cotton yarn, plaited or "braided" by machinery, and treated or "pickled" with a solution of boracic acid, ammonium or potassium nitrate, or other salt. The tightness of the plaiting varies with the material used for the candle, wicks for stearine being looser than for paraffin, but tighter than for wax or spermaceti. The plaited wick is flat and curls over as the candle burns, and thus the end is kept projecting into the outer part of the flame where it is consumed, complete combustion being aided by the pickling process it has undergone. In the old tallow dips the strands of cotton were merely twisted together, instead of being plaited; wicks made in this way had no determinate bias towards the outside of the flame, and thus were not wholly consumed, the result being that there was apt to be an accumulation of charred matter, which choked the flame unless removed by periodical "snuffing."

Four ways of making candles may be distinguished—dipping, pouring, drawing and moulding, the last being that most commonly employed. *Dipping* is essentially the same as the domestic process already described, but the rate of production is increased by mounting a number of wicks in a series of frames, each of which in turn is brought over the tallow bath so that its wicks can be dipped. *Pouring*, used in the case of wax, which cannot well be moulded because it contracts in cooling and also has a tendency to stick to the moulds, consists in ladling molten wax upon the wicks suspended from an iron ring. When of the desired thickness the candles are rolled under a plate on a marble slab. In *drawing*, used for small tapers, the wick, rolled on a drum, is passed through the molten wax or paraffin, drawn through a circular hole and slowly wound on a second drum; it is then passed again through the molten material and through a somewhat larger hole, and reeled back on the first drum, this process being repeated with larger and larger holes until the coating is of the required thickness. In *moulding*, a number of slightly conical moulds are fixed by the larger extremity to a kind of trough, with their tapered ends projecting downwards and with wicks arranged down their centres. The molten material is poured into the trough and fills the moulds, from which the candles are withdrawn when solidified. Modern candle-moulding machines are continuous in their operation; long lengths of wick are coiled on bobbins, one for each mould, and the act of removing one set of candles from their moulds draws in a fresh set of wicks. "Self-fitting ends," which were invented by J.L. Field in 1864, and being shaped like a truncated cone enable the candles to be fixed in candlesticks of any diameter, are formed by means of an attachment to the tops of the moulds; spirally twisted candles are, as it were, unscrewed from their moulds. It is necessary to be able to regulate the temperature of the moulds accurately, else the candles will not come out freely and will not be of good appearance. For stearine candles the moulds are immersed in tepid water and the cooling must be slow, else the material will crystallize, though if it be too slow cracking will occur. For paraffin, on the other hand, the moulds must be rather hotter than the molten material (about 200° F.), and must be quickly cooled to prevent the candles from sticking.

A candle-power, as a unit of light in photometry, was defined by the (London) Metropolis Gas Act of 1860 as the light given by a sperm candle, of which six weighed 1 ℔ and each burned 120 grains an hour.

See W. Lant Carpenter, *Soaps and Candles* (London, 1895); C.E. Groves and W. Thorp, *Chemical Technology*, vol. ii. "Lighting" (London, 1895); L.L. Lamborn, *Soaps, Candles and Glycerine* (New York, 1906); J. Lewkowitsch, *Oils, Fats, and Waxes* (London, 1909).

CANDLEMAS (Lat. *festum candelarum sive luminum*), the name for the ancient church festival, celebrated annually on the 2nd of February, in commemoration of the presentation of Christ in the Temple. In the Greek Church it is known as Ὑπαπάντη τοῦ Κυρίου ("the meeting of the Lord," *i.e.* with Simeon and Anna), in the West as the Purification of the Blessed Virgin. It is the most ancient of all the festivals in honour of the Virgin Mary. A description is given of its celebration at Jerusalem in the *Peregrinatio* of Etheria (Silvia), in the second half of the 4th century. It was then kept on the 14th of

February, forty days after Epiphany, the celebration of the Nativity (Christmas) not having been as yet introduced; the Armenians still keep it on this day, as “the Coming of the Son of God into the Temple.” The celebration gradually spread to other parts of the church, being moved to the 2nd of February, forty days after the newly established feast of Christmas. In 542 it was established throughout the entire East Roman empire by Justinian. Its introduction in the West is somewhat obscure. The 8th-century *Gelasian Sacramentary*, which embodies a much older tradition, mentions it under the title of Purification of the Blessed Virgin Mary, which has led some to suppose that it was ordained by Pope Gelasius I. in 492[1] as a counter-attraction to the heathen Lupercalia; but for this there is no warrant. The procession on this day was introduced by Pope Sergius I. (687-701). The custom of blessing the candles for the whole year on this day, whence the name Candlemas is derived, did not come into common use until the 11th century.

In the *Quadragesimae de Epiphania* as described by Etheria there is, as Monsignor Duchesne points out (*Christian Worship*, p. 272), no indication of a special association with the Blessed Virgin; and the distinction between the festival as celebrated in the East and West is that in the former it is a festival of Christ, in the latter a festival pre-eminently of the Virgin Mother.

See L. Duchesne, *Christian Worship* (Eng. trans., London, 1904); art. *s.v.* by F.G. Holweck in the *Catholic Encyclopaedia*.

1 So Baronius, *Ann. ad ann.* 544.

CANDLESTICK, the receptacle for holding a candle, nowadays made in various art-forms. The word was formerly used for any form of support on which lights, whether candles or lamps, were fixed; thus a candelabrum (*q.v.*) is sometimes spoken of from tradition as a candlestick, *e.g.* as when Moses was commanded to make a candlestick for the tabernacle, of hammered gold, a talent in weight, and consisting of a base with a shaft rising out of it and six arms, and with seven lamps supported on the summits of the six arms and central shaft. When Solomon built the temple, he placed in it ten golden candlesticks, five on the north and five on the south side of the Holy Place; but after the Babylonish captivity the golden candlestick was again placed in the temple, as it had been before in the tabernacle by Moses. On the destruction of Jerusalem by Titus, it was carried with other spoils to Rome. Representations of the seven-branched candlestick, as it is called, occur on the arch of Titus at Rome, and on antiquities found in the Catacombs at Rome. The primitive form of candlestick was a torch made of slips of bark, vine tendrils or wood dipped in wax or tallow, tied together and held in the hand by the lower end, such as are frequently figured on ancient painted vases. The next step was to attach to them a cup (*discus*) to catch the dripping wax or tallow.

A candlestick may be either “flat” or “tall.” The former has a short stem, rising from a dish, and is usually furnished with an extinguisher fitting into a socket; the latter has a pillar which may be only a few inches in height or may rise to several feet, and rarely has an extinguisher. The flat variety is sometimes called a “bedroom candlestick.” The beginnings of this interesting and often beautiful appliance are not exactly known, but it dates certainly as far back as the 14th century and is probably older. It is most usually of metal, earthenware or china, but originally it was made of some hard wood and had no socketed pillar, the candle fitting upon a metal spike, in the fashion still familiar in the case of many church candlesticks. It has been constantly influenced by mobiliary and architectural fashions, and has varied, as it still varies, from the severest simplicity of form and material to the most elaborate artistic treatment and the costliest materials—gold and silver, crystal, marble and enamel. Previous to the 17th century, iron, latten, bronze and copper were chiefly used, but thenceforward the 180
most elegant examples were chiefly of silver, though in more modern periods Sheffield plate, silver plate and china became exceedingly popular. Sometimes the base and sconce are of one material and the pillar of another, as when the former are of silver and the pillar of marble or china. The choice and combination of materials are, indeed, infinite. The golden age of the candlestick lasted, roughly speaking, from the third quarter of the 17th century to the end of the 18th. The later Jacobean, Queen Anne and early Georgian forms were often extremely elegant, with broad bases, round, oval or square and swelling stems. Fine examples of these periods, especially when of silver, are much sought after and command constantly augmenting prices. As with most domestic appliances the history of the candlestick is an unceasing tendency towards simplicity, the most elaborate and fantastic forms, animals and reptiles, the monstrous creatures of mythology, lions and men-at-arms, angels and cupids, having gradually given place to architectural motives such as the baluster stem and to the classic grace of the Adam style. The candlestick in its modern form is, indeed, artistically among the least unsatisfactory of household plenishings.

CANDLISH, ROBERT SMITH (1806-1873), Scottish divine, was born at Edinburgh on the 23rd of March 1806, and spent his early years in Glasgow, where he graduated in 1823. During the years 1823-1826 he went through the prescribed course at the divinity hall, then presided over by Dr Stevenson MacGill, and on leaving, accompanied a pupil as private tutor to Eton, where he stayed two years. In 1829 he entered upon his life’s work, having been licensed to preach during the summer vacation of the previous year. After short assistant pastorates at St Andrew’s, Glasgow, and Bonhill, Dumbartonshire, he obtained a settled charge as minister of the important parish of St George’s, Edinburgh. Here he at once took the place he so long held as one of the ablest preachers in Scotland. Destitute of natural oratorical gifts and somewhat ungainly in his manner, he attracted and even riveted the attention of his audience by a rare combination of intellectual keenness, emotional fervour, spiritual insight and power of dramatic representation of character and life. His theology was that of the Scottish Calvinistic school, but his sympathetic character combined with strong conviction gathered round him one of the largest and most intelligent congregations in the city.

From the very commencement of his ministry in Edinburgh, Candlish took the deepest interest in ecclesiastical questions, and he soon became involved as one of the chief actors in the struggle which was then agitating the Scottish church. His first Assembly speech, delivered in 1839, placed him at once among the leaders of the party that afterwards formed the Free Church, and his influence in bringing about the Disruption of 1843 was inferior only to that of Thomas Chalmers. Great as was his popularity as a preacher, it was in the arena of ecclesiastical debate that his ability chiefly showed itself, and probably no other single man had from first to last so large a share in shaping the constitution and guiding the policy of the Free Church. He took his stand on two principles: the right of the people to choose their ministers, and the independence of the church in things spiritual. On his advice Hugh Miller was appointed editor of the *Witness*, the powerful Free Church organ. He was actively engaged at one time or other in nearly all the various schemes of the church, but special mention should be made of his services on the education committee, of which he was convener from 1846 to 1863, and in the unsuccessful negotiations for union among the non-established Presbyterian denominations of Scotland, which were carried on during the years 1863-1873. In the Assembly of 1861 he filled the moderator’s chair.

As a theologian the position of Candlish was perhaps inferior to that which he held as a preacher and ecclesiastic, but it was not inconsiderable. So early as 1841 his reputation in this department was sufficient to secure for him the government nomination to the newly founded chair of Biblical criticism in the university of Edinburgh. Owing to the opposition of Lord Aberdeen, however, the presentation was cancelled. In 1847 Candlish, who had received the degree of D.D. from Princeton, New Jersey, in 1841, was chosen by the Assembly of the Free Church to succeed Chalmers in the chair of divinity in the New College, Edinburgh. After partially fulfilling the duties of the office for one session, he was led to resume the charge of St George's, the clergyman who had been chosen by the congregation as his successor having died before entering on his work. In 1862 he succeeded William Cunningham as principal of New College with the understanding that he should still retain his position as minister of St George's. He died on the 19th of October 1873.

Though his greatest power was not displayed through the press, Candlish made a number of contributions to theological literature. In 1842 he published the first volume of his *Contributions towards the Exposition of the Book of Genesis*, a work which was completed in three volumes several years later. In 1854 he delivered, in Exeter Hall, London, a lecture on the *Theological Essays* of the Rev. F.D. Maurice, which he afterwards published, along with a fuller examination of the doctrine of the essays. In this he defended the forensic aspect of the gospel. A treatise entitled *The Atonement; its Reality, Completeness and Extent* (1861) was based upon a smaller work which first appeared in 1845. In 1864 he delivered the first series of Cunningham lectures, taking for his subject *The Fatherhood of God*. Published immediately afterwards, the lectures excited considerable discussion on account of the peculiar views they represented. Further illustrations of these views were given in two works published about the same time as the lectures, one a treatise *On the Sonship and Brotherhood of Believers*, and the other an exposition of the first epistle of St John.

See William Wilson, *Memorials of R.S. Candlish, D.D.*, with a chapter on his position as a theologian by Robert Rainy.

CANDOLLE, AUGUSTIN PYRAME DE (1778-1841), Swiss botanist, was born at Geneva on the 4th of February 1778. He was descended from one of the ancient families of Provence, whence his ancestors had been expatriated for their religion in the middle of the 16th century. Though a weakly boy he showed great aptitude for study, and distinguished himself at school by his rapid attainments in classical and general literature, and specially by a faculty for writing elegant verse. He began his scientific studies at the college of Geneva, where the teaching of J.P.E. Vaucher first inspired him with the determination to make botanical science the chief pursuit of his life. In 1796 he removed to Paris. His first productions, *Historia Plantarum Succulentarum* (4 vols., 1799) and *Astragalogia* (1802), introduced him to the notice of Cuvier, for whom he acted as deputy at the Collège de France in 1802, and to J.B. Lamarck, who afterwards confided to him the publication of the third edition of the *Flore française* (1803-1815). The *Principes élémentaires de botanique*, printed as the introduction to this work, contained the first exposition of his principle of classification according to the natural as opposed to the Linnean or artificial method. In 1804 he was granted the degree of doctor of medicine by the medical faculty of Paris, and published his *Essai sur les propriétés médicales des plantes comparées avec leurs formes extérieures et leur classification naturelle*, and soon after, in 1806, his *Synopsis plantarum in flora Gallica descriptarum*. At the desire of the French government he spent the summers of the following six years in making a botanical and agricultural survey of the whole kingdom, the results of which were published in 1813. In 1807 he was appointed professor of botany in the medical faculty of the university of Montpellier, and in 1810 he was transferred to the newly founded chair of botany of the faculty of sciences in the same university. From Montpellier, where he published his *Théorie élémentaire de la botanique* (1813), he removed to Geneva in 1816, and in the following year was invited by the now independent republic to fill the newly created chair of natural history. The rest of his life was spent in an attempt to elaborate and complete his "natural" system of botanical classification. The results of his labours in this department are to be found in his *Regni vegetabilis systema naturale*, of which two volumes only were completed (1821) when he found that it would be impossible for him to execute the whole work on so extensive a scale. Accordingly in 1824 he began a less extensive work of the same kind—his *Prodromus systematis regni vegetabilis*—but even of this he was able to finish only seven volumes, or two-thirds of the whole. He had been for several years in delicate health when he died on the 9th of September 1841 at Geneva.

His son, Alphonse Louis Pierre Pyrame de Candolle, born at Paris on the 28th of October 1806, at first devoted himself to the study of law, but gradually drifted to botany and finally succeeded to his father's chair. He published a number of botanical works, including continuations of the *Prodromus* in collaboration with his son, Anne Casimir Pyrame de Candolle. He died at Geneva on the 4th of April 1893.

CANDON, a town of South Ilocos province, Luzon, Philippine Islands, on the W. coast, about 200 m. N. by W. of Manila. Pop. (1903) 18,828. Its climate is hot, though healthy. Candon is surrounded by an extensive and fertile plain, and is defended by a small fort. Its inhabitants are noted for their honesty and industry, as well as for their regard for law and order. They carry on an extensive traffic with the wild tribes of the neighbouring mountains. Indigo is grown in considerable quantity, as are rice and tobacco. The weaving of blankets, handkerchiefs, and cotton and silk cloths constitutes quite an important industry. The language is Ilocanc.

CANDYTUFT (*Iberis amara*, so called from Iberia, *i.e.* Spain, where many species of the genus are native, and *amara*, bitter, *i.e.* in taste), a small annual herb (natural order Cruciferae) with white or purplish flowers, the outer petals of which are longer than the rest. It is a native of western Europe and found wild on dry soil in cultivated ground in the centre and east of England. This and several other species of the genus are known as garden plants, and are of easy culture in ordinary garden soil if well exposed to sun and air. The common candytuft of gardens is *I. umbellata*, a hardy annual, native of southern Europe, and known in a number of varieties differing in colour of flowers. *I. coronaria* (rocket candytuft) has long dense heads of white flowers and is also an annual. Some species have a shrubby growth and are evergreen perennials; the best-known is *I. sempervirens*, a native of southern Europe, a much-branched plant about a foot high with long racemes of white flowers. *I. gibraltarica* is a showy, handsome half hardy evergreen.

CANE, a name applied to many plants which have long, slender, reed-like stalks or stems, as, for example, the sugar-cane, the bamboo-cane or the reed-cane. From the use as walking-sticks to which many of these plants have been applied, the name “cane” is improperly given to sticks, irrespective of the source from which they are derived. Properly it should be restricted to a peculiar class of palms, known as rattans, included under the two closely allied genera *Calamus* and *Daemonorops*, of which there are a large number of species. The plants are found widely extended throughout the islands of the Indian Archipelago, the Malay Peninsula, China, India and Ceylon; and also in Australia and Africa. They were described by Georg Eberhard Rumpf or Rumphius (1627-1702), governor of Amboyna, and author of the *Herbarium Amboynense* (6 vols. folio, Amsterdam, 1741-1755), under the name of Palmijunci, as inhabitants of dense forests into which the rays of the sun scarce can penetrate, where they form spiny bushes, obstructing the passage through the jungle. The slender stems rarely exceed an inch in diameter and are generally much smaller. They creep or trail to an enormous length, often reaching 500 or 600 ft., and support themselves on trees or bushes by recurved spines borne on the stalk or back of the midrib of the leaf, or by stiff hooks replacing the upper leaflets. In some cases the midrib is elongated beyond the leaflets to form a long whip-like structure, bearing recurved hooks at intervals. The natives, in preparing the canes for the market, strip off the leaves by pulling the cut plant through a notch made in a tree. The canes always present distinct rings at the junction of the sheathing leaves with the stem. They assume a yellow colour as they dry; and those imported from Calcutta have a glossy surface, while the produce of the Eastern Archipelago presents a dull exterior.

Canes, on account of their lightness, length, strength and flexibility, are used for a great variety of purposes by the inhabitants of the countries in which they grow. Split into thin strips they are twisted to form ropes and ships’ cables, an application mentioned by Captain Dampier in his *Voyages*. A more important application, however, is for basket-work, and for making chairs, couches, pillows, &c., as the great strength and durability of thin and easily prepared strips admit of such articles being made at once airy, strong and flexible. Much of the beautiful and elaborate basket-work of the Chinese and Japanese is made from thin strips of cane, which are also used by the Chinese for larger works, such as door-mats, houses and sheds.

A very large trade with Western countries and the United States is carried on in canes and rattans, the principal centres of the trade being Batavia, Sarawak, Singapore, Penang and Calcutta. In addition to the varieties used for walking-sticks, whip and umbrella handles, &c., the common rattans are in extensive demand for basket-making, the seats and backs of chairs, the ribs of cheap umbrellas, saddles and other harness-work; and generally for purposes where their strength and flexibility make them efficient substitutes for whalebone. The walking-stick “canes” of commerce include a great many varieties, some of which, however, are not the produce of trailing palms. The well-known Malacca canes are obtained from *Calamus Scipionum*, the stems of which are much stouter than is the case with the average species of *Calamus*.

CANEA, or Khania, the principal seaport and since 1841 the capital of Crete, finely situated on the northern coast of the island, about 25 m. from its western extremity, on the isthmus of the Akrotiri peninsula, which lies between the Bay of Canea and the Bay of Suda (latitude 35° 31′ N., longitude 24° 1′ E.). Surrounded by a massive Venetian wall, it forms a closely built, irregular and overcrowded town, though of late years a few of its streets have been widened. The ordinary houses are of wood; but the more important buildings are of more solid materials. The Turks have a number of mosques; there are Greek churches and a Jewish synagogue; an old Venetian structure serves as a military hospital; and the prison is of substantial construction. The town is now the principal seat of government; the seat of a Greek bishop, who is suffragan to the metropolitan at Candia, and the official residence of the European consuls. The harbour, formed by an ancient transverse mole nearly 1200 ft. long, and protected by a lighthouse and a fort, would admit vessels of considerable tonnage; but it has been allowed to silt up until it shoals off from 24 ft. to 10 or even 8, so that large vessels have to anchor about 4 or 5 m. out. The principal articles of trade are oil and soap, and there is a pretty extensive manufacture of leather. The fosse is laid out in vegetable gardens; public gardens have been constructed outside the walls; and artesian wells have been bored by the government. To the east of the town a large Arab village had grown up, inhabited for the most part by natives of Egypt and Cyrenaica, who acted as boatmen, porters and servants, but since the fall of the Turkish government most of these have quitted the island; while about a mile off on the rising ground is the village of Khalepa, where the consuls and merchants reside. The population of the town is estimated at 20,000. Canea probably occupies the site of the ancient Cydonia, a city of very early foundation and no small importance. During the Venetian rule it was one of the strongest cities in the island, but it fell into the hands of the Turks in 1646, several years before the capture of Candia. In 1856 it suffered from an earthquake. The neighbouring plain is famous for its fruitfulness, and the quince is said to derive its name *Cydonia* from the town. (See also Crete.)

CANE-FENCING (the Fr. *canne*), the art of defending oneself with a walking-stick. It may be considered to be single-stick fencing without a guard for the hand, with the important difference that in cane-fencing the thrust is as important as the cut, and thus *canne* approaches nearer to sabre-play. The cuts are practically identical with those of the single-stick (*q.v.*), but they are generally given after one or more rapid preliminary flourishes (*moulinets*, circles) which the lightness of the stick facilitates, and which serve to perplex and disconcert an assailant. The thrusts are similar to those in foil-play, but are often carried out with both hands grasping the stick, giving greater force and enabling it to be used at very close quarters. The canes used in French fencing schools are made of several kinds of tough wood and are about 3 ft. long, tapering towards the point. As very severe blows are exchanged, masks, gloves, padded vests and shin-guards, similar to those used in football, are worn.

See Georges d’Amoric, *French Method of the Noble Art of Self-Defence* (London, 1898); J. Charlemont, *L’Art de la Boxe française et de la Canne* (Paris, 1899).

CANEPHORAE (Gr. κάνεον, a basket, and φέρειν, to carry), “basket-bearers,” the title given of old to Athenian maidens of noble family, annually chosen to carry on their heads baskets with sacrificial implements and apparatus at the Panathenaic and other festivals. The term (also in the form *Canephori*) is applied in architecture to figures of either sex carrying on their heads baskets, containing edibles or material for sacrifices. The term might well be applied to the Caryatide figures of the Erechtheum. Those represented in the Panathenaic frieze of the Parthenon carry vases on their

shoulders.

CANES VENATICI (“The Hounds,” or “the Greyhounds”), in astronomy, a constellation of the northern hemisphere named by Hevelius in 1690, who compiled it from the stars between the older asterisms Ursa Major, Boötes and Coma Berenices. Interesting objects in this portion of the heavens are: the famous spiral nebula first described by Lord Rosse; *a-Canum Venaticorum,* a double star, of magnitudes 3 and 6; this star was named *Cor Caroli*, or The Heart of Charles II., by Edmund Halley, on the suggestion of Sir Charles Scarborough (1616-1694), the court physician; a cluster of stars of the 11th magnitude and fainter, extremely rich in variables, of the 900 stars examined no less than 132 being regularly variable.

CANGA-ARGUELLES, JOSÉ (1770-1843), Spanish statesman, was born in 1770. He took an active part in the Spanish resistance to Napoleon in a civil capacity and was an energetic member of the cortes of 1812. On the return of the Bourbon line in 1814, Canga-Arguelles was sent into exile in the province of Valencia. On the restoration in 1820 of the constitution of 1812, he was appointed minister of finance. He continued at this post till the spring of 1821, distinguishing himself by the zeal and ability with which he sought to reform the finances of Spain. It was high time; for the annual deficit was greater than the entire revenue itself, and landed and other property was, to an unheard-of extent, monopolized by the priests. The measures he proposed had been only partially enforced, when the action of the king with regard to the ministry, of which he was a member, obliged him to resign. Thereafter, as a member of the Moderate Liberal party, Canga-Arguelles advocated constitutional government and financial reform, till the overthrow of the constitution in 1823, when he fled to England. He did not return to Spain till 1829, and did not again appear in public life, being appointed keeper of the archives at Simancas. He died in 1843. Canga-Arguelles is the author of three works: *Elementos de la Ciencia de Hacienda* (Elements of the Science of Finance), London, 1825; *Diccionario de Hacienda* (Dictionary of Finance), London, 1827; and *Observaciones sobre la guerra de la Peninsula* (Observations on the Peninsular War), in which he endeavoured to show that his countrymen had taken a far more effective part in the national struggle against the French than English historians were willing to admit.

CANGAS DE ONÍS, or Cangas, a town of northern Spain, in the province of Oviedo; situated on the right bank of the river Sella, in a fertile, well-watered, partly wooded, undulating region. Pop. (1900) 8537. The trade of Cangas de Onís is chiefly in live-stock and coal from the neighbouring mines. A Latin inscription on the town-hall records the fact that this place was the residence of the first Spanish kings after the spread of the Moors over the Peninsula. Here early in the 8th century lived King Pelayo, who started the Christian reconquest of Spain. His historic cave of Covadonga is only 8 m. distant (see Asturias). The church of the Assumption, rebuilt in the 19th century, is on the model and site of an older church of the middle ages. Near Cangas are ruins and bridges of the Roman period.

CANGAS DE TINÉO, a town of northern Spain, in the province of Oviedo, and on the river Narcea. Pop. (1900) 22,742. There is no railway and the river is not navigable, but a good road runs through Tinéo, Grado and the adjacent coal-fields, to the ports of Cudillero and Avilés. The inhabitants have thus an easily accessible market for the farm produce of the fertile hills round Cangas de Tinéo, and for the cloth, leather, pottery, &c., manufactured in the town.

CANGUE, or Cang, the European name for the Chinese *Kia* or *Kea*, a portable pillory, carried by offenders convicted of petty offences. It consists of a square wooden collar weighing from 20 to 60 lb., through a hole in which the victim’s head is thrust. It fits tight to the neck and must be worn day and night for the period ordered. The offender is left exposed in the street. Over the parts by which it fastens slips of paper bearing the mandarin’s seal are pasted so that no one can liberate the condemned. The length of the punishment is usually from a fortnight to a month. As the cangue is 3 to 4 ft. across the convict is unable to feed himself or to lie down, and thus, unless fed by friends or passersby, often starves to death. As in the English pillory, the name of the man and the nature of his offence are inscribed on the cangue.

CANINA, LUIGI (1795-1856), Italian archaeologist and architect, was born at Casale in Piedmont. He became professor of architecture at Turin, and his most important works were the excavation of Tusculum in 1829 and of the Appian Way in 1848, the results of which he embodied in a number of works published in a costly form by his patroness, the queen of Sardinia.

CANINI, GIOVANNI AGNOLO (1617-1666), Italian designer and engraver, was born at Rome. He was a pupil of Domenichino and afterwards of Antonio Barbalonga. He painted some altar-pieces at Rome, including two admired pictures for the church of San Martino a' Monti, representing the martyrdom of St Stephen and of St Bartholomew. Having accompanied Cardinal Chigi to France, he was encouraged by the minister Colbert to carry into execution his project of designing from medals, antique gems and similar sources a series of portraits of the most illustrious characters of antiquity, accompanied with memoirs; but shortly after the commencement of the undertaking Canini died at Rome. The work, however, was prosecuted by his brother Marcantonio, who, with the assistance of Picard and Valet, completed and published it in 1699, under the title of *Iconografia di Gio. Ag. Canini*. It contains 150 engravings. A reprint in Italian and French appeared at Amsterdam in 1731.

CANIS MAJOR ("Great Dog"), in astronomy, a constellation placed south of the Zodiac, just below and behind the heels of Orion. *Canis minor*, the "little dog," is another constellation, also following Orion and separated from Canis major by the Milky Way. Both these constellations, or at least their principal stars, Sirius in the Great Dog and Procyon in the Little Dog, were named in very remote times, being referred to as the "dogs of Orion" or in equivalent terms. Sirius is the brightest star in the heavens; and the name is connected with the adjectives σειρός and σείριος, scorching. It may possibly be related to the Arabic *Sirāj*, thus meaning the "glittering one." Hommel has shown that Sirius and Procyon were "the two *Si'ray*" or glitterers. It is doubtful whether Sirius is referred to in the Old Testament. By some it has been identified with the Hebrew *mazzaroth*, the *Lucifer* of the Vulgate; by others with *mazzaloth*, the *duodecim signa* of the Vulgate; while Professor M.A. Stern identifies it with the Hebrew *kimah*, which is rendered variously in the Vulgate as Arcturus, Hyades and Pleiades.[1] 183
The inhabitants of the Euphrates valley included both constellations in their stellar system; but considerable difficulty is encountered in the allocation of the Babylonian names to the dominant stars. The name *kak-ban*, which occurs on many tablets, has been determined by Epping and Strassmaier, and also by Jensen and Hommel, as equivalent to Sirius; etymologically this word means "dog-star" (or, according to R. Brown, *Primitive Constellations*, "bow-star"). On the other hand, *Kaksidi* or *Kak-si-sa*, meaning the "leader," has been identified by Sayce and others with Sirius, while Hommel regards it as Procyon. The question is mainly philological, and the arguments seem inconclusive. We may notice, however, that connexions were made between Kaksidi and the weather, which have strong affinities with the ideas expressed at a later date by the Greeks. For example, its appearance in the morning with the sun heralded the "north winds," the βορέαι ἐτησίαι or *aquilones etesiae*, the strong and dangerous north-westerly winds of Greece which blow for forty days from the rising of the star; again, when Sirius appeared misty the "locusts devour." Sirius also appears in the cosmogony of Zoroaster, for Plutarch records that Ormuzd appointed this star to be a guard and overseer in the heavens, and in the *Avesta* we find that Tistrya (Sirius) is "the bright and happy star, that gives happy dwelling." With the Egyptians Sirius assumed great importance. Appearing with the sun when the Nile was rising, Sirius was regarded as a herald of the waters which would overspread the land, renewing its fertility and promising good harvests for the coming season. Hephaestion records that from its aspect the rise of the water was foretold, and the Roman historian Florus adds that the weather was predicted also. Its rising marked the commencement of their new year, the *annus canarius* and *annus cynicus* of the Romans. It was the star of Sept or Sothis, and, according to one myth, was identified with the goddess Hathor—the Aphrodite of the Greeks. It was the "second sun" of the heavens, and according to Maspero (*Dawn of Civilization*, 1894) "Sahu and Sopdit, Orion and Sirius, were the rulers of this mysterious world of night and stars."

The Greeks, borrowing most of their astronomical knowledge from the Babylonians, held similar myths and ideas as to the constellations and stars. Sirius was named Σείριος, Κύων (the dog) and τὸ ἄστρον, the star; and its heliacal rising was associated with the coming of the dry, hot and sultry season. Hesiod tells us that "Sirius parches head and knees"; Homer speaks similarly, calling it κακὸν σῆμα, the evil star, and the star of late summer (ὀπώρα), the rainy and stormy season. Procyon (Προκύων) was so named because it rose before Κύων. The Euphratean myth of the dogs has its parallel in Greece, Sirius being the hound of the hunter Orion, and as recorded by Aratus always chasing the Hare; Pindar refers to the chase of Pleione, the mother of the Pleiads, by Orion and his dogs. Similarly Procyon became Maera, the dog of Icarius, when Boötes became Icarius, and Virgo his daughter Erigone.

The Romans adopted the Greek ideas. They named the constellation *Canis*, and Sirius was known as *Canis* also, and as *Canicula*. Procyon became *Antecanem* and *Antecanis*, but these names did not come into general use. They named the hottest part of the year associated with the heliacal rising of Sirius the *Dies caniculares*, a phrase which has survived in the modern expression "dog-days"; and the pestilences which then prevailed occasioned the offering of sacrifices to placate this inimical star. Festus narrates, in this connexion, the sacrificing of red dogs at the feast of Floralia, and Ovid of a dog on the Robigalia. The experience of the ancient Greeks that Sirius rose with the sun as the latter entered Leo, *i.e.* the hottest part of the year, was accepted by the Romans with an entire disregard of the intervening time and a different latitude. To quote Sir Edward Sherburne (*Sphere of Manilius*, 1675), "The greater part of the Antients assign the Dog Star rising to the time of the Sun's first entering into Leo, or, as Pliny writes, 23 days after the summer solstice, as Varro 29, as Columella 30.[2] ...At this day with us, according to Vulgar computation, the rising and setting of the said Star is in a manner coincident with the Feasts of St Margaret (which is about the 13th of our July) and St Lawrence (which falls on the 10th of our August)."

Sirius is the most conspicuous star in the sky; it sends to the earth eleven times as much light as Aldebaran, the unit standard adopted in the revised Harvard Photometry; numerically its magnitude is -1.6. At the present time its colour is white with a tinge of blue, but historical records show that this colour has not always prevailed. Aratus designated it ποικίλος, many coloured; the Alexandrian Ptolemy classified it with Aldebaran, Antares and Betelgeuse as ὑπόκιρρος, fiery red; Seneca describes it as "redder than Mars"; while, in the 10th century, the Arabian Biruni termed it "shining red." On the other hand Sufi, who also flourished in the 10th century, pointedly omits it from his list of coloured stars. The question has been thoroughly discussed by T.J.J. See, who shows that Sirius has shone white for the last 1000 to 1200 years.[3] The parallax has been determined by Sir David Gill and W.L. Elkin to be 0.37″; it is therefore distant from the earth over 5 × 10^13 miles, and its light takes 8.6 years to traverse the intervening space. If the sun were at the same distance Sirius would outshine it 30 times, the sun appearing as a star of the second magnitude. It has a large proper motion, which shows recurrent undulations having a 50-year period. From this Bessel surmised the existence of a satellite or companion, for which C.A.F. Peters and A. Auwers computed the elements. T.H. Safford determined its position for September 1861; and on the 31st of January 1862, Alvan G. Clark, of Cambridgeport, Mass., telescopically observed it as a barely visible, dull yellow star of the 9th to 10th magnitude. The mean distance apart is about 20 astronomical units; the total mass of the pair is 3.7 times the mass of the sun, Sirius itself being twice as massive as its companion, and, marvellously enough, forty thousand times as bright. The spectrum of Sirius is characterized by prominent absorption lines due to hydrogen, the metallic lines being weak; other stars having the same spectra are said to be of the "Sirian type." Such stars are the most highly heated (see Star).

Procyon, or a Canis minoris, is a star of the 2nd magnitude, one-fifth as bright as Sirius, or numerically 0.47 when compared with Aldebaran. It is more distant than Sirius, its parallax being 0.33″; and its light is about six times that of the sun. Its proper motion is large, 1.25″, and its velocity at right angles to the line of sight is about 11 m. per second. Its proper motion shows large irregularities, pointing to a relatively massive companion; this satellite was discovered on the

13th of November 1896 by J.M. Schaeberle, with the great Lick telescope, as a star of the 13th magnitude. Its mass is equal to about that of the sun, but its light is only one twenty-thousandth.

1 See G. Schiaparelli, *Astronomy in the Old Testament* (1905).

2 For other values of the interval between the summer solstice and the rising of Sirius, see Smith's *Dict. of Greek and Roman Antiquities*.

3 See Thomas Barker, *Phil. Trans.*, 1760, 51, p. 498, for quotations from classical authors; also T.J.J. See, *Astronomy and Astrophysics*. vol. xi. p. 269.

CANITZ, FRIEDRICH RUDOLF LUDWIG, Freiherr Von (1654-1699), German poet and diplomatist, was born at Berlin on the 27th of November 1654. He attended the universities of Leiden and Leipzig, travelled in England, France, Italy and Holland, and on his return was appointed groom of the bedchamber (Kammerjunker) to the elector Frederick William of Brandenburg, whom he accompanied on his campaigns in Pomerania and Sweden. In 1680 he became councillor of legation, and he was employed on various embassies. In 1697 the elector Frederick III. made him a privy councillor, and the emperor Leopold I. created him a baron of the Empire. Having fallen ill on an embassy to the Hague, he obtained his discharge and died at Berlin in 1699. Canitz's poems (*Nebenstunden unterschiedener Gedichte*), which did not appear until after his death (1700), are for the most part dry and stilted imitations of French and Latin models, but they formed a healthy contrast to the coarseness and bombast of the later Silesian poets. 184

A complete edition of Canitz's poems was published by U. König in 1727; see also L. Fulda, *Die Gegner der zweiten schlesischen Schule*, ii. (1883).

CAÑIZARES, JOSÉ DE (1676-1750), Spanish dramatist, was born at Madrid on the 4th of July 1676, entered the army, and retired with the rank of captain in 1702 to act as censor of the Madrid theatres and steward to the duke of Osuna. In his fourteenth year Cañizares recast a play by Lope de Vega under the title of *Las Cuentas del Gran Capitán*, and he speedily became a fashionable playwright. His originality, however, is slight, and *El Dómine Lucas*, the only one of his pieces that is still read, is an adaptation from Lope de Vega. Cañizares produced a version of Racine's *Iphigénie* shortly before 1716, and is to some extent responsible for the destruction of the old Spanish drama. He died on the 4th of September 1750, at Madrid.

CANNAE (mod. *Canne*), an ancient village of Apulia, near the river Aufidus, situated on a hill on the right bank, 6 m. S.W. from its mouth. It is celebrated for the disastrous defeat which the Romans received there from Hannibal in 216 B.C. (see Punic Wars). There is a considerable controversy as to whether the battle took place on the right or the left bank of the river. In later times the place became a *municipium*, and unimportant Roman remains still exist upon the hill known as Monte di Canne. In the middle ages it became a bishopric, but was destroyed in 1276.

See O. Schwab, *Das Schlachtfeld von Canna* (Munich, 1898), and authorities under Punic Wars.

CANNANORE, or Kananore, a town of British India, in the Malabar district of Madras, on the coast, 58 m. N. from Calicut and 470 m. by rail from Madras. Pop. (1901) 27,811. Cannanore belonged to the Kalahasti or Cherakal rajas till the invasion of Malabar by Hyder Ali. In 1498 it was visited by Vasco da Gama; in 1501 a Portuguese factory was planted here by Cabral; in 1502 da Gama made a treaty with the raja, and in 1505 a fort was built. In 1656 the Dutch effected a settlement and built the present fort, which they sold to Ali Raja in 1771. In 1783 Cannanore was captured by the British, and the reigning princess became tributary to the East India Company. Here is the residence of the Moplah chief, known as the Ali Raja, who owns most of the Laccadive Islands. Cannanore was the military headquarters of the British on the west coast until 1887.

CANNES, a seaport of France, in the department of the Alpes Maritimes, on the Mediterranean, 19 m. S.W. of Nice and 120 m. E. of Marseilles by rail. Pop.(1906) 24,531. It enjoys a southern exposure on a seaward slope, and is defended from the northern winds by ranges of hills. Previous to 1831, when it first attracted the attention of Lord Brougham, it mainly consisted of the old quarter (named Sucquet), and had little to show except an ancient castle, and a church on the top of Mont Chevalier, dedicated in 1603 to Notre Dame du Mont Espérance; but since that period it has become a large and important town, and is now one of the most fashionable winter resorts in the south of France, much frequented by English visitors, the Americans preferring Nice. The neighbourhood is thickly studded with magnificent villas, which are solidly built of a stone so soft that it is sawn and not hewn. There is an excellent quay, and a beautiful promenade runs along the beach; and numerous sheltered roads stretch up the valleys amidst groves of olive trees. On the north the modern town climbs up to Le Cannet (2 m.), while on the east it practically extends along the coast to Golfe Jouan (3½ m.), where Napoleon landed on the 1st of March 1815, on his return from Elba. From Cannes a railway runs north in 12½ m. to Grasse. On the top of the hill behind the town are a Roman Catholic and a Protestant cemetery. In the most prominent part of the latter is the grave of Lord Brougham, distinguished by a massive stone cross standing on a double basement, with the simple inscription—"Henricus Brougham, Natus MDCCLXXVIII., Decessit MDCCCLXVIII."; and in the immediate vicinity

lies James, fourth duke of Montrose, who died December 1874. The country around is very beautiful and highly fertile; orange and lemon trees are cultivated like peach trees in England, while olives, almonds, figs, peaches, grapes and other fruits are grown in abundance, and, along with the produce of the fisheries, form the chief exports of the town. Essences of various kinds are manufactured, and flowers are extensively cultivated for the perfumers. The climate of Cannes has been the subject of a considerable variety of opinion,—the preponderance being, however, in its favour. According to Dr de Valcourt, it is remarkable by reason of the elevation and regularity of the temperature during the height of the day, the clearness of the atmosphere and abundance of light, the rarity of rain and the absence of fogs.

Cannes is a place of great antiquity, but its earlier history is very obscure. It was twice destroyed by the Saracens in the 8th and the 10th centuries; but it was afterwards repeopled by a colony from Genoa. Opposite the town is the island of Ste Marguerite (one of the Lérins), in the citadel of which the Man with the Iron Mask was confined from 1686 to 1698, and which acquired notoriety as the prison whence Marshal Bazaine escaped in August 1874. On the other chief island (St Honorat) of the Lérins is the famous monastery (5th century to 1788), in connexion with which grew up the school of Lérins, which had a wide influence upon piety and literature in the 5th and 6th centuries.

See L. Alliez, *Histoire du monastère de Lérins* (2 vols., Paris, 1862); and *Les Îles de Lérins, Cannes, et les rivages environnants* (Paris, 1860); *Cartulaire du monastère de Lérins* (2 vols., Paris, 1883 and 1905); de Valcourt, *Cannes and its Climate* (London, 1873); Joanne, special *Guide to Cannes*; J.R. Green, essay on Cannes and St Honorat, in the first series of his *Stray Studies* (1st ed., 1876); A. Cooper-Marsdin, *The School of Lérins* (Rochester, 1905).

(W. A. B. C.)

CANNIBALISM, the eating of human flesh by men (from a Latinized form of Carib, the name of a tribe of South America, formerly found also in the West Indies), also called “anthropophagy” (Gr. ἄνθρωπος, man, and φαγεῖν, to eat). Evidence has been adduced from some of the palaeolithic cave-dwellings in France to show that the inhabitants practised cannibalism, at least occasionally. From Herodotus, Strabo and others we hear of peoples like the Scythian Massagetae, a nomad race north-east of the Caspian Sea, who killed old people and ate them. In the middle ages reports, some of them probably untrustworthy, by Marco Polo and others, attributed cannibalism to the wild tribes of China, the Tibetans, &c. In our own days cannibalism prevails, or prevailed until recently, over a great part of West and Central Africa, New Guinea, Melanesia (especially Fiji) and Australia. New Zealand and the Polynesian Islands were great centres of the practice. It is extensively practised by the Battas of Sumatra and in other East Indian islands and in South America; in earlier days it was a common feature of Indian wars in North America. Sporadic cannibalism occurs among more civilized peoples as a result of necessity or as a manifestation of disease (see Lycanthropy).

Classification.—Cannibalistic practices may be classified from two points of view: (1) the motives of the act; (2) the ceremonial regulations. A third division of subordinate importance is also possible, if we consider whether the victims are actually killed for food or whether only such are eaten as have met their death in battle or other ways.

1. From a psychological point of view the term cannibalism groups together a number of customs, whose only bond of union is that they all involve eating of human flesh. (*a*) Food cannibalism, where the object is the satisfaction of hunger, may occur sporadically as a result of real necessity or may be kept up for the simple gratification of a taste for human flesh in the absence of any lack of food in general or even of animal food, (i.) Cannibalism from necessity is found not only among the lower races, such as the Fuegians or Red Indian tribes, but also among civilized races, as the records of sieges and shipwrecks show. (ii.) Simple food cannibalism is common in Africa; the Niam-Niam and Monbuttu carry on wars for the sake of obtaining human flesh; in West Africa human flesh could formerly be seen exposed for sale in the market like any other article of commerce; and among some tribes it is the practice to sell the corpses of dead relatives for consumption as food. (*b*) In curious contrast to this latter custom is the practice of devouring dead kinsfolk as the most respectful method of disposing of their remains. In a small number of cases this practice is combined with the custom of killing the old and sick, but in the great majority of peoples it is simply a form of burial; it seems to prevail in most parts of Australia, many parts of Melanesia, Africa and South America, and less frequently in other parts of the world. To this group belong the customs described by Herodotus; we may perhaps regard as a variant form the custom of using the skull of a dead man as a drinking-cup. This practice is widely found, and the statement of Herodotus that the skull was set in gold and preserved by the Issedones may point in this direction; from the account given of the Tibetans some seven hundred years ago by William of Ruysbruck (Rubruquis) it appears that they had given up cannibalism but still preserved the use of the skull as a drinking vessel. Another modification of an original ritual cannibalism is the custom of drinking the ashes of the dead, which is practised by some African and South American tribes. The custom of holding burial feasts has also been traced to the same origin. More incomprehensible to the European than any other form of cannibalism is the custom of partaking of the products of putrefaction as they run down from the body. The Australians smoke-dry the bodies of tribesmen; here, too, it is the custom to consume the portions of the body which are rendered liquid by the heat. (*c*) The ritual cannibalism just mentioned shades over into and may have been originally derived from magical cannibalism, of which three sub-species may be distinguished. (i.) Savages are accustomed, on the one hand, to abstain from certain foods in order that they may not acquire certain qualities; on the other hand other foods are eagerly desired in order that they may by partaking of the flesh also come to partake of the mental or bodily peculiarities of the man or animal from which the meat is derived; thus, after the birth of a child, especially the first-born, the parents are frequently forbidden the flesh of slow-moving animals, because that would prevent the child from learning to walk; conversely, eating the heart of a lion is recommended for a warrior to make him brave; from this point of view therefore we readily understand the motives which lead to the eating of those slain in battle, both friends and foes. (ii.) We may term protective an entirely different kind of magical cannibalism, which consists in the consumption of a small portion of the body of a murdered man, in order that his ghost may not trouble the murderer; according to Hans Egède, the Eskimo, when they kill a witch, eat a portion of her heart, that she may not haunt them. (iii.) The practice is also said to have the effect of causing the relatives of the murdered man to lose heart or to prevent them from exercising the right of revenge; in this case it may be brought into relation with the ceremony of the blood covenant in one of the forms of which the parties drink each other’s blood; or, it may point to a reminiscence of a ritual eating of the dead kinsman. The late survival of this idea in Europe is attested by its mention by Dante in the *Purgatorio*. (*d*) The custom of eating food offered to the gods is widespread, and we may trace to this origin Mexican cannibalism, perhaps, too, that of Fiji. The Aztec worship of the god of war, Huitzilopochtli, led to the sacrifice of prisoners, and the custom of sacrifice to their frequent wars. The priest took out the heart, offered it to the sun, and then went through the ceremonies of feeding the idol with the heart and blood; finally the bodies of the victims were consumed by the worshippers. (*e*) We reach an entirely different set of motives in penal and revenge cannibalism. For the origin of these ideas we may perhaps look to that of protective magic, dealt with above; but it seems possible that there is also some idea of influencing the lot of the criminal in a future life; it may be noted that the whole of the body is seldom eaten in protective cannibalism; among the Battas, however, the criminal, and in parts of Africa the debtor, are entirely consumed. Other cases, especially where the victim is an enemy, may be due to mere fury and bravado. (*f*) In the west of North America a peculiar kind of cannibalism is found, which is confined to a certain body of magicians termed “Hametzen” and a necessary condition of admission to their order. Another kind of initiatory cannibalism prevailed in the south of Australia, where a

magician had to eat a portion of a child's body before he was admitted. The meaning of these ceremonials is not clear.

2. Most kinds of cannibalism are hedged round with ceremonial regulations. Certain tribes, as we have seen above, go to war to provide human flesh; in other cases it is only the nearest relatives who may not partake of a body; in other cases again it is precisely the nearest relatives on whom the duty falls. A curious regulation in south-east New Guinea prescribes that the killer of the victim shall not partake in the feast; in some cases the whole of the clan to which belonged the man for whom revenge is taken abstains also; in other cases this clan, together with any others of the same intermarrying group, takes part in the feast to the exclusion of (*a*) the clan or group with which they intermarry and (*b*) all outside clans. Some peoples forbid women to eat human flesh; in others certain classes, as the Muri of the Bambala, a tribe in the Kassai, may be forbidden to eat it. In Mindanao the only person who might eat of a slain enemy was the priest who led the warriors, and he was not permitted to escape this duty. In Grand Bassam all who had taken part in a festival at the foundation of a new village were compelled to eat of the human victim. But the variations are too numerous for any general account to be given of ceremonial limitations. S.R. Steinmetz has proposed a division into endo- and exo-cannibalism; but these divisions are frequently of minor importance, and he has failed to define satisfactorily the limits of the groups on which his classification is based.

Origin.—It will probably never be possible to say how cannibalism originated; in fact the multiplicity of forms and the diversity of ceremonial rules—some prescribing that tribesmen shall on no account be eaten, others that the bodies of none but tribesmen shall provide the meal of human flesh—point to a multiple origin. It has been maintained that the various forms of endo-cannibalism (eating of tribesmen) spring from an original practice of food cannibalism which the human race has in common with many animals; but this leaves unexplained *inter alia* the limitation of the right of participation in the funeral meal to the relatives of the dead man; at the same time it is possible to argue that the magical ideas now associated with cannibalism are of later growth. Against the view put forward by Steinmetz it may be urged that we have other instances of magical foods, such as the eating of a lion's heart, which do not point to an original custom of eating the animal as food. We shall probably be justified in referring all forms of endo-cannibalism to a ritual origin; otherwise the limitation is inexplicable; on the other hand exo-cannibalism, in some of its forms, and much of the extension of endo-cannibalism must be referred to a desire for human flesh, grown into a passion.

Bibliography.—Steinmetz, in *Mitt. Anthrop. Ges. Wien*, N.F. xvi.; Andree, *Die Anthropophagie*; Bergmann, *Die Verbreitung der Anthropophagie*; Schneider, *Die Naturvölker*, i. 121-200; Schaffhausen, *Anthropologische Studien, Internat. Archiv* iii. 69-73; xii. 78; E.S. Hartland, *Legend of Perseus*, vol. ii.; *Dictionnaire des sci. méd., s.v.* "Anthropophagie"; Dr Seligmann in *Reports of the Cook-Daniels Expedition to New Guinea.*

(N. W. T.)

CANNING, CHARLES JOHN, Earl (1812-1862), English statesman, governor-general of India during the Mutiny of 1857, was the youngest child of George Canning, and was born at Brompton, near London, on the 14th of December 1812. He was educated at Christ Church, Oxford, where he graduated B.A. in 1833, as first class in classics and second class in mathematics. In 1836 he entered parliament, being returned as member for the town of Warwick in the Conservative interest. He did not, however, sit long in the House of Commons; for, on the death of his mother in 1837, he succeeded to the peerage which had been conferred on her with remainder to her only surviving son, and as Viscount Canning took his seat in the House of Lords. His first official appointment was that of under-secretary of state for foreign affairs, in the administration formed by Sir Robert Peel in 1841—his chief being the earl of Aberdeen. This post he held till January 1846; and from January to July of that year, when the Peel administration was broken up, Lord Canning filled the post of commissioner of woods and forests. He declined to accept office under the earl of Derby; but on the formation of the coalition ministry under the earl of Aberdeen in January 1853, he received the appointment of postmaster-general. In this office he showed not only a large capacity for hard work, but also general administrative ability and much zeal for the improvement of the service. He retained his post under Lord Palmerston's ministry until July 1855, when, in consequence of the death of Lord Dalhousie and a vacancy in the governor-generalship of India, he was selected by Lord Palmerston to succeed to that great position. This appointment appears to have been made rather on the ground of his father's great services than from any proof as yet given of special personal fitness on the part of Lord Canning. The new governor sailed from England in December 1855, and entered upon the duties of his office in India at the close of February 1856. His strong common sense and sound practical judgment led him to adopt a policy of conciliation towards the native princes, and to promote measures tending to the betterment of the condition of the people.

In the year following his accession to office the deep-seated discontent of the people broke out in the Indian Mutiny (*q.v.*). Fears were entertained, and even the friends of the viceroy to some extent shared them, that he was not equal to the crisis. But the fears proved groundless. He had a clear eye for the gravity of the situation, a calm judgment, and a prompt, swift hand to do what was really necessary. By the union of great moral qualities with high, though not the highest, intellectual faculties, he carried the Indian empire safely through the stress of the storm, and, what was perhaps a harder task still, he dealt wisely with the enormous difficulties arising at the close of such a war, established a more liberal policy and a sounder financial system, and left the people more contented than they were before. The name of "Clemency Canning," which was applied to him during the heated animosities of the moment, has since become a title of honour.

While rebellion was raging in Oudh he issued a proclamation declaring the lands of the province forfeited; and this step gave rise to much angry controversy. A "secret despatch," couched in arrogant and offensive terms, was addressed to the viceroy by Lord Ellenborough, then a member of the Derby administration, which would have justified the viceroy in immediately resigning. But from a strong sense of duty he continued at his post; and ere long the general condemnation of the despatch was so strong that the writer felt it necessary to retire from office. Lord Canning replied to the despatch, calmly and in a statesman-like manner explaining and vindicating his censured policy. In April 1859 he received the thanks of both Houses of Parliament for his great services during the mutiny. He was also made an extra civil grand cross of the order of the Bath, and in May of the same year he was raised to the dignity of an earl. By the strain of anxiety and hard work his health and strength were seriously impaired, while the death of his wife was also a great shock to him; in the hope that rest in his native land might restore him, he left India, reaching England in April 1862. But it was too late. He died in London on the 17th of June following. About a month before his death he was created K.G. As he died without issue the title became extinct.

See Sir H.S. Cunningham, *Earl Canning* ("Rulers of India" series), 1891; and A.J.C. Hare, *The Story of Two Noble Lilies* (1893).

CANNING, GEORGE (1770-1827), British statesman, was born in London on the 11th of April 1770. The family was of English origin and had been settled at Bishop's Canynge in Wiltshire. In 1618 a George Canning, son of Richard Canning of Foxcote in Warwickshire, received a grant of the manor of Garvagh in Londonderry, Ireland, from King James I. The father of the statesman, also named George, was the eldest son of Mr Stratford Canning, of Garvagh. He quarrelled with and was disowned by his family. He came to London and led a struggling life, partly in trade and partly in literature. In May 1768 he married Mary Annie Costello, and he died on the 11th of April 1771, exactly one year after the birth of his son. Mrs Canning, who was left destitute, received no help from her husband's family, and went on the stage, where she was not successful. She married a dissolute and brutal actor of the name of Reddish. Her son owed his escape from the miseries of her household to another member of the company, Moody, who wrote to Mr Stratford Canning, a merchant in London and younger brother of the elder George Canning. Moody represented to Mr Stratford Canning that the boy, although full of promise, was on the high road to the gallows under the evil influence of Reddish. Mr Stratford Canning exerted himself on behalf of his nephew. An estate of the value of £200 a year was settled on the boy, and he was sent in succession to a private school at Hyde Abbey near Winchester, to Eton in 1781, and to Christchurch, Oxford, in 1787. After leaving Eton and before going to Oxford, he was entered as a student at Lincoln's Inn. At Eton he edited the school magazine, *The Microcosm*, and at Oxford he took the leading part in the formation of a debating society. He made many friends, and his reputation was already so high that Sheridan referred to him in the House of Commons as a rising hope of the Whigs. According to Lord Holland, he had been noted at Oxford as a furious Jacobin and hater of the aristocracy. In 1792 he came to London to read for the bar. He had taken his B.A. in 1791 and proceeded M.A. on the 6th of July 1794.

Soon after coming to London he became acquainted with Pitt in some uncertain way. The hatred of the aristocracy, for which Lord Holland says he was noted at Oxford, would naturally deter an ambitious young man with his way to make in the world, and with no fixed principles, from attaching his fortune to the Whigs. Canning had the glaring examples of Burke and Sheridan himself to show him that the great "revolution families"—Cavendishes, Russells, Bentincks—who controlled the Whig party, would never allow any man, however able, who did not belong to their connexion, to rise to the first rank. He therefore took his place among the followers of Pitt. It is, however, only fair to note that he always regarded Pitt with strong personal affection, and that he may very naturally have been influenced, as multitudes of other Englishmen were, by the rapid development of the French Revolution from a reforming to an aggressive and conquering force. In a letter to his friend Lord Boringdon (John Parker, afterwards earl of Morley), dated the 13th of December 1792, he explicitly states that this was the case. Enlightened self-interest was doubtless combined with honest conviction in ranking him among the followers of Pitt. By the help of the prime minister he entered parliament for the borough of Newtown in the Isle of Wight in July 1793. His maiden speech, on the subvention to the king of Sardinia, was made on the 31st of January 1794. It is by some said to have been a failure, but he satisfied himself, and he soon established his place as the most brilliant speaker on the ministerial side. It may be most conveniently noted here, that his political patrons exerted themselves to provide for his private as well as his official prosperity. Their favour helped him to make a lucrative marriage with Miss Joan Scott, who had a fortune of £100,000, on the 8th of July 1800. The marriage was a very happy one, though the bulk of the fortune was worn away in the expenses of public and social life. Mrs Canning, who survived her husband for ten years, was created a viscountess in 1828. Four children were born of the marriage—a son who died in his father's lifetime, and was lamented by him in very touching verse; another a captain in the navy, drowned at Madeira in 1827; a third son, Charles (*q.v.*), afterwards created Earl Canning; and a daughter Harriet, who married the marquess of Clanricarde in 1825.

The public life of Canning may be divided into four stages. From 1793 to 1801 he was the devoted follower of Pitt, was in minor though important office, and was the wittiest of the defenders of the ministry in parliament and in the press. From 1801 to 1809 he was partly in opposition, partly in office, fighting for the foremost place. Between 1809 and 1822 there was a period of comparative eclipse, during which he was indeed at times in office, but in lesser places than he would have been prepared to accept between 1804 and 1809, and was regarded with general distrust. From 1822 till his death in 1827 he was the most powerful influence in English, and one of the most powerful in European, politics.

In the spring of 1796 he was appointed under-secretary for the foreign office, and in the election of that year he was returned for Wendover. He was also appointed receiver-general of the alienation office, a sinecure post which brought him £700 a year. His position as under-secretary brought him into close relations with Pitt and the foreign secretary, Lord Grenville (*q.v.*). During the negotiations for peace at Lille (1797), Canning was actively concerned in the devices which were employed by Pitt and Grenville to keep the real character of the discussion secret from other members of the cabinet. Canning had a taste for mystery and disguises, which he had shown at Oxford, and which did much to gain him his unfortunate reputation for trickery. From the 20th of November 1797, till the 9th of July 1798, he was one of the most active, and was certainly the most witty of the contributors to the *Anti-Jacobin*, a weekly paper started to ridicule the frothy philanthropic and eleutheromaniac rant of the French republicans, and to denounce their brutal rapacity and cruelty. But Canning's position as under-secretary was not wholly pleasant to him. He disliked his immediate chief Grenville, one of the Whigs who joined Pitt, and a man of thoroughly Whiggish aristocratic insolence. In 1799 he left the foreign office and was named one of the twelve commissioners for India, and in 1800 joint paymaster of the forces, a post which he held till the retirement of Pitt in 1801.

During these years of subordinate activity Canning had established his position as an orator and a wit. His oratory cannot be estimated with absolute confidence. Speeches were then badly reported. The text of his own, published by Therry (6 volumes, London, 1828), were revised by himself, and not for the better. Though his favourite author was Dryden, whose prose is uniformly manly and simple, and though he had a keen eye for faults of taste in the style of others, Canning had himself a leaning to preciosity and tinsel. His wit was, and remains, above all question. In public life it did him some harm in the opinion of serious people, who could not believe that so jocose a politician had solid capacity. It exasperated opponents, some of whom, notably Peter Pindar (see Wolcot, John), retaliated by brutal personalities. Canning was constantly reminded that his mother was a strolling actress, and was accused of foisting his pauper family on the public funds. The accusation was perfectly untrue, but this style of political controversy was common, and was adopted by Canning. He put himself on a level with Peter Pindar when he assailed Pitt's successor Addington (see Sidmouth, Viscount) on the ground that he was the son of a doctor.

While out of office with Pitt, Canning proved a somewhat insubordinate follower. The snobbery and malignity of his attacks on Addington roused considerable feeling against him, and his attempts to act as a political go-between in ministerial arrangements were unfortunate. On the formation of Pitt's second ministry he took the post of treasurer of the navy on the 12th of May 1804. In office he continued to be insubordinate, and committed mistakes which got him into bad odour as untrustworthy. He endeavoured to persuade Lord Hawkesbury (see Liverpool, Earls of) to join in a scheme for turning an old friend out of the India Office. Though his relations with Pitt began to be somewhat strained towards the end, he left office on the minister's death on the 21st of January 1806.

Canning, who delivered the eulogy of Pitt in the House of Commons on the 3rd of February, refused to take office in Fox's ministry of "all the talents." Attempts were made to secure him, and he was offered the leadership of the House of Commons, under the supervision of Fox, an absurd proposal which he had the good sense to decline. After the death of Fox, and the dismissal by the king of Lord Grenville's ministry, he joined the administration of the duke of Portland as secretary of state for foreign affairs. He held the office from the 25th of March 1807 till the 9th of September 1809. During these two years he had a large share in the vigorous policy which defeated the secret articles of the treaty of Tilsit by the seizure of the Danish fleet. As foreign secretary it fell to him to defend the ministry when it was attacked in parliament. He refused to tell how he became aware of the secret articles, and the mystery has never been fully solved. He threw himself eagerly into

the prosecution of the war in Spain, yet his tenure of office ended in resignation in circumstances which left him under deep discredit. He became entangled in what can only be called two intrigues. In view of the failing health of the duke of Portland he told his colleague, Spencer Perceval, chancellor of the exchequer, that a new prime minister must be found, that he must be in the House of Commons, that the choice lay between them, adding that he might not be prepared to serve as subordinate. In April of 1809 he had told the duke of Portland that Lord Castlereagh, secretary for the colonies and war, was in his opinion unfit for his post, and must be removed to another office. The duke, a sickly and vacillating man, said nothing to Castlereagh, and took no steps, and Canning did not enlighten his colleague. When he found that no measures were being taken to make a change of office, Canning resigned on the 7th of September. Castlereagh then learnt the truth, and after resigning sent Canning a challenge on the 19th of September. In the duel on Putney Heath which followed Canning was wounded in the thigh. His apologists have endeavoured to defend him against the charge of double dealing, but there can be no question that Castlereagh had just ground to be angry. Public opinion was strong against Canning, and in the House of Commons he was looked upon with distrust. For twelve years he remained out of office or in inferior places. His ability made it impossible that he should be obscure. In 1810 he was a member of the Bullion Committee, and his speeches on the report showed his mastery of the subject. It was no doubt his reputation for economic knowledge which chiefly recommended him to the electors of Liverpool in 1812. He had been elected for Tralee in 1803, for Newtown (Hants) in 1806 and for Harwich in 1807. But in parliament he had lost all influence, and is described as wandering about neglected and avoided. In 1812 he committed the serious mistake of accepting a well-paid ornamental mission to Lisbon, which he was about to visit for the health of his eldest son. He remained abroad for eighteen months. In 1816 he submitted to enter office as president of the Board of Control in Lord Liverpool's cabinet, in which Castlereagh, to whom he had now become reconciled, was secretary of state for foreign affairs. In 1820 he resigned his post in order to avoid taking any part in the proceedings against Queen Caroline, the wife of George IV.

Canning's return to great office and influence dates from the suicide of Castlereagh in 1822. He had accepted the governor-generalship of India, which would have implied his retirement from public life at home, and refused to remain unless he was promised "the whole inheritance" of Castlereagh,—the foreign office and the leadership of the House of Commons. His terms were accepted, and he took office in September 1822. He held the office from that date till April 1827, when he became prime minister in succession to Lord Liverpool, whose health had broken down. Even before this he was the real director of the policy of the cabinet—as Castlereagh had been from 1812 to 1822. It may be noted that he resigned his seat for Liverpool in 1823, and was elected for Harwich, which he left for Newport in 1826. Few English public men have represented so many constituencies.

His fame as a statesman is based mainly on the foreign policy which he pursued in those years—the policy of non-intervention, and of the patronage, if not the actual support, of national and liberal movements in Europe (see the historical articles under Europe, Spain, Portugal, Turkey, Greece). To this policy he may be said to have given his name, and he has enjoyed the reputation of having introduced a generous spirit into British politics, and of having undone the work of his predecessor at the foreign office, who was constantly abused as the friend of despotism and of despots. It may well be believed that Canning followed his natural inclinations, and it can be asserted without the possibility of contradiction, if also without possibility of proof, that he had influenced the mind of Castlereagh. Yet the fact remains that when Canning came into office in September 1822, he found the instructions to be given to the representative of the British government at the congress of Verona already drawn up by his predecessor, who had meant to attend the congress himself (see Londonderry, Robert Stewart, 2nd Marquess of). These instructions were handed on without change by Canning to the duke of Wellington, who went as representative, and they contain all the principles which have been said to have been peculiarly Canning's. Indeed this policy was dictated by the character and position of the British government, and had been followed in the main since the conference of Aix-la-Chapelle in 1818. Canning was its orator and minister rather than its originator. Yet his eloquence has associated with his name the responsibility for British policy at the time. No speech of his is perhaps more famous than that in which he claimed the initiative in recognizing the independence of the revolted Spanish colonies in South America in 1823—"I resolved that, if France had Spain, it should not be Spain with the Indies. I called the New World into existence to redress the balance of the Old" (December 12, 1826).

When Lord Liverpool was struck down in a fit on the 17th of February 1827, Canning was marked out by position as his only possible successor. He was not indeed accepted by all the party which had followed Liverpool. The duke of Wellington, Sir Robert Peel and several other members of the ministry, moved perhaps by personal animosity, and certainly by dislike of his known and consistent advocacy of the claims of the Roman Catholics, refused to serve with him. Canning succeeded in constructing a ministry in April—but the hopes and the fears of friends and enemies proved to be equally unfounded. His health had already begun to give way, and broke down altogether under the strain of the effort required to form his ministry. He had caught cold in January at the funeral of the duke of York, and never recovered. He died on the 8th of August 1827, at Chiswick, in the house of the duke of Devonshire, where Fox had died, and in the same room.

See *Speeches*, with a memoir by R. Therry (London, 1826); A.G. Stapleton, *Political Life of Canning*, 1822-1827 (2nd ed., London, 1831); *Canning and His Times* (London, 1859); Lord Dalling and Bulwer, *Historical Characters* (London, 1868); F.H. Hill, *George Canning* (London, 1887); *Some Political Correspondence of George Canning*, ed. E.J. Stapleton (2 vols., 1897); J.A.R. Marriott, *George Canning and His Times, a Political Study* (London, 1903); W. Alison Phillips, *George Canning* (London, 1903), with reproductions of contemporary portraits and caricatures; H.W.V. Temperley, *George Canning* (London, 1905).

CANNIZZARO, STANISLAO (1826-1910), Italian chemist, was born at Palermo on the 13th of July 1826. In 1841 he entered the university of his native place with the intention of making medicine his profession, but he soon turned to the study of chemistry, and in 1845 and 1846 acted as assistant to Rafaelle Piria (1815-1865), known for his work on salicin, who was then professor of chemistry at Pisa and subsequently occupied the same position at Turin. During the Sicilian revolution he served as an artillery officer at Messina and was also chosen deputy for Francavilla in the Sicilian parliament; and after the fall of Messina in September 1848 he was stationed at Taormina. On the collapse of the insurgents he escaped to Marseilles, in May 1849, and after visiting various French towns reached Paris in October. There he gained an introduction to M.E. Chevreul's laboratory, and in conjunction with F.S. Cloëz (1817-1883) made his first contribution to chemical research in 1851, when they prepared cyanamide by the action of ammonia on cyanogen chloride in ethereal solution. In the same year he was appointed professor of physical chemistry at the National College of Alexandria, where he discovered that aromatic aldehydes are decomposed by alcoholic potash into a mixture of the corresponding acid and alcohol, *e.g.* benzaldehyde into benzoic acid and benzyl alcohol ("Cannizzaro's reaction"). In the autumn of 1855 he became professor of chemistry at Geneva university, and six years later, after declining professorships at Pisa and Naples, accepted the chair of inorganic and organic chemistry at Palermo. There he spent ten years, studying the aromatic compounds and continuing to work on the amines, until in 1871 he was appointed to the chair of chemistry at Rome university. Apart from his work on organic chemistry, which includes also an investigation of santonin, he rendered great service to the philosophy of chemistry when in his memoir *Sunto di un corso di Filosofia chemica* (1858) he insisted on the distinction, till then imperfectly realized, between molecular and atomic weights, and showed how the atomic weights of elements contained in

volatile compounds can be deduced from the molecular weights of those compounds, and how the atomic weights of elements of whose compounds the vapour densities are unknown can be ascertained from a knowledge of their specific heats. For this achievement, of fundamental importance for the atomic theory in chemistry, he was awarded the Copley medal by the Royal Society in 1891. Cannizzaro's scientific eminence in 1871 secured him admission to the Italian senate, of which he was vice-president, and as a member of the Council of Public Instruction and in other ways he rendered important services to the cause of scientific education in Italy.

CANNOCK, a market town in the western parliamentary division of Staffordshire, England, in the district known as Cannock Chase, 130 m. N.W. from London by the London and North Western railway. Pop. of urban district (1891) 20,613; (1901) 23,974. The church of St Luke is Perpendicular, enlarged in modern times. The famous political preacher, Henry Sacheverell, held the living early in the 18th century. Cannock has tool, boiler, brick and tile works. Cannock Chase, a tract generally exceeding 500 ft. in elevation, extends on an axis from north-west to south-east over some 36,000 acres. It was a royal preserve, and remains for the most part an uncultivated waste, but it is also a rich coalfield, and there are mines in every direction. Brownhills, Burntwood and Chase Town, Great Wyrley, Hednesford, Hammerwich, and Pelsall are townships or villages of the mining population.

CANNON (a word common to Romance languages, from the Lat. *canna*, a reed, tube, with the addition of the augmentative termination *-on, -one*), a gun or piece of ordnance. The word, first found about 1400 (there is an indenture of Henry IV. 1407 referring to *"canones, seu instrumenta Anglicè gunnes vocata"*), is commonly applied to any form of firearm which is fired from a carriage or fixed mounting, in contradistinction to "small-arms," which are fired without a rest or support of any kind.[1] An exception must be made, however, in the case of *machine guns* (*q.v.*), and the word as used in modern times may be defined as follows: "a piece of ordnance mounted upon a fixed or movable carriage and firing a projectile of greater calibre than 1½ in." In French, however, *canon* is the term applied to the barrel of small arms, and also, as an alternative to *mitrailleuse* or *mitrailleur*, to machine guns, as well as to ordnance properly so-called. The Hotchkiss machine gun used in several navies is officially called "revolving cannon." For details see Artillery, Ordnance, Machine Guns, &c. Amongst the many derived senses of the word may be mentioned "cannon curls," in which the hair is arranged in horizontal tubular curls one above the other. For "cannon" in billiards see Billiards.

In the 16th and 17th centuries the "cannon" in England was distinctively a large piece, smaller natures of ordnance being called by various special names such as culverin, saker, falcon, demi-cannon, &c. We hear of Cromwell taking with him to Ireland (1649) "two cannon of eight inches, two cannon of seven, two demi-cannon, two twenty-four pounders," &c.

Sir James Turner, a distinguished professional soldier contemporary with Cromwell, says: "The cannon or battering ordnance is divided by the English into Cannon Royal, Whole Cannon and Demi-Cannon. The first is likewise called the Double Cannon, she weighs 8000 pound of metal and shoots a bullet of 60, 62 or 63 pound weight. The Whole Cannon weighs 7000 pound of metal and shoots a bullet of 38, 39 or 40 pound. The Demi-Cannon weighs about 6000 pound and shoots a bullet of 28 or 30 pound. ... These three several guns are called cannons of eight, cannons of seven and cannons of six." The generic sense of "cannon," in which the word is now exclusively used, is found along with the special sense above mentioned as early as 1474. A warrant of that year issued by Edward IV. of England to Richard Copcote orders him to provide "*bumbardos, canones, culverynes ... et alias canones quoscumque, ac pulveres, sulfer ... pro eisdem canonibus necessarias*." "Artillery" and "ordnance," however, were the more usual terms up to the time of Louis XIV. (c. 1670), about which time heavy ordnance began to be classified according to the weight of its shot, and the special sense of "cannon" disappears.

1 The original small arms, however, are often referred to as hand cannon.

CANNON-BALL TREE (*Couroupita guianensis*), a native of tropical South America (French Guiana), which bears large spherical woody fruits, containing numerous seeds, as in the allied genus *Bertholletia* (Brazil nut).

CANNSTATT, or Kannstatt, a town of Germany in the kingdom of Württemberg, pleasantly situated in a fertile valley on both banks of the Neckar, 2½ m. from Stuttgart, with which it has been incorporated since 1904. Pop. (1905) 26,497. It is a railway centre, has two Evangelical and a Roman Catholic church, two bridges across the Neckar, handsome streets in the modern quarter of the town and fine promenades and gardens. There is a good deal of business in the town. Railway plant, automobiles and machinery are manufactured; spinning and weaving are carried on; and there are chemical works and a brewery here. Fruit and vines are largely cultivated in the neighbourhood. A large population is temporarily attracted to Cannstatt by the fame of its mineral springs, which are valuable for diseases of the throat and weaknesses of the nervous system. These springs were known to the Romans. Besides the usual bathing establishments there are several medical institutions for the treatment of disease. Near the town are the palaces of Rosenstein and Wilhelma; the latter, built (1842-1851) for King William of Württemberg in the Moorish style, is surrounded by beautiful gardens. In the neighbourhood also are immense caves in the limestone where numerous bones of mammoths and other extinct animals have been found. On the Rotenberg, where formerly stood the ancestral castle of the house of Württemberg, is the mausoleum of King William and his wife.

Cannstatt (Condistat) is mentioned early in the 8th century as the place where a great court was held by Charlemagne for the trial of the rebellious dukes of the Alamanni and the Bavarians. From the emperor Louis the Bavarian it received the same rights and privileges as were enjoyed by the town of Esslingen, and until the middle of the 14th century it was the capital of the county of Württemberg. Cannstatt was the scene of a victory gained by the French over the Austrians on the

21st of July 1796.

See Veiel, *Der Kurort Kannstatt und seine Mineralquellen* (Cannstatt, 1875).

CANO, ALONZO (1601-1667), Spanish painter, architect and sculptor, was born at Granada. He has left in Spain a very great number of specimens of his genius, which display the boldness of his design, the facility of his pencil, the purity of his flesh-tints and his knowledge of chiaroscuro. He learned architecture from his father, Miguel Cano, painting from Pacheco and sculpture from Juan Martinez Montañes. As a statuary, his most famous works are the Madonna and Child in the church of Nebrissa, and the colossal figures of San Pedro and San Pablo. As an architect he indulged in too profuse ornamentation, and gave way too much to the fancies of his day. Philip IV. made him royal architect and king's painter, and gave him the church preferment of a canon. His more important pictures are at Madrid. He was notorious for his ungovernable temper; and it is said that once he risked his life by committing the then capital offence of dashing to pieces the statue of a saint, when in a rage with the purchaser who grudged the price he demanded. His known passionateness also (according to another story) caused him to be suspected, and even tortured, for the murder of his wife, though all other circumstances pointed to his servant as the culprit.

CANO, MELCHIOR (1325-1560), Spanish theologian, born at Tarançon, in New Castile, joined the Dominican order at an early age at Salamanca, where in 1546 he succeeded to the theological chair in that university. A man of deep learning and originality, proud and a victim to the *odium theologicum*, he could brook no rivalry. The only one who at that time could compare with him was the gentle Bartolomeo de Caranza, also a Dominican and afterwards archbishop of Toledo. At the university the schools were divided between the partisans of the two professors; but Cano pursued his rival with relentless virulence, and took part in the condemnation for heresy of his brother-friar. The new society of the Jesuits, as being the forerunners of Antichrist, also met with his violent opposition; and he was not grateful to them when, after attending the council of Trent in 1545, he was sent, by their influence, in 1552, as bishop of the far-off see of the Canaries. His personal influence with Philip II. soon procured his recall, and he was made provincial of his order in Castile. In 1556 he wrote his famous *Consultatio theologica*, in which he advised the king to resist the temporal encroachments of the papacy and, as absolute monarch, to defend his rights by bringing about a radical change in the administration of ecclesiastical revenues, thus making Spain less dependent on Rome. With this in his mind Paul IV. styled him "a son of perdition." The reputation of Cano, however, rests on a posthumous work, *De Locis theologicis* (Salamanca, 1562), which stands to-day unrivalled in its own line. In this, a genuine work of the Renaissance, Cano endeavours to free dogmatic theology from the vain subtleties of the schools and, by clearing away the puerilities of the later scholastic theologians, to bring religion back to first principles; and, by giving rules, method, co-ordination and system, to build up a scientific treatment of theology. He died at Toledo on the 30th of September 1560.

(E. Tn.)

CANOE (from Carib. *canáoa*, the West Indian name found in use by Columbus; the Fr. *canot*, boat, and Ger. *Kahn*, are derived from the Lat. *canna*, reed, vessel), a sort of general term for a boat sharp at both ends, originally designed for propulsion by one or more paddles (not oars) held without a fixed fulcrum, the paddler facing the bow. As the historical native name for certain types of boat used by savages, it is applied in such cases to those which, like other boats, are open within from end to end, and the modern "Canadian canoe" preserves this sense; but a more specific usage of the name is for such craft as differ essentially from open boats by being covered in with a deck, except for a "well" where the paddler sits. Modern developments are the cruising canoe, combining the use of paddle and sails, and the racing canoe, equipped with sails only.

The primitive canoes were light frames of wood over which skins (as in the Eskimo canoe) or the bark of trees (as in the North American lndians' birch-bark canoe) were tightly stretched. The modern painted canvas canoe, built on Indian lines, was a natural development of this idea. The Indian also used, and the African still uses, the "dug-out," made from a tree hollowed by fire after the manner of Robinson Crusoe. Many of these are of considerable size and carrying capacity; one in the New York Natural History Museum from Queen Charlotte's Island is 63 ft. long, 8 ft. 3 in. wide, and 5 ft. deep, cut from a single log. The "war canoe" of paddling races is its modern successor. In the islands of the Pacific primitive canoes are wonderfully handled by the natives, who make long sea voyages in them, often stiffening them by attaching another hull (see Catamaran).

In the earlier part of the 19th century, what was known as a "canoe" in England was the short covered-in craft, with a "well" for the paddler to sit in, which was popularly used for short river practice; and this type still survives. But the sport of canoeing in any real sense dates from 1865, when John MacGregor (*q.v.*) designed the canoe "Rob Roy" for long journeys by water, using both double-bladed paddle and sails, yet light enough (about 70 lb) to be carried over land. The general type of this canoe is built of oak with a cedar deck; the length is from 12 ft. to 15 ft., the beam from 26 in. to 30 in., the depth 10 in. to 16 in. The paddle is 7 ft. long and 6 in. wide in the blade, the canoeist sits low in a cockpit, and in paddling dips the blades first on one side and then the other. The rig is generally yawl.

In 1866 the Royal Canoe Club was formed in England, and the prince of Wales (afterwards Edward VII.) became commodore. Its headquarters are at Kingston-on-Thames and it is still the leading organization. There is also the British Canoe Association, devoted to cruising. After the English canoes were seen in Paris at the Exhibition of 1867, others like them were built in France. Branches and clubs were formed also at the English universities, and in Liverpool, Hull, Edinburgh and Glasgow. The New York Canoe Club was founded in 1871. One member of the Royal Canoe Club crossed the English Channel in his canoe, another the Irish Channel from Scotland to Ireland, and many rivers were explored in inaccessible parts, like the Jordan, the Kishon, and the Abana and the Pharpar at Damascus, as well as the Lake Menzaleh in the Delta of the Nile, and the Lake of Galilee and Waters of Merom in Syria.

W. Baden Powell modified the type of the "Rob Roy" in the "Nautilus," intended only for sailing. From this time the two kinds of pleasure canoe—paddling and sailing—parted company, and developed each on its own lines; the sailing canoe soon (1882) had a deck seat and tiller, a smaller and smaller cockpit, and a larger and larger sail area, with the consequent necessary air and water-tight bulkheads in the hull. Paul Butler of Lowell, Mass., added (1886) the sliding outrigger seat,

allowing the canoeist to slide out to windward. The final stage is the racing machine pure and simple, seen in the exciting contests at the annual August meets of the American Canoe Association on the St Lawrence river, or at the more frequent race days of its constituent divisions, associated as Canadian (47 clubs), Atlantic (32 clubs), Central (26 clubs) and Western.

The paddling canoe, propelled by single-bladed paddles, is also represented in single, tandem and crew ("war canoe") races, and this form of the sport remains more of the amateur type. The "Canadian," a clinker or carvel built mahogany or cedar or bass-wood canoe, or the painted canvas, bark or compressed paper canoe, all on the general lines of the Indian birch bark, are as common on American rivers as the punt is on the Thames, and are similarly used.

See MacGregor, *A Thousand Miles in the Rob Roy Canoe* (1866), *The Rob Roy on the Baltic*, &c.; W. Baden Powell, *Canoe Travelling* (1871); W.L. Alden, *Canoe and the Flying Proa* (New York, 1878); J.D. Hayward, *Camping out with the British Canoe Association*; C.B. Vaux, *Canoe Handling* (New York, 1888); Stephens, *Canoe and Boat Building* (New York, 1881).

CANON. The Greek word κανών means originally a straight rod or pole, and metaphorically what serves to keep a thing upright or straight, a rule. In the New Testament it occurs in Gal. vi. 16, and 2 Cor. x. 13, 15, 16, signifying in the former passage a measure, in the latter what is measured, a district. The general applications of the word fall mainly into two groups, in one of which the underlying meaning is that of rule, in the other that of a list or catalogue, *i.e.* of books containing the rule. Of the first, such uses as that of a standard or rule of conduct or taste, or of a particular form of musical composition (see below) may be mentioned, but the principal example is of the sum of the laws regulating the ecclesiastical body (see Canon Law). In the second group of uses that of the ecclesiastical dignitary (see below), that of the list of the names of those persons recognized as saints by the Church (see Canonization), and that of the authoritative body of Scriptures (see below) are examples.

Music.—A canon in part-music is the form taken by the earliest compositions in harmony, successive or consequent parts having the same melody, but each beginning at a stated period after its precursor or antecedent. In many early polyphonic compositions, one or more voices were imitated note for note by the others, so that the other parts did not need to be written out at all, but were deduced from the leaders by a rule or canon. Sir Frederick Bridge has pointed out that in this way the term "canon" came to supersede the old name of the art-form, *Fuga ligata*. (See also under Fugue, Contrapuntal Forms and Music.) When the first part completes its rhythmical sentence before the second enters, and then continues the melody as an accompaniment to the second, and so on for the third or fourth, this form of canon in England was styled a "round" or "catch"; the stricter canon being one in which the succession of parts did not depend on the ending of the phrase. But outside England catches and canons were undifferentiated. The "round" derived its name from the fact that the first part returned to the beginning while the others continued the melody; the "catch" meant that each later part caught up the tune. The problem of the canon, as an artistic composition, is to find one or more points in a melody at which one or more successive parts may start the same tune harmoniously. Catches were familiar in English folk music until after the Restoration; different trades having characteristic melodies of their own. In the time of Charles II they took a bacchanalian cast, and later became sentimental. Gradually the form went out as a type of folk music, and now survives mainly in its historical interest.

(H. Ch.)

The Church Dignitary.—A canon is a person who possesses a prebend, or revenue allotted for the performance of divine service in a cathedral or collegiate church. Though the institute of canons as it at present exists does not go back beyond the 11th century it has a long history behind it. The name is derived from the list (*matricula*) of the clergy belonging to a church, κανών being thus used in the council of Nicaea (c. 16). In the synod of Laodicea the adjective κανονικός is found in this sense (c. 15); and during the 6th century the word *canonicus* occurs commonly in western Europe in relation to the clergy belonging to a cathedral or other church. Eusebius of Vercelli (d. 370) was the first to introduce the system whereby the cathedral clergy dwelt together, leading a semi-monastic life in common and according to rule; and St Augustine established a similar manner of life for the clergy of his cathedral at Hippo. The system spread widely over Africa, Spain and Gaul; a familiar instance is St Gregory's injunction to St Augustine that at Canterbury the bishop and his clergy should live a common life together, similar to the monastic life in which he had been trained; that these "clerics" at Canterbury were not monks is shown by the fact that those of them in the lower clerical grades were free to marry and live at home, without forfeiting their position or emoluments as members of the body of cathedral clergy (Bede, *Hist. Eccl.* i. 27). This mode of life for the secular clergy, which became common in the west, seems never to have taken root in the east. It came to be called *vita canonica*, canonical life, and it was the object of various enactments of councils during the 6th, 7th and 8th centuries. The first serious attempt to legislate for it and reduce it to rule was made by Chrodegang, bishop of Metz (*c.* 750), who composed a rule for the clergy of his cathedral, which was in large measure an adaptation of the Benedictine Rule to the case of secular clergy living in common. Chrodegang's Rule was adopted in many churches, both cathedral and collegiate (*i.e.* those served by a body of clergy). In 816 the synod of Aix-la-Chapelle (see *Mon. Germ. Concil.* ii. 307) made further regulations for the canonical life, which became the law in the Frankish empire for cathedral and collegiate churches. The Rule of Chrodegang was taken as the basis, but was supplemented and in some points mitigated and made less monastic in character. There was a common dormitory and common refectory for all, but each canon was allowed a dwelling room within the cloister; the use of flesh meat was permitted, and the clothing was of better quality than that of monks. Each canon retained the use of his private property and money, but the revenues of the cathedral or church were treated as a common fund for the maintenance of the whole establishment. The chief duty of the canons was the performance of the church services. Thus the canons were not monks, but secular clergy living in community, without taking the monastic vows or resigning their private means—a form of life somewhat resembling that of the fathers of the London or Birmingham Oratory in our day. The bishop was expected to lead the common life along with his clergy.

The canonical life as regulated by the synod of Aix, subsisted in the 9th and 10th centuries; but the maintenance of this intermediate form of life was of extreme difficulty. There was a constant tendency to relax the bonds of the common life, and attempts in various directions to restore it. In England, by the middle of the 10th century, the prescriptions of the canonical life seem to have fallen into desuetude, and in nine cathedrals the canons were replaced by communities of Benedictines. In the 11th century the Rule of Chrodegang was introduced into certain of the English cathedrals, and an Anglo-Saxon translation of it was made under Leofric for his church of Exeter. The turning point came in 1059, when a reforming synod, held at the Lateran, exhorted the clergy of all cathedral and collegiate churches to live in community, to hold all property and money in common, and to "lead the life of the Apostles" (cf. Acts ii. 44, 45). The clergy of numerous churches throughout Western Europe (that of the Lateran Basilica among them) set themselves to carry out these exhortations, and out of this movement grew the religious order of Canons Regular or Augustinian Canons (*q.v.*). The opposite tendency also ran its course and produced the institute of secular canons. The revenues of the cathedral were divided into two parts, that of the bishop and that of the clergy; this latter was again divided among the clergy themselves, so that each member received his own separate income, and the persons so sharing, whatever their clerical grade, were the canons of the cathedral church. Naturally all attempt at leading any kind of common life was frankly abandoned. In England the final establishment of this order of things was due to St Osmund (1090). The nature and functions of the institute of secular canons are described in the article Cathedral.

See Du Cange, *Glossarium*, under "Canonicus"; Amort, *Vetus Disciplina Canonicorum* (1747), to be used with caution for the earlier period; C. du Molinet, *Réflexions historiques et curieuses sur les antiquités des chanoines tant séculiers que réguliers* (1674); Herzog, *Realencyklopädie* (3rd ed.), art. "Kapitel"; Wetzer und Welte, *Kirchenlexicon* (2nd ed.), art. "Canonica vita" and "Canonikat." The history of the canonical institute is succinctly told, and the best literature named, by Max Heimbucher, *Orden und Kongregationen*, 1896, i. § 55; also by Otto Zöckler, *Askese und Mönchtum*, 1897, pp. 422-425. On medieval secular canons a standard work is Chr. Wordsworth's *Statutes of Lincoln Cathedral* (1892-1897); see also an article thereon by Edm. Bishop in *Dublin Review*, July 1898.

(E. C. B.)

In the Church of England, the canons of cathedral or collegiate churches retain their traditional character and functions, though they are now, of course, permitted to marry. Their duties were defined by the Canons of 1603, and included that of residence at the cathedrals according to "their local customs and statutes," and preaching in the cathedral and in the churches of the diocese, "especially those whence they or their church receive any yearly rent or profit." A canonry not being legally a "cure of souls," a canon may hold a benefice in addition to his prebend, in spite of the acts against pluralities. By the Canons of 1603 he was subject to discipline if he made his canonry an excuse for neglecting his cure. By the act of 1840 reforming cathedral chapters the number of canonries was greatly reduced, while some were made applicable to the endowment of archdeaconries and professorships. At the same time it was enacted that a canon must have been six years in priest's orders, except in the case of canonries annexed to any professorship, headship or other office in any university. The obligatory period of residence, hitherto varying in different churches, was also fixed at a uniform period of three months. The right of presentation to canonries is now vested in some cases in the crown, in others in the lord chancellor, the archbishop or in the bishop of the diocese.

Honorary canons are properly canons who have no prebend or other emoluments from the common fund of the chapter. In the case of old cathedrals the title is bestowed upon deserving clergymen by the bishop as a mark of distinction. In new cathedrals, *e.g.* Manchester or Birmingham, where no endowment exists for a chapter, the bishop is empowered to appoint honorary canons, who carry out the ordinary functions of a cathedral body (see Cathedral).

Minor canons, more properly styled priest-vicars, are appointed by the dean and chapter. Their function is mainly to sing the service, and they are selected therefore mainly for their voices and musical qualifications. They may hold a benefice, if it lies within 6 m. of the cathedral.

In the Protestant churches of the continent canons as ecclesiastical officers have ceased to exist. In Prussia and Saxony, however, certain chapters, secularized at the Reformation, still exist. The canons (*Domherren*) are, however, laymen with no ecclesiastical character whatever, and their rich prebends are merely sources of endowment for the cadets of noble families.

See Phillimore, *Eccles. Law*, 2 vols. (London, 1895).

(W. A. P.)

The Scriptures.—There are three opinions as to the origin of the application of the term "canon" to the writings used by the Christian Church. According to Semler, Baur and others, the word had originally the sense of list or catalogue—the books publicly read in Christian assemblies. Others, as Steiner, suppose that since the Alexandrian grammarians applied it to collections of old Greek authors as models of excellence or classics, it meant classical (canonical) writings. According to a third opinion, the term included from the first the idea of a regulating principle. This is the more probable, because the same idea lies in the New Testament use of the noun, and pervades its applications in the language of the early Fathers down to the time of Constantine, as Credner has shown.[1] The "κανών of the church" in the Clementine homilies,[2] the "ecclesiastical κανών"[3] and the "κανών of the truth" in Clement and Irenaeus,[4] the κανών of the faith in Polycrates,[5] the *regula fidei* of Tertullian,[6] and the *libri regulares* of Origen[7] imply a *normative principle*. Credner's view of κανών as an abbreviation of γραφαὶ κανόνος, equivalent to *Scripturae legis* in Diocletian's Act,[8] is too artificial, and is unsanctioned by usage.

The earliest example of its application to a catalogue of the Old or New Testament books occurs in the Latin translation of Origen's homily on Joshua, where the original seems to have been κανών. The word itself is certainly in Amphilochius,[9] as well as in Jerome[10] and Rufinus.[11] As the Latin translation of Origen has *canonicus* and *canonizatus*, we infer that he used κανονικός, opposed as it is to *apocryphus* or *secretus*. The first occurrence of κανονικός is in the 59th canon of the council of Laodicea, where it is contrasted with ἰδιωτικός and ἀκανόνιστος. Κανονιζόμενα, "*canonized* books," is first used in Athanasius's festal epistle.[12] The kind of rule which the earliest Fathers thought the Scriptures to be can only be conjectured; it is certain that they believed the Old Testament books to be a divine and infallible guide. But the New Testament was not so considered till towards the close of the 2nd century, when the conception of a Catholic Church was realized. The collection of writings was not called *Scripture*, or put on a par with the Old Testament as sacred and inspired, till the time of Theophilus of Antioch (about 180 A.D.). Hence Irenaeus applies the epithets divine and perfect to the Scriptures; and Clement of Alexandria calls them inspired.

When distinctions were made among the Biblical writings other words were employed, synonymous with Κανονιζόμενα or κεκανονισμένα, such as ἐνδιάθηκα, ὡρισμένα. The canon was thus a catalogue of writings, forming a rule of truth, sacred, divine, revealed by God for the instruction of men. The rule was perfect for its purpose. (See Bible: section *Canon*.)

The term "canonical," *i.e.* that which is approved or ordered by the "canon" or rule, is applied to ecclesiastical vestments, "canonicals," and to those hours set apart by the Church for prayer and devotion, the "Canonical Hours" (see Breviary).

(S. D.)

1 *Zur Geschichte des Kanons*, pp. 3-68.

2 *Clement Hom.*, ap. Coteler. vol. i. p. 608.

3 *Stromata*, vi. 15, p. 803, ed. Potter.

4 *Adv. Haeres.* i. 95.

5 Euseb. *H.E.* v. 24.

6 *De praescript. Haereticorum*, chs. 12, 13.

7 *Comment. in Mat.* iii. p. 916, ed. Delarue.

8 *Monumenta vetera ad Donatistarum historiam pertinentia*, ed. Dupin, p. 168.

9 At the end of the *Iambi ad Seleucum*, on the books of the New Testament, he adds, οὑτος ἀψευδέστατος κανών ἂν εἴη τῶν θεοπνεύστων γραφῶν.

10 *Prologus galeatus in ii. Reg.*

11 *Expos. in Symb. Apost.* 37, p. 374, ed. Migne.

12 After the word is added καὶ παραδοθέντα, πιστευθέντα τὲ θεῖα είναι. *Opp.* vol. i. p. 961, ed. Benedict.

CANONESS (Fr. *chanoinesse*, Ger. *Kanonissin*, Lat. *canonica* or *canonica virgo*), a female beneficiary of a religious college. In the 8th century chapters of canons were instituted in the Frankish empire, and in imitation of these certain women took common vows of obedience and chastity, though not of poverty. Like nuns they had common table and dormitory, and recited the breviary, but generally the rule was not so strict as in the case of nuns. The canonesses often taught girls, and were also employed in embroidering ecclesiastical vestments and transcribing liturgical books. A distinction was drawn between regular and secular canonesses, the latter being of noble family and not practising any austerity. Some of their abbesses were notable feudal princesses. In Germany several foundations of this kind (*e.g.* Gandersheim, Herford and Quedlinburg), which were practically secular institutions before the Reformation, adopted the Protestant faith, and still exist, requiring of their members the simple conditions of celibacy and obedience to their superior during membership. These institutions (*Stifter*) are now practically almshouses for the unmarried daughters of noble families. In some cases the right of presentation belongs to the head of the family, sometimes admission is gained by purchase; but in modern times a certain number of prebends have been created for the daughters of deserving officials. The organization of the *Stift* is collegiate, the head bearing the ancient titles of abbess, prioress or provostess (*Pröbstin*), and the canonesses (*Stiftsdamen*) meet periodically in *Konvent* for the discussion of the affairs of the community. The ladies are not bound to residence. In many of these *Stifter* quaint pre-Reformation customs and ceremonies still survive; thus, at the convent of St John the Baptist at Schleswig, on the day of the patron saint, the room in which the *Konvent* is held is draped in black and a realistic life-size wax head of St John on a charger is placed in the centre of the table round which the canonesses sit.

CANONIZATION, in its widest sense, an act by which in the Christian Church the ecclesiastical authority grants to a deceased believer the honour of public *cultus*. In the early Church there was no formal canonization. The *cultus* applied at first to local martyrs, and it was only in exceptional circumstances that a kind of judiciary inquiry and express decision became necessary to legitimate this *cultus*. The peculiar situation of the Church of Africa explains the *Vindicatio martyrum*, which was early practised there (*Optatus Milevit.*, i. 16). In the *cultus* rendered to confessors, the authorization of the Church had long been merely implicit. But when an express decision was given, it was the bishop who gave it. Gradually the canonization of saints came to be included in the centralizing movement which reserved to the pope the most important acts of ecclesiastical power. The earliest acknowledged instance of canonization by the pope is that of Ulric of Augsburg, who was declared a saint by John XV. in A.D. 993. From that time the pontifical intervention became more and more frequent, and, in practice, the right of the bishops in the matter of canonization continued to grow more restricted. In 1170 the new right was sufficiently established for Pope Alexander III. to affirm that the bishops could not institute the *cultus* of a new saint without the authority of the Roman Church (Cap. *Audivimus*, Decret. *De Rell. et venerat. Sanctorum*, iii. 115). The 12th and, especially, the 13th centuries furnish many examples of canonizations pronounced by the popes, and the procedure of this period is well ascertained. It was much more summary than that practised in modern times. The evidence of those who had known the holy personages was collected on the spot. The inquiry was as rapid as the judgment, and both often took place a short time after the death of the saint, as in the cases of St Thomas of Canterbury (died 1170, canonized 1173), St Peter of Castelnau (died on the 15th of January 1208, canonized on the 12th of March of the same year), St Francis of Assisi (died on the 4th of October 1226, canonized on the 19th of July 1228), and St Anthony of Padua (died on the 13th of June 1231, canonized on the 3rd of June 1232).

At this period there was no marked difference between canonization and beatification. In modern practice, as definitively settled by the decrees of Pope Urban VIII. (1625 and 1634), the two acts are totally distinct. Canonization is the solemn and definitive act by which the pope decrees the plenitude of public honours. Beatification consists in permitting a *cultus*, the manifestations of which are restricted, and is merely a step towards canonization.

The procedure at present followed at the Roman curia is either *exceptional* or *common*. The approval of immemorial *cultus* comes within the category of exceptional procedure. Urban VIII., while forbidding the rendering of a public *cultus* without authorization from the Holy See, made an exception in favour of the blessed who were at that time (1625) in possession of an immemorial *cultus, i.e.* dating back at least a century (1525). The procedure *per viam casus excepti* consists in the legitimation of a *cultus* which has been rendered to a saint for a very long time. The causes of the martyrs (*declarationis martyrii*) also are exceptional. Juridical proof is required of the *fact* of the martyrdom and of its *cause, i.e.* it must be established that the servant of God was put to death through hatred of the faith. These are the two cases which constitute exceptional procedure.

The *common* procedure is that in which the cause is prosecuted *per viam non cultus*. It is, in reality, a suit at law, pleaded before the tribunal of the Congregation of Rites, which is a permanent commission of cardinals, assisted by a certain number of subordinate officers and presided over by a cardinal. The supreme judge in the matter is the pope himself. The *postulator*, who is the mandatory of a diocese or ecclesiastical commonalty, is the solicitor. He must furnish the proofs, which are collected according to very stringent rules. The *promoter of the faith*, popularly called the “devil’s advocate” (*advocatus diaboli*), is the defendant, whose official duty is to point out to the tribunal the weak points of the case.

The procedure is loaded with many formalities, of which the historical explanation lies in the tribunals of the ancient system, and which considerably delay the progress of the causes. The first decisive step is the *introduction of the cause*. If, by the advice of the cardinals who have examined the documents, the pope pronounce his approval, the servant of God receives the title of “Venerable,” but is not entitled to any manifestation of *cultus*. Only in the event of the claimant passing this test successfully can the essential part of the procedure be begun, which will result in conferring on the Venerable the title of “Blessed.” This part consists in three distinct proceedings: (1) to establish a reputation for sanctity, (2) to establish the heroic quality of the virtues, (3) to prove the working of miracles. A favourable judgment on all three of these tests is called the decree *de tuto*, by which the pope decides that they may safely proceed to the solemn beatification of the servant of God (*Tuto procedi potest ad solemnem V.S.D.N. beatificationem*). In the ceremony of beatification the essential part consists in the reading of the pontifical brief, placing the Venerable in the rank of the Blessed, which is done during a solemn mass, celebrated with special rites in the great hall above the vestibule of the basilica of St Peter.

The process of canonization, which follows that of beatification, is usually less lengthy. It consists principally in the discussion of the miracles (usually two in number) obtained by the intercession of the Blessed since the decree of beatification. After a great number of formalities and prayers, the pope pronounces the sentence, and indicates eventually the day on which he will proceed to the ceremony of canonization, which takes place with great solemnity in the basilica of St Peter.

The extremely complicated procedure which is prescribed for the conduct of the cases in order to ensure every opportunity for exercising rigour and discretion, considerably retards the progress of the causes, and necessitates a numerous staff. This circumstance, together with the custom of ornamenting the basilica of St Peter very richly on the day of the ceremony, accounts for the considerable cost which a canonization entails. To prevent abuses, a minute tariff of expenses was drawn up during the pontificate of Leo XIII.

The Greek Church, represented by the patriarch of Constantinople, and the Russian Church, represented by the Holy Synod, also canonize their saints after a preliminary examination of their titles to public *cultus*. Their procedure is less rigorous than that of the Roman Church, and as yet has been but imperfectly studied.

See J. Fontanini, *Codex Constitutionum quas summi pontifices ediderunt in solemni canonizatione sanctorum* (Rome, 1729, a collection of original documents); Pr. Lambertini (Pope Benedict XIV.), *De servorum Dei beatificatione et beatorum canonizatione* (Bologna, 1734-1738), several times reprinted, and more remarkable for erudition and knowledge of canon law than for historical criticism; Al. Lauri, *Codex pro postulatoribus causarum beatificationis et canonizationis, recognovit Joseph Fornari* (Romae, 1899); F.W. Faber, *Essay on Beatification, Canonization, &c.* (London, 1848); A. Boudinhon, *Les Procès de béatification et de canonisation* (Paris, 1905); E. Golubinskij, *Istorija Kanonizaçii sviatich v russko j çerkvi* (Moscow, 1903).

(H. De.)

CANON LAW. Canon law, *jus canonicum*, is the sum of the laws which regulate the ecclesiastical body; for this reason it is also called ecclesiastical law, *jus ecclesiasticum*. It is also referred to under the name of *canones, sacri canones*, a title of great antiquity, for the κανόνες, *regulae*, were very early distinguished from the secular laws, the νόμοι, *leges*.

Word "canon." Different meanings.

The word κανών, canon, has been employed in ecclesiastical literature in several different senses (see Canon above). The disciplinary decisions of the council of Nicaea, for example (can. 1, 2, &c.), employ it in the sense of an established rule, ecclesiastical in its origin and in its object. But the expression is most frequently used to designate disciplinary laws, in which case canons are distinguished from dogmatic definitions. With regard to form, the decisions of councils, even when dogmatic, are called canons; thus the definitions of the council of Trent or of the Vatican, which generally begin with the words "*Si quis dixerit*," and end with the anathema, are canons; while the long chapters, even when dealing with matters of discipline, retain the name of chapters or decrees. Similarly, it has become customary to give the name of canons to the texts inserted in certain canonical compilations such as the *Decretum* of Gratian, while the name of chapters is given to the analogous quotations from the Books of the Decretals. It is merely a question of words and of usage. As to the expression *jus canonicum*, it implies the systematic codification of ecclesiastical legislation, and had no existence previous to the labours which resulted in the *Corpus juris canonici*.

Divisions.

Canon law is divided into public law and private law; the former is concerned with the constitution of the Church, and, consequently, with the relations between her and other bodies, religious and civil; the latter has as its object the internal discipline of the ecclesiastical body and its members. This division, which has been found convenient for the study of canon law, has no precedent in the collections of texts. With regard to the texts now in force, the name of *jus antiquum*, ancient law, has been given to the laws previous to the *Corpus juris canonici*; the legislation of this *Corpus* has been called *jus novum*, new law; and finally, the name of recent law, *jus novissimum*, has been given to the law established by the council of Trent and subsequent papal constitutions. There is a further distinction between the written law, *jus scriptum*, laws made by the councils or popes, which are to be found in the collections, and the unwritten law, *jus non scriptum*, a body of practical rules arising rather from natural equity and from custom than from formal laws; with this is connected the customary law. In the Church, as in other societies, it has happened that the unwritten customary law has undergone a gradual diminution in importance, as a consequence of centralization and the accumulation of written laws; nowadays it need not be reckoned with, save in cases where local customs are involved. The common law is that which is intended to regulate the whole body; special or local law is that which is concerned with certain districts or certain categories of persons, by derogation from or addition to the common law.

Sources.

By the *sources* or authors of the canon law are meant the authorities from which it is derived; they must obviously be of such a nature as to be binding upon the whole religious body, or at least upon a specified portion of it. In the highest rank must be placed Christ and the Apostles, whose dispositions for the constitution and government of the Church are contained in the New Testament, completed by tradition; for the Church did not accept the disciplinary and ritual provisions of the Old Testament as binding upon her (see Acts xi., xv.). To the apostles succeeded the episcopal body, with its chief the bishop of Rome, the successor of St. Peter, whose legislative and disciplinary power, by a process of centralization, underwent a slow but uninterrupted development. It is then to the episcopate, assembled in ecumenical council, and to its chief, that the function of legislating for the whole Church belongs; the inferior authorities, local councils or isolated bishops and prelates, can only make special laws or statutes, valid only for that part of the Church under their jurisdiction. Most of the canons, however, which constitute the ancient law, and notably those which appear in the *Decretum* of Gratian, emanate from local councils, or even from individual bishops; they have found a place in the common law because the collections of canons, of which they formed the most, notable part, have been everywhere adopted.

Having made these general observations, we must now consider the history of those texts and collections of canons which to-day form the ecclesiastical law of the Western Church: (1) up to the *Decretum* of Gratian, (2) up to the council of Trent, (3 and 4) up to the present day, including the codification ordered by Pius X.

1. *From the Beginning to the Decretum of Gratian.*—At no time, and least of all during the earliest centuries, was there any attempt to draw up a uniform system of legislation for the whole of the Christian Church. The various communities ruled themselves principally according to their customs and traditions, which, however, possessed a certain uniformity resulting from their close connexion with natural and divine law. Strangely enough, those documents which bear the greatest resemblance to a small collection of canonical regulations, such as the Didache, the Didascalia and the Canons of Hippolytus, have not been retained, and find no place in the collections of canons, doubtless for the reason that they were not official documents. Even the Apostolical Constitutions (*q.v.*), an expansion of the Didache and the Didascalia, after exercising a certain amount of influence, were rejected by the council in Trullo (692). Thus the only pseudo-epigraphic document preserved in the law of the Greek Church is the small collection of the eighty-five so-called "Apostolic Canons" (*q.v.*). The compilers, in their several collections, gathered only occasional decisions, the outcome of no pre-determined plan, given by councils or by certain great bishops.

Greek collection.

These compilations began in the East. It appears that in several different districts canons made by the local assemblies[1] were added to those of the council of Nicaea which were everywhere accepted and observed. The first example seems to be that of the province of Pontus, where after the twenty canons of Nicaea were placed the twenty-five canons of the council of Ancyra (314), and the fifteen of that of Neocaesarea (315-320). These texts were adopted at Antioch, where there were further added the twenty-five canons of the so-called council *in encaeniis* of that city (341). Soon afterwards, Paphlagonia contributed twenty canons passed at the council of Gangra (held, according to the *Synodicon orientale*, in 343),[2] and Phrygia fifty-nine canons of the assembly of Laodicea (345-381?), or rather of the compilation known as the work of this council.[3] The collection was so well and so widely known that all these canons were numbered in sequence, and thus at the council of Chalcedon (451) several of the canons of Antioch were read out under the number assigned to them in the collection of the whole. It was further increased by the twenty-eight

(thirty) canons of Chalcedon; about the same time were added the four canons of the council of Constantinople of 381, under the name of which also appeared three (or seven) other canons of a later date. Towards the same date, also, the so-called "Apostolic Canons" were placed at the head of the group. Such was the condition of the Greek collection when it was translated and introduced into the West.

In the course of the 6th century the collection was completed by the addition of documents already in existence, but which had hitherto remained isolated, notably the canonical letters of several great bishops, Dionysius of Alexandria, St Basil and others. It was at this time that the Latin collection of Dionysius Exiguus became known; and just as he had given the Greek councils a place in his collection, so from him were borrowed the canons of councils which did not appear in the Greek collection—the twenty canons of Sardica (343), in the Greek text, which differs considerably from the Latin; and the council of Carthage of 410, which itself included, more or less completely, in 105 canons, the decisions of the African councils. Soon after came the council *in Trullo* (692), also called the *Quinisextum*, because it was considered as complementary to the two councils (5th and 6th ecumenical) of Constantinople (553 and 680), which had not made any disciplinary canons. This assembly elaborated 102 canons, which did not become part of the Western law till much later, on the initiative of Pope John VIII. (872-881). Now, in the second of its canons, the council in Trullo recognized and sanctioned the Greek collection above mentioned; it enumerates all its articles, insists on the recognition of these canons, and at the same time prohibits the addition of others. As thus defined, the collection contains the following documents: firstly, the eighty-five Apostolic Canons, the Constitutions having been put aside as having suffered heretical alterations; secondly, the canons of the councils of Nicaea, Ancyra, Neocaesarea, Gangra, Antioch, Laodicea, Constantinople (381), Ephesus (the disciplinary canons of this council deal with the reception of the Nestorians, and were not communicated to the West), Chalcedon, Sardica, Carthage (that of 419, according to Dionysius), Constantinople (394); thirdly, the series of canonical letters of the following great bishops—Dionysius of Alexandria, Peter of Alexandria (the Martyr), Gregory Thaumaturgus, Athanasius, Basil, Gregory of Nyssa, Gregory of Nazianzus, Amphilochus of Iconium, Timotheus of Alexandria, Theophilus of Alexandria, Cyril of Alexandria, Gennadius of Constantinople; the canon of Cyprian of Carthage (the Martyr) is also mentioned, but with the note that it is only valid for Africa. With the addition of the twenty-two canons of the ecumenical council of Nicaea (787), this will give us the whole contents of the official collection of the Greek Church; since then it has remained unchanged. The law of the Greek Church was in reality rather the work of the Byzantine emperors.[4]

Its final form.

The collection has had several commentators; we need only mention the commentaries of Photius (883), Zonaras (1120) and Balsamon (1170). A collection in which the texts are simply reproduced in their chronological order is obviously inconvenient; towards 550, Johannes Scholasticus, patriarch of Constantinople, drew up a methodical classification of them under fifty heads. Finally should be mentioned yet another kind of compilation still in use in the Greek Church, bearing the name of *nomocanon*, because in them are inserted, side by side with the ecclesiastical canons, the imperial laws on each subject: the chief of them are the one bearing the name of Johannes Scholasticus, which belongs, however, to a later date, and that of Photius (883).

Nomocanon.

The canon law of the other Eastern Churches had no marked influence on the collections of the Western Church, so we need not speak of it here. While, from the 5th century onwards a certain unification in the ecclesiastical law began to take place within the sphere of the see of Constantinople, it was not till later that a similar result was arrived at in the West. For several centuries there is no mention of any but local collections of canons, and even these are not found till the 5th century; we have to come down to the 8th or even the 9th century before we find any trace of unification. This process was uniformly the result of the passing on of the various collections from one region to another.

In the West.

The most remarkable, and the most homogeneous, as well as without doubt the most ancient of these local collections is that of the Church of Africa. It was formed, so to speak, automatically, owing to the plenary assemblies of the African episcopate held practically every year, at which it was customary first of all to read out the canons of the previous councils. This gave to the collection an official character. At the time of the Vandal invasion this collection comprised the canons of the council of Carthage under Gratus (about 348) and under Genethlius (390), the whole series of the twenty or twenty-two plenary councils held during the episcopate of Aurelius, and finally, those of the councils held at Byzacene. Of the last-named we have only fragments, and the series of the councils under Aurelius is very incomplete. The African collection has not come to us directly: we have two incomplete and confused arrangements of it, in two collections, that of the *Hispana* and that of Dionysius Exiguus. Dionysius knows only the council of 419, in connexion with the affair of Apiarius; but in this single text are reproduced, more or less fully, almost all the synods of the collection; this was the celebrated *Concilium Africanum*, so often quoted in the middle ages, which was also recognized by the Greeks. The Spanish collection divides the African canons among seven councils of Carthage and one of Mileve; but in many cases it ascribes them to the wrong source; for example, it gives under the title of the fourth council of Carthage, the *Statuta Ecclesiae antiqua*, an Arlesian compilation of Saint Caesarius, which has led to a number of incorrect references. Towards the middle of the 6th century a Carthaginian deacon, Fulgentius Ferrandus, drew up a *Breviatio canonum*,[5] a methodical arrangement of the African collection, in the order of the subjects. From it we learn that the canons of Nicaea and the other Greek councils, up to that of Chalcedon, were also known in Africa.

Africa.

The Roman Church, even more than the rest, governed itself according to its own customs and traditions. Up to the end of the 5th century the only canonical document of non-Roman origin which it officially recognized was the group of canons of Nicaea, under which name were also included those of Sardica. A Latin version of the other Greek councils (the one referred to by Dionysius as *prisca*) was known, but no canonical use was made of it. The local law was founded on usage and on the papal letters called decretals. The latter were of two kinds: some were addressed to the bishops of the ecclesiastical province immediately subject to the pope; the others were issued in answer to questions submitted from various quarters; but in both cases the doctrine is the same. At the beginning of the 6th century the Roman Church adopted the double collection, though of private origin, which was drawn up at that time by the monk Dionysius, known by the name of Dionysius Exiguus, which he himself had assumed as a sign of humility. He was a Scythian by birth, and did not come to Rome till after 496, his learning was considerable for his times, and to him we owe the employment of the Christian era and a new way of reckoning Easter. At the desire of Stephen, bishop of Salona, he undertook the task of making a new translation, from the original Greek text, of the canons of the Greek collection. The manuscript which he used contained only the first fifty of the Apostolic Canons; these he translated, and they thus became part of the law of the West. This part of the work of Dionysius was not added to later; it was otherwise with the second part. This embodied the documents containing the local law, namely 39 decretals of the popes from Siricius (384-398) to Anastasius II. (496-498). As was natural this collection received successive additions as further decretals appeared. The collection formed by combining these two parts remained the only official code of the Roman Church until the labours undertaken in consequence of the reforming movement in the 11th century. In 774 Pope Adrian I. gave the twofold collection of the Scythian monk to the future emperor Charlemagne as the canonical book of the Roman Church; this is what is called the *Dionysio-Hadriana*. This was an important stage in the history of the centralization of canon law; the collection was officially received by the Frankish Church, imposed by the council of Aix-la-Chapelle of 802, and from that time on was recognized and quoted as the *liber canonum*. If we consider that the Church of Africa, which had already suffered considerably from the Vandal invasion, was at this period almost entirely destroyed by the Arabs, while the fate of Spain was but little better, it is easy to see why the collection of Dionysius became the code of

Rome.

Dionysius Exiguus and his collection.

Dionysio-Hadriana.

almost the whole of the Western Church, with the exception of the Anglo-Saxon countries; though here too it was known.

The other collections of canons, of Italian origin, compiled before the 10th century, are of importance on account of the documents which they have preserved for us, but as they have not exercised any great influence on the development of canon law, we may pass them over.

In Gaul.

The Dionysio-Hadriana did not, when introduced into Gaul, take the place of any other generally received collection of canons. In this country the Church had not been centralized round a principal see which would have produced unity in canon law as in other things; even the political territorial divisions had been very unstable. The only canonical centre of much activity was the Church of Arles, which exercised considerable influence over the surrounding region in the 5th and 6th centuries. The chief collection known throughout Gaul before the Dionysio-Hadriana was the so-called collection of Quesnel, named after its first editor.[6] It is a rich collection, though badly arranged, and contains 98 documents—Eastern and African canons and papal letters, but no Gallic councils; so that it is not a collection of local law. We might expect to find such a collection, in view of the numerous and important councils held in Gaul, but their decisions remained scattered among a great number of collections none of which had ever a wide circulation or an official character.

Quesnel collection.

Councils.

It would be impossible to enumerate here all the Gallic councils which contributed towards the canon law of that country; we will mention only the following:—Arles (314), of great importance; a number of councils in the district of Arles, completed by the *Statuta Ecclesiae antiqua* of St Caesarius;[7] the councils of the province of Tours; the assemblies of the episcopate of the three kingdoms of the Visigoths at Agde (506), of the Franks at Orleans (511), and of the Burgundians at Epaone (517); several councils of the kingdoms of the Franks, chiefly at Orleans; and finally, the synods of the middle of the 8th century, under the influence of St Boniface. Evidently the impulse towards unity had to come from without; it began with the alliance between the Carolingians and the Papacy, and was accentuated by the recognition of the *liber canonum*.

In Spain.

The Hispana.

In Spain the case, on the contrary, is that of a strong centralization round the see of Toledo. Thus we find Spanish canon law embodied in a collection which, though perhaps not official, was circulated and received everywhere; this was the Spanish collection, the *Hispana*.[8] The collection is well put together and includes almost all the important canonical documents. In the first part are contained the councils, arranged according to the regions in which they were held: Greek councils, following a translation of Italian origin, but known by the name of *Hispana*; African councils, Gallican councils and Spanish councils. The latter, which form the local section, are further divided into several classes: firstly, the synods held under the Roman empire, the chief being that of Elvira[9] (c. 300); next the texts belonging to the kingdom of the Suevi, after the conversion of these barbarians by St Martin of Braga: these are, the two councils of Braga (563 and 572), and a sort of free translation or adaptation of the canons of the Greek councils, made by Martin of Braga; this is the document frequently quoted in later days under the name of *Capitula Martini papae*; thirdly, the decisions of the councils of the Visigothic Church, after its conversion to Catholicism. Nearly all these councils were held at Toledo, beginning with the great council of 589. The series continued up to 694 and was only interrupted by the Mussulman invasion. Finally, the second part of the *Hispana* contains the papal decretals, as in the collection of Dionysius.

From the middle of the 9th century this collection was to become even more celebrated; for, as we know, it served as the basis for the famous collection of the False Decretals.

Great Britain and Ireland.

The Churches of Great Britain and Ireland remained still longer outside the centralizing movement. Their contribution towards the later system of canon law consisted in two things: the Penitentials and the influence of the Irish collection, the other sources of local law not having been known to the predecessors of Gratian nor to Gratian himself.

Penitentials.

The Penitentials[10] are collections intended for the guidance of confessors in estimating the penances to be imposed for various sins, according to the discipline in force in the Anglo-Saxon countries. They are all of Anglo-Saxon or Irish origin, and although certain of them were compiled on the continent, under the influence of the island missionaries, it seems quite certain that a Roman Penitential has never existed.[11] They are, however, of difficult and uncertain ascription, since the collections have been largely amended and remodelled as practice required. Among the most important we may mention those bearing the names of Vinnianus (d. 589), Gildas (d. 583), Theodore of Canterbury (d. 690), the Venerable Bede (d. 735) and Egbert of York (732-767); the Penitentials which are ascribed to St Columbanus, the founder of Luxeuil and Bobbio (d. 615), and Cumean (Cumine Ailbha, abbot of Iona); in the Prankish kingdom the most interesting work is the Penitential of Halitgar, bishop of Cambrai[12] from 817 to 831. As penances had for a long time been lightened, and the books used by confessors began to consist more and more of instructions in the style of the later moral theology (and this is already the case of the books of Halitgar and Rhabanus Maurus), the canonical collections began to include a greater or smaller number of the penitential canons.

Irish collection.

The Irish collection,[13] though it introduced no important documents into the law of the Western Church, at least set canonists the example of quoting passages from the Scriptures and the writings of the Fathers. This collection seems to date from the 8th century; besides the usual sources, the author has included several documents of local origin, beginning with the pretended synod of St Patrick.

The false decretals.

In the very middle of the 9th century a much enlarged edition of the *Hispana* began to be circulated in France. To this rich collection the author, who assumes the name of Isidore, the saintly bishop of Seville, added a good number of apocryphal documents already existing, as well as a series of letters ascribed to the popes of the earliest centuries, from Clement to Silvester and Damasus inclusive, thus filling up the gap before the decretal of Siricius, which is the first genuine one in the collection. The other papal letters only rarely show signs of alteration or falsification, and the text of the councils is entirely respected.[14] From the same source and at the same date came two other forged documents—firstly, a collection of Capitularies, in three books, ascribed to a certain Benedict (Benedictus Levita),[15] a deacon of the church of Mainz; this collection, in which authentic documents find very little place, stands with regard to civil legislation exactly in the position of the False Decretals with regard to canon law. The other document, of more limited scope, is a group of *Capitula* given under the name of Angilram, bishop of Metz. It is nowadays admitted by all that these three collections come from the same source. For a study of the historical questions connected with the famous False Decretals, see the article Decretals (False); here we have only to consider them with reference to the place they occupy in the formation of ecclesiastical law. In spite of some hesitation, with regard rather to the official character than to the historical authenticity of the letters attributed to the popes of the earlier centuries, the False Decretals were accepted with confidence, together with the authentic texts which served as a passport for them. All later collections availed themselves indiscriminately of the contents of this vast collection, whether authentic or forged, without the least suspicion. The False Decretals did not greatly modify nor corrupt the Canon Law, but they contributed much to accelerate its progress towards unity. For they were the last of the chronological collections, *i.e.* those which give the texts in the order in which they appeared. From this time on, canonists began to exercise their individual judgment in arranging their collections according to some systematic order, grouping their materials under divisions more or less happy, according to the object they had in view. This was the beginning of a codification of a common canon law, in which the sources drawn upon lose, as it were, their local character. This is made even more noticeable by the fact that, in a good number of the works extant, the author is not

Systematic collections.

content merely to set forth and classify the texts; but he proceeds to discuss the point, drawing conclusions and sometimes outlining some controversy on the subject, just as Gratian was to do more fully later on.

During this period, which extended from the end of the 9th century to the middle of the 12th, we can enumerate about forty systematic collections, of varying value and circulation, which all played a greater or lesser part in preparing the juridical renaissance of the 12th century, and most of which were utilized by Gratian. We need mention only the chief of them—the *Collectio Anselmo dedicata*, by an unknown author of the end of the 9th century; the *Libri duo de synodalibus causis et disciplinis ecclesiasticis*,[16] compiled about 906 by Regino, abbot of Prüm, and dedicated to Hatto of Mainz, relatively a very original treatise; the enormous compilation in twenty books of Burchard, bishop of Worms (1112-1122), the *Decretum* or *Collectarium*,[17] very widely spread and known under the name of *Brocardum*, of which the 19th book, dealing with the process of confession, is specially noteworthy. Towards the end of the 11th century, under the influence of Hildebrand, the reforming movement makes itself felt in several collections of canons, intended to support the rights of the Holy See and the Church against the pretensions of the emperor. To this group belong an anonymous collection, described by M.P. Fournier as the first manual of the Reform;[18] the collection of Anselm, bishop of Lucca,[19] in 13 books (1080-1086); that of Cardinal Deusdedit,[20] in 4 books, dedicated to Pope Victor III. (1086-1087); and lastly that of Bonizo,[21] bishop of Sutri, in 10 books (1089). In the 12th century, the canonical works of Ivo of Chartres[22] are of great importance. His *Panormia*, compiled about 1095 or 1096, is a handy and well-arranged collection in 8 books; as to the *Decretum*, a weighty compilation in 17 books, there seems sufficient proof that it is a collection of material made by Ivo in view of his *Panormia*. To the 12th century belong the collection in the MS. of Saragossa (*Caesaraugustana*) to which attention was drawn by Antonio Agustin; that of Cardinal Gregory, called by him the *Polycarpus*, in 8 books (about 1115); and finally the *Liber de misericordia et justitia* of Algerus,[23] scholasticus of Liége, in 3 books, compiled at latest in 1123.

Regino.

Burchard.

Anselm Deusdedit.

Ivo of Chartres.

But all these works were to be superseded by the *Decretum* of Gratian.

2. *The Decretum of Gratian and the Corpus Juris Canonici.*—The work of Gratian, though prepared and made possible by those of his predecessors, greatly surpasses them in scientific value and in magnitude. It is certainly the work which had the greatest influence on the formation of canon law; it soon became the sole manual, both for teaching and for practice, and even after the publication of the Decretals was the chief authority in the universities. The work is not without its faults; Gratian is lacking in historical and critical faculty; his theories are often hesitating; but on the whole, his treatise is as complete and as perfect as it could be; so much so that no other work of the same kind has been compiled; just as there has never been made another Book of the Sentences. These two works, which were almost contemporary (Gratian is only about two years earlier),[24] were destined to have the same fate; they were the manuals, one for theology, the other for canon law, in use in all the universities, taught, glossed and commented on by the most illustrious masters. From this period dates the more marked and definitive separation between theology and ecclesiastical law.

The Decretum of Gratian.

Of Gratian we know practically nothing. He was a Camaldulensian monk of the convent of St Felix at Bologna, where he taught canon law, and published, probably in 1148, his treatise called at first *Concordantia discordantium canonum*, but soon known under the name of the *Decretum*. Nowadays, and for some time past, the only part of the *Decretum* considered is the collection of texts; but it is actually a treatise, in which the author endeavours to piece together a coherent juridical system from the vast body of texts, of widely differing periods and origin, which are furnished by the collections. These texts he inserts bodily in the course of his dissertation; where they do not agree, he divides them into opposite groups and endeavours to reconcile them; but the really original part of his work are the *Dicta Gratiani*, inserted between the texts, which are still read. Gratian drew his materials from the existing collections, and especially from the richer of them; when necessary, he has recourse to the Roman laws, and he made an extensive use of the works of the Fathers and the ecclesiastical writers; he further made use of the canons of the recent councils, and the recently published decretals, up to and including the Lateran council of 1139. His immense work consists of three parts (*partes*). The first, treating of the sources of canon law and of ecclesiastical persons and offices, is divided according to the method of Paucapalea, Gratian's pupil, into 101 *distinctiones*, which are subdivided into *canones*. The second part consists of 36 *causae* (cases proposed for solution), subdivided into *quaestiones* (the several questions raised by the case), under each of which are arranged the various *canones* (canons, decretals, &c.) bearing on the question. But *causa* xxxiii. *quaestio* 3, headed *Tractatus de Poenitentia*, is divided like the main part into seven *distinctiones*, containing each several *canones*. The third part, which is entitled *De Consecratione*, gives, in five *distinctiones*, the law bearing on church ritual and the sacraments. The following is the method of citation. A reference to the first part indicates the initial words or number of the *canon* and the number of the *distinctio*, *e.g.* can. Propter ecclesiasticas, dist. xviii. or c. 15, d. xviii. The second part is cited by the *canon, causa* and *quaestio*, *e.g.* can. Si quis suadente, C. 17, qu. 4, or c. 29, C. xvii., qu. 4. The treatise *De Poenitentia*, forming the 3rd *quaestio* of the 33rd *causa* of the second part, is referred to as if it were a separate work, *e.g.* c. Principium, D. ii. de poenit. or c. 45, D. ii. de poenit. In quoting a passage from the third part the *canon* and *distinctio* are given, *e.g.* c. Missar. solenn. D.I. de consecrat., or c. 12, D.I. de consecr.

Dicta Gratiani.

Contents.

Mode of citation.

Considered from the point of view of official authority, the *Decretum* occupies an intermediate position very difficult to define. It is not and cannot be a really official code, in which every text has the force of a law. It has never been recognized as such, and the pretended endorsement of it by Pope Eugenius III. is entirely apocryphal. Moreover, it could not have become an official code; it would be impossible to transform into so many laws either the discordant texts which Gratian endeavoured to reconcile or his own *Dicta*; a treatise on canon Law is not a code. Further, there was as yet no idea of demanding an official compilation. The *Decretum* has thus remained a work of private authority, and the texts embodied in it have only that legal value which they possess in themselves. On the other hand, the *Decretum* actually enjoys a certain public authority which is unique; for centuries it has been the text on which has been founded the instruction in canon law in all the universities; it has been glossed and commented on by the most illustrious canonists; it has become, without being a body of laws, the first part of the *Corpus juris canonici*, and as such it has been cited, corrected and edited by the popes. It has thus, by usage, obtained an authority perfectly recognized and accepted by the Church.[25]

Authority.

Gratian's collection, for the very reason that it had for its aim the creation of a systematic canon law, was a work of a transitional character. Henceforth a significant differentiation began to appear; the collections of texts, the number of which continued to increase, were clearly separated from the commentaries in which the canonists continued the formation and interpretation of the law. Thus the way was prepared for official collections. The disciples of Gratian, in glossing or commenting on the *Decretum*, turned to the papal decretals, as they appeared, for information and the determination of doubtful points. Their idea, then, was to make collections of these points, to support their teaching; this is the origin of those *Compilationes* which were soon to be embodied in the collection of Gregory IX. But we must not forget that these compilations were intended by their authors to complete the *Decretum* of Gratian; in them were included the decretals called *extravagantes, i.e. quae vagabantur extra Decretum*. This is why we find in them hardly any documents earlier than the time of Gratian, and also why canonists have continued to refer to the decretals of Gregory IX. by the abbreviation X (*Extra, i.e. extra Decretum*).

After Gratian.

There were numerous collections of this kind towards the end of the 12th and at the beginning of the 13th century.

"Quinque compilationes."

Passing over the first *Additiones* to the *Decretum* and the *Appendix concilii Lateranensis* (council of 1179), we will speak only of the *Quinque compilationes*,[26] which served as a basis for the works of Raymond of Pennaforte. The first and most important is the work of Bernard, provost and afterwards bishop of Pavia, namely, the *Breviarium extravagantium*, compiled about 1190; it included the decretals from Alexander III. to Clement III., together with certain "useful chapters" omitted by Gratian. The important feature of the book is the arrangement of the decretals or sections of decretals in five books, divided into titles (*tituli*) logically arranged. The five books treat of (1) ecclesiastical persons and dignitaries or judges; (2) procedure; (3) rights, duties and property of the clergy, *i.e.* benefices, dues, sacraments, &c., with the exception of marriage, which is the subject of book (4); (5) of penalties. There is a well-known hexameter summing up this division:

Bernard of Pavia, "Breviarium."

Judex, judicium, clerus, connubia, crimen.

This is the division adopted in all the official collections of the *Corpus juris*. By a bull of the 28th of December 1210 Innocent III. sent to the university of Bologna an authentic collection of the decretals issued during the first twelve years of his pontificate; this collection he had caused to be drawn up by his notary, Petrus Collivacinus of Benevento, his object being to supersede the collections in circulation, which were incomplete and to a certain extent spurious. This was the *Compilatio tertia*; for soon after, Joannes Galensis (John of Wales) collected the decretals published between the collection of Bernard of Pavia and the pontificate of Innocent III.; and this, though of later date, became known as the *Compilatio secunda*. The *quarta*, the author of which is unknown, contained the decretals of the last six years of Innocent III., and the important decrees of the Lateran council of 1215. Finally, in 1226, Honorius III. made an official presentation to Bologna of his own decretals, this forming the *Compilatio quinta*.

"Compilatio tertia."

"Secunda."

"Quarta."

"Quinta."

Decretals of Gregory IX.

The result of all these supplements to Gratian's work, apart from the inconvenience caused by their being so scattered, was the accumulation of a mass of material almost as considerable as the *Decretum* itself, from which they tended to split off and form an independent whole, embodying as they did the latest state of the law. From 1230 Gregory IX. wished to remedy this condition of affairs, and gave to his penitentionary, the Dominican Raymond of Pennaforte, the task of condensing the five compilations in use into a single collection, freed from useless and redundant documents. The work was finished in 1234, and was at once sent by the pope to Bologna with the bull *Rex pacificus*, declaring it to be official. Raymond adopts Bernard of Pavia's division into five books and into titles; in each title he arranges the decretals in chronological order, cutting out those which merely repeat one another and the less germane parts of those which he preserves; but these *partes decisae*, indicated by the words "*et infra*" or "*et j,*" are none the less very useful and have been printed in recent editions. Raymond does not attempt any original work; to the texts already included in the *Quinque compilationes*, he adds only nine decretals of Innocent III. and 196 chapters of Gregory IX. This first official code was the basis of the second part of the *Corpus juris canonici*. The collection of Gregory IX. is cited as follows: the opening words of the chapter are given, or else its order or number, then the title to which it belongs; earlier scholars added X (*extra*); nowadays, this indication is omitted, and the order or number of the title in the book is given instead, *e.g. Quum olim, de Consuetudine*, X.; or cap. 6, *de consuet.* (I. iv.); that is to say, book I., title iv., *de consuetudine*, chapter 6, beginning with the words *Quum olim*.

Their relation to the general law.

Though Gregory IX. wished to supersede the *compilationes*, he had no idea of superseding the *Decretum* of Gratian, still less of codifying the whole of the canon law. Though his collection is still in theory the chief monument of ecclesiastical law, it only marked a certain stage and was before long to receive further additions. The reason for this is that in most cases the decretals did not formulate any law, but were merely solutions of particular cases, given as models; to arrive at the abstract law it was necessary to examine the solution in each case with regard to the circumstances and thus formulate a rule; this was the work of the canonists. The "decretalists" commented on the new collection, as the "decretists" had done for that of Gratian; but the canonists were not legislators: even the summaries which they placed at the head of the chapters could not be adduced as legislative texts. The abstract law was to be found rather in the *Summae* of the canonists than in the decretals. Two important results, however, were achieved: on the one hand, supplementary collections on private authority ceased to be made, for this Gregory IX. had forbidden; on the other hand, the collections were no longer indefinitely swelled by the addition of new decisions in particular cases, those already existing being enough to form a basis for the codification of the abstract law; and for this reason subsequent collections contain as a rule only the "constitutions" of popes or councils, *i.e.* rules laid down as of general application. Hence arose a separation, which became more and more marked, between legislation and jurisprudence. This change was not produced suddenly, the old method being at first adhered to. In 1245 Innocent IV. sent to the universities a collection of 45 decretals, with the order that they should be inserted under their proper titles in the collection of Gregory IX. In 1253 he sent a further list of the first words (*principia*) of the complementary constitutions and decretals; but the result was practically *nil* and the popes gave up this system of successive additions. It was, however, found expedient to publish a new official collection. At the instance of the university of Bologna, Boniface VIII., himself an eminent canonist, had this prepared by a committee of canonists and published it in 1298. As it came as an addition to the five books of Gregory IX., it was called the sixth book, the *Liber Sextus*. It includes the constitutions subsequent to 1234, and notably the decrees of the two ecumenical councils of Lyons, and is arranged in books and titles, as above described; the last title, *de regulis juris*, contains no less than eighty-eight legal axioms, mostly borrowed from Roman law. The *Liber Sextus* is cited like the decretals of Gregory IX., only with the addition of: *in sexto* (in VI^{o}.).

The "Liber Sextus."

The same observations apply to the next collection, the *Clementinae*. It was prepared under the care of Clement V., and even promulgated by him in consistory in March 1314; but in consequence of the death of the pope, which took place almost immediately after, the publication and despatch of the collection to the universities was postponed till 1317, under John XXII. It includes the constitutions of Clement V., and above all, the decrees of the council of Vienne of 1311, and is divided, like preceding collections, into books and titles; it is cited in the same way, with the additional indication *Clem*-(*entina*).

The "Clementinae."

At this point the official collections stop. The two last, which have found a place in the editions of the *Corpus*, are collections of private authority, but in which all the documents are authentic. Evidently the strict prohibition of the publishing of collections not approved by the Holy See had been forgotten. The *Extravagantes* (*i.e. extra collectiones publicas*) of John XXII. number 20, and are classified under fourteen titles. The *Extravagantes communes* (*i.e.* coming from several popes) number 73, from Boniface VIII. to Sixtus IV. (1484), and are classified in books and titles. These two collections were included in the edition of Jean Chappuis in 1500; they passed into the later editions, and are considered as forming part of the *Corpus juris canonici*. As such, and without receiving any complementary authority, they have been corrected and re-edited, like the others, by the *Correctores romani*. They are cited, like the decretals, with a further indication of the collection to which they belong: *Extrav. Jo. XXII.,* or *inter-comm-(unes).*

"Extravagantes" of John XXII.

And "communes."

Thus was closed, as the canonists say, the *Corpus juris canonici*; but this expression, which is familiar to us nowadays, is only a bibliographical term. Though we find in the 15th century, for example, at the council of Basel the expression *corpus juris*, obviously suggested by the *Corpus juris civilis*, not even the official edition of Gregory XIII. has as its title the words *Corpus juris canonici*. and we do not meet with this title till the

The "Corpus juris

canonici." Lyons edition of 1671.

The study of canon law. The history of the canonical collections forming the *Corpus juris* would not be complete without an account of the labours of which they were the object. We know that the universities of the middle ages contained a Faculty of Decrees, with or without a Faculty of Laws, *i.e.* civil law. The former made *doctores decretorum*, the latter *doctores legum*. The teaching of the *magistri* consisted in oral lessons (*lecturae*) directly based on the text. The short remarks explanatory of words in the text, originally written in the margin, became the gloss which, formed thus by successive additions, took a permanent form and was reproduced in the manuscripts of the *Corpus*, and later in the various editions, especially in the official Roman edition of 1582; it thus acquired by usage a kind of semi-official authority. The chief of the *glossatores* of the *Decretum* of Gratian were Paucapalea, the first disciple of the master, Rufinus (1160-1170), John of Faenza (about 1170), Joannes Teutonicus (about 1210), whose glossary, revised and completed by Bartholomeus Brixensis (of Brescia) became the *glossa ordinaria decreti*. For the decretals we may mention Vincent the Spaniard and Bernard of Botone (Bernardus Parmensis, d. 1263), author of the *Glossa ordinaria*. That on the *Liber Sextus* is due to the famous Joannes Andreae (*c.* 1340); and the one which he began for the Clementines was finished later by Cardinal Zabarella (d. 1417). The commentaries not so entirely concerned with the text were called *Apparatus*; and *Summae* was the name given to general treatises. The first of these works are of capital importance in the formation of a systematic canon law. Such were the *Summae* of the first disciples of Gratian: Paucapalea (1150),[27] Rolando Bandinelli[28] (afterwards Alexander III., *c.* 1150), Rufinus[29] (*c.* 1165), Étienne of Tournai[30] (Stephanus Tornacensis, *c.* 1168), John of Faenza (*c.* 1170), Sicard, bishop of Cremona (*c.* 1180), and above all Huguccio (*c.* 1180). For the Decretals we should mention: Bernard of Pavia[31] (*c.* 1195), Sinibaldo Fieschi (Innocent IV., *c.* 1240), Henry of Susa (d. 1271), commonly called (cardinalis) Hostiensis, whose *Summa Hostiensis* or *Summa aurea* is a work of the very highest order; Wilhelmus Durantis or Durandus, Joannes Andreae, Nicolas de Tudeschis (*abbas siculus*), &c. The 15th century produced few original treatises; but after the council of Trent the *Corpus juris* was again commented on by distinguished canonists, *e.g.* the Jesuit Paul Laymann (1575-1635), the Portuguese Agostinho Barbosa (1590-1649), Manuel Gonzalez Tellez (d. 1649) and Prospero Fagnani (1598-1687), who, although blind, was secretary to the Congregation of the Council. But as time goes on, the works gradually lose the character of commentaries on the text, and develop into expositions of the law as a whole.

The glosses.

The "Summae."

Editions. We can mention here only the chief editions of the *Corpus*. The council of Trent, as we know, ordered that the official books of the Roman Church—sacred books, liturgical books, &c.—should be issued in official and more correct editions; the compilations of ecclesiastical law were also revised. The commission of the *Correctores romani*,[32] established about 1563 by Pius IV., ended its work under Gregory XIII and the official edition, containing the text and the glosses, appeared at Rome in 1582. Richter's edition (2 vols., Leipzig, 1839) remains valuable, but has been greatly surpassed by that of E. Friedberg (Leipzig, 1879-1881). Many editions contain also the *Institutiones* composed at the command of Paul IV. (1555-1559) by Giovanni Paolo Lancelotti, a professor of Bologna, on the model of the Institutes of Justinian. The work has merits, but has never been officially approved.

The "Correctores romani."

"Institutiones Lancelotti."

Though the collections of canon law were to receive no more additions, the source of the laws was not dried up; decisions of councils and popes continued to appear; but there was no attempt made to collect them. Canonists obtained the recent texts as they could. Moreover, it was an epoch of trouble: the great Schism of the West, the profound divisions which were its result, the abuses which were to issue in the Reformation, were conditions little favourable for a reorganization of the ecclesiastical laws. Thus we are brought to the third period.

3. *After the Council of Trent.*—The numerous important decrees made by the council of Trent, in the second part of its sessions, called *de reformatione*, are the starting-point of the canon law in its latest stage, *jus novissimum*; it is this which is still in force in the Roman Church. It has in no way undermined the official status of the *Corpus juris*; but it has completed the legislation of the latter in many important respects, and in some cases reformed it.

Final state of the law. The law during this period, as abstracted from the texts and compilations, suggests the following remarks. The laws are formulated in general terms, and the decisions in particular cases relegated to the sphere of jurisprudence; and the canonists have definitely lost the function which fell to them in the 12th and 13th centuries: they receive the law on authority and no longer have to deduce it from the texts. The legislative power is powerfully centralized in the hands of the pope: since the reforming decrees of the council of Trent it is the pontifical constitutions alone which have made the common law; the ecumenical council, doubtless, has not lost its power, but none were held until that of the Vatican (1870), and this latter was unable to occupy itself with matters of discipline. Hence the separation, increasingly marked, between the common law and the local laws, which cannot derogate from the common law except by concession of the Holy See, or by right of a lawfully authorized custom. This centralization, in its turn, has greatly increased the tendency towards unity and uniformity, which have reached in the present practice of the Roman Church a degree never known before, and considered by some to be excessive.

Dispersion of the texts. If we now consider the laws in themselves, we shall find that the dispersed condition of the legislative documents has not been modified since the closure of the *Corpus juris*; on the contrary the enormous number of pontifical constitutions, and of decrees emanating from the Roman Congregations, has greatly aggravated the situation; moreover, the attempts which have been made to resume the interrupted process of codification have entirely failed. As regards the texts, the canon law of to-day is in a very similar position to that of English law, which gave rise to J.S. Mill's saying: "All ages of English history have given one another rendezvous in English law; their several products may be seen all together, not interfused, but heaped one upon another, as many different ages of the earth may be read in some perpendicular section of its surface."[33] Nothing has been abrogated, except in so far as this has been implicitly demanded by subsequent laws. From this result insoluble controversies and serious uncertainties, both in the study and practice of the law; and, finally, it has become impossible for most people to have a first-hand knowledge of the actual laws.

Decrees of the Council of Trent. For this third period, the most important and most considerable of the canonical texts is the body of disciplinary decrees of the council of Trent (1545-1563). In consequence of the prohibition issued by Pius IV., they have not been published separately from the dogmatic texts and other acts, and have not been glossed;[34] but their official interpretation has been reserved by the popes to the "Congregation of the cardinal interpreters of the Council of Trent," whose decisions form a vast collection of jurisprudence. Next in importance come the pontifical constitutions, which are collected together in the *Bullarium*; but this is a collection of private authority, if we except the *Bullarium* of Benedict XIV., officially published by him in 1747; further, the *Bullarium* is a compilation arranged in chronological order, and its dimensions make it rather unwieldy. In the third place come the decrees of the Roman Congregations, which have the force of law. Several of these organs of the papal authority have published official collections, in which more place is devoted to jurisprudence than to laws; several others have only private compilations, or even none at all, among others the most important, viz. the Holy Office (see Curia Romana). The resulting confusion and uncertainty may be imagined.

Pontifical constitutions.

Decrees of the Curia.

These drawbacks were felt a long time back, and to this feeling we owe two attempts at a supplementary codification which were made in the 16th century, both of which are known under the name of *Liber Septimus*. The first was of private

origin, and had as its author Pierre Mathieu, the Lyons jurist (1563-1621); it appeared in 1590 at Lyons. It is a continuation of the *Extravagantes communes*, and includes a selection of papal constitutions, from Sixtus IV. (1471-1484) to Sixtus V. (1585-1590) inclusive, with the addition of a few earlier documents. It follows the order of the decretals. This collection has been of some service, and appears as an appendix in many editions of the *Corpus juris*; the chief reason for its failure is that it has no official sanction. The second attempt was official, but it came to nothing. It was connected with the movement of reform and revision which followed the council of Trent. Immediately after the publication of the official edition of the *Corpus juris*, Gregory XIII. appointed a committee of cardinals charged with the task of drawing up a *Liber septimus*. Sixtus V. hurried on its execution, which was rapidly proceeded with, mainly owing to Cardinal Pinelli, who submitted the draft of it to Clement VIII. The pope had this Liber VII. printed as a basis for further researches; but after long deliberations the volume was suppressed, and the idea of a fresh codification was abandoned. The collection included the decrees of the council of Trent, and a number of pontifical constitutions, arranged in the order of the titles of the decretals.[35] But even had it been promulgated, it is doubtful whether it would have improved the situation. It would merely have added another collection to the previous ones, which were already too voluminous, without resulting in any useful abrogations.

"Liber septimus" of P. Mathieu.

of Clement VIII.

4. *The Future Codification.*—Neither Clement VIII. nor, at a later date, Benedict XIV., could have dreamt of the radical reform at present in course of execution. Instead of accumulating the texts of the laws in successive collections, it is proposed entirely to recast the system of editing them. This codification in a series of short articles was suggested by the example of the French codes, the history of which during the 19th century is well known. From all quarters the Catholic episcopate had submitted to the Vatican council petitions in this sense. "It is absolutely clear," said some French bishops, "and has for a long time past been universally acknowledged and asserted, that a revision and reform of the canon law is necessary and most urgent. As matters now stand, in consequence of the many and grave changes in human affairs and in society, many laws have become useless, others difficult or impossible to obey. With regard to a great number of canons, it is a matter of dispute whether they are still in force or are abrogated. Finally, in the course of so many centuries, the number of ecclesiastical laws has increased to such an extent, and these laws have accumulated in such immense collections, that in a certain sense we can well say: We are crushed beneath the laws, *obruimur legibus*. Hence arise infinite and inextricable difficulties which obstruct the study of canon law; an immense field for controversy and litigation; a thousand perplexities of conscience; and finally contempt for the laws."[36] We know how the Vatican council had to separate without approaching the question of canonical reform; but this general desire for a recasting of the ecclesiastical code was taken up again on the initiative of Rome. On the 19th of March 1904, Pius X. published a *Motu proprio, "de ecclesiae legibus in unum redigendis*." After briefly reviewing the present condition of the canonical texts and collections, he pointed out its inconvenience, referred to the many requests from the episcopate, and decreed the preparation of a general code of canon law. This immense undertaking involved the codification of the entire canon law, drawing it up in a clear, short and precise form, and introducing any expedient modifications and reforms. For this purpose the pope appointed a commission of cardinals, of which he himself became president; also a commission of "consultors" resident at Rome, which asked for a certain amount of assistance from canonists at various universities and seminaries. Further, the assembled bishops of each province were invited to give their opinion as to the points in which they considered the canon law might profitably be modified or abrogated. Two consultors had the duty of separately drawing up a preliminary plan for each title, these projects being twice submitted for the deliberation of the commission (or sub-commission) of consultors, the version adopted by them being next submitted to the commission of cardinals, and the whole finally sent up for the papal sanction. These commissions started work at the end of 1904.

Demand for codification.

Decision of Pius X.

Method.

Local Law.—The common law of the Roman Church cannot by itself uniformly regulate all the churches of the different nations; each of them has its own local law, which we must briefly mention here. In theory, this law has as its author the local ecclesiastical authorities, councils or bishops; but this is true only for laws and regulations which are in harmony with the common law, merely completing or defining it. But if it is a question of derogating from the common law, the authority of the Holy See must intervene to legalize these derogations. This intervention takes the form either of "indults," *i.e.* graceful concessions granted at the request of the episcopate, or of special approbation of conciliary resolutions. It would, however, be impossible to mention any compilations containing only local law. Whether in the case of national or provincial councils, or of diocesan synods, the chief object of the decrees is to reinforce, define or apply the law; the measures which constitute a derogation have only a small place in them. It is, then, only in a limited sense that we can see a local canon law in the councils of the various regional churches. Having made this remark, we must distinguish between the countries which are still subject to the system of concordats and other countries.

Local law.

In the case of the former, the local law is chiefly founded on the concordat (*q.v.*), including the derogations and privileges resulting from it. The chief thing to note is the existence, for these countries, of a civil-ecclesiastical law, that is to say, a body of regulations made by the civil authority, with the consent, more or less explicit, of the Church, about ecclesiastical matters, other than spiritual; these dispositions are chiefly concerned with the nomination or confirmation by the state of ecclesiastics to the most important benefices, and with the administration of the property of the Church; sometimes also with questions of jurisdiction, both civil and criminal, concerning the persons or property of the Church. It is plain that the agreements under the concordats have a certain action upon a number of points in the canonical laws; and all these points go to constitute the local concordatory law. This is the case for Austria, Spain, Portugal, Bavaria, the Prussian Rhine provinces, Alsace, Belgium, and, in America, Peru. Up to 1905 it was also the case in France, where the ancient local customs now continue, pending the reorganization of the Church without the concordat.

Countries subject to concordats.

We do not imply that in other countries the Church can always find exemption from legislative measures imposed upon her by the civil authorities, for example, in Italy, Prussia and Russia; but here it is a situation *de facto* rather than *de jure*, which the Church tolerates for the sake of convenience; and these regulations only form part of the local canon law in a very irregular sense.

In other countries the episcopal assemblies lay down the local law. England has its council of Westminster (1852), the United States their plenary councils of Baltimore (1852, 1866, 1884), without mentioning the diocesan synods; and the whole of Latin America is ruled by the special law of its plenary council, held at Rome in 1899. The same is the case with the Eastern Churches united to the Holy See; following the example of the famous council of Lebanon for the Maronites, held in 1730, and that of Zamosc for the Ruthenians, in 1720, these churches, at the suggestion of Leo XIII., have drawn up in plenary assembly their own local law: the Syrians at Sciarfa in 1888; the Ruthenians at Leopol in 1891; and a little later, the Copts. The framing of local law will certainly be more clear and more easy when the general code of canon law has been published.

Other Countries.

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finally, Florent, *De methodo atque auctoritate collectionis Gratiani* (Paris, 1679), and Antonio Agustin, archbishop of Tarragona, *De emendatione Gratiani* (Tarragona, 1586); these have all been brought together in Gallandi, *De vetustis canonum collectionibus dissertationum sylloge* (Venice, 1778). The most complete work on the texts up to the 9th century is F. Maassen, *Geschichte der Quellen und der Literatur des canonischen Rechts im Abendlande*, vol. i. (all that has yet appeared, Gratz, 1870). For the period between the False Decretals and Gratian, there is no work of this sort, but the materials have been put together and published in part by M.P. Fournier. After Gratian, the classic work is Schulte, *Geschichte der Quellen und Literatur des canonischen Rechts von Gratian bis auf die Gegenwart* (3 vols., Stuttgart, 1875 et. seq.). Manuals for the study of the sources: Ph. Schneider, *Die Lehre von den Kirchenrechtsquellen* (Regensburg, 1892); F. Laurin, *Introductio in Corpus juris canonici* (Freiburg, 1889); Tardif, *Histoire des sources du droit canonique* (Paris, 1887). Most of the German manuals on canon law devote considerable space to the history of the sources: see Phillips, vol. ii (3rd ed., 1857; French translation by the abbé Crouzet); Vering, 3rd ed. (Freiburg, 1893); Schulte, *Das katholische Kirchenrecht*, pt. i. (Giessen, 1860), &c. For the Greek Church: Pitra, *Juris ecclesiae graecorum historia et monumenta* (Rome, 1864); the later history of the Greek law: Zachariae, *Historiae juris graecorum delineatio* (Heidelberg, 1839); Mortreuil, *Histoire du droit byzantin* (Paris, 1843-1846); the recent texts in the *Conciliorum Collectio lacensis*, vol. ii.; *Acta et decreta s. conciliorum, quae ab episcopis rituum orientalium ab a. 1682 usque ad a. 1789 indeque ad a. 1869 sunt celebrata* (Freiburg, 1876). Short manual of Institutions: Jos. Papp-Szilagyi, *Enchiridion juris eccl. orientalis catholicae* (Magno-Varadini, 1862). For recent canonical texts: Richter's edition of the council of Trent (Leipzig, 1863); the *Collectanea S.C. de Propaganda Fide* (Rome, 1893); the *Bullarium*, a collection of papal acts and constitutions; the editions of Cocquelines (28 vols., Rome, 1733-1756), and of Cherubini (19 vols., Luxemburg, 1727-1758), which are better than the enlarged reprint of Turin, which was unfinished (it goes up to 1730). The official edition of the *Bullarium* of Benedict XIV. (4 vols., Rome, 1754-1758) has been reprinted several times and is of great importance; the continuation of the *Bullarium* since Benedict XIV. has been published by Barberi, *Bullarii romani continuatio*, in 20 vols., going up to the fourth year of Gregory XVI. Every year, since 1854, has been printed a collection of pontifical acts, *Acta Pii IX., Acta Leonis XIII.*, &c., which are the equivalents of the *Bullarium*. Dictionaries: Durand de Maillane, *Dictionnaire canonique* (Paris, 1786), re-edited by André under the title, *Cours alphabétique et méthodique de droit canonique*, and by Wagner (Paris, 1894), has Gallican tendencies; Ferraris, *Prompta bibliotheca canonica*, &c., several new and enlarged editions; the best is that of Migne (1866), completed by Father Bucceroni, *Ferraris Supplementum* (Rome, 1899). Articles on canon law in Wetzer und Welte's *Kirchenlexicon* (2nd ed., Freiburg, 1880 et seq.); Hauck, *Realencyklopadie für prot. Theologie und Kirche* (2nd ed., Leipzig, 1877-1888); Vacant-Mangenot's *Dictionnaire de théologie catholique*, in course of publication (Paris, 1899 et seq.). Periodicals: *Analecta juris pontificii*, ed. by Mgr. Chaillot (1863-1889); *Analecta ecclesiastica* (since 1893); *Acta Sanctae sedis* (since 1865); *Archiv fur kathol. Kirchenrecht* (since 1857); *Le Canoniste contemporain* (since 1878).

(A. Bo.*)

Canon Law in England and in the Anglican Communion.—There were matters in which the local English and Irish canon law, even before the 16th century, differed from that obtaining on the western part of the European continent. Thus (1), it has been said that—whereas the continental canon law recognized a quadripartite division of Church revenue of common right between (*a*) the bishop, (*b*) the clergy, (*c*) the poor, (*d*) the fabric—the English law maintained a tripartite division—(*a*) clergy, (*b*) the poor, (*c*) the fabric. Lord Selborne (*Ancient Facts and Fictions concerning Churches and Tithes*, 2nd ed., 1892) denies that there was any division of tithe in England. (2) By the general canon law the burden of repairing the nave, as well as the chancel of the church, was upon the parson or rector who collected the whole tithe. But the custom of England transferred this burden to the parishioners, and some particular local customs (as in the city of London) placed even the burden of repair of the chancel on them. To meet this burden church rates were levied. (3) A church polluted by the shedding of blood, as by suicide or murder, was reconsecrated on the continent. In England the custom was (and is) simply to "reconcile." (4) A much more important difference, if the decision of the Irish court of exchequer chamber upheld in the House of Lords, where the peers were equally divided, correctly stated the English Canon law (*Reg.* v. *Millis*, 10 Cl. & Fin., 534) was in regard to the essentials of marriage. By the general Western canon law before the council of Trent, the parties themselves were said to be the "ministers of the Sacrament" in the case of holy matrimony. The declared consent of the parties to take each other there and then constituted at once (although irregularly) holy matrimony. The presence of priest or witnesses was not necessary. In *Reg.* v. *Millis*, however, it was held that in England it was always otherwise and that here the presence of a priest was necessary. High authorities, however, have doubted the historical accuracy of this decision. (5) The addition of houses of priests to the provincial synods seems peculiar to England and Ireland.

The historical position of the general canon law of the Catholic Church in the English provinces has, since the separation from Rome, been the subject of much consideration by English lawyers and ecclesiastics. The view taken by the king's courts, and acquiesced in by the ecclesiastical courts, since Henry VIII., is that the Church of England was always an independent national church, subject indeed to the general principles of the *jus commune ecclesiasticum* (Whitlock J. in *Ever* v. *Owen*, Godbolt's Reports, 432), but unbound by any particular constitutions of council or pope; unless those constitutions had been "received" here by English councils, or so recognized by English courts (secular or spiritual) as to become part of the ecclesiastical custom of the realm. Foreign canon law never bound (so it has been taught) *proprio vigore*.

The sources of English ecclesiastical law (purely ecclesiastical) were therefore (1) the principles of the *jus commune ecclesiasticum*; (2) foreign particular constitutions received here, as just explained; (3) the constitutions and canons of English synods (cf. *Phill. Ecc. Law*, part i. ch. iv., and authorities there cited).

1. On the existence of this *jus commune ecclesiasticum* and that the Church of England, in whatever sense independent, takes it over until she repeals it, see *Escott* v. *Mastin*, 4 Moo. *P.C.C.* 119. Lord Brougham, in delivering the judgment, speaks of the "common law prevailing for 1400 years over Christian Europe," and (p. 137) says that "nothing but express enactment can abrogate the common law of all Christendom before the Reformation of the Anglican Church."

2. As to foreign particular constitutions in England, there are a great number of them, of which it has been and is admitted, that they have currency in England. However papal in their origin, post-Reformation lawyers have regarded them as valid, unless they can be shown to be contrary to the king's prerogative, or to the common or statute law of the realm. To this doctrine express statutory authority (as the events have happened) has been given by 25 Hen. VIII. c. 19, sect. 7. A striking example of the doctrine is furnished by the decree of Innocent III. in the Fourth Lateran Council against pluralities. This decree was enforced in the court of Arches against a pluralist clerk in 1848 (*Burder* v. *Mavor*, I Roberts, 614). The courts of common law from Lord Coke's time downwards have recognized this "constitution of the pope" (as the queen's bench called it in 1598). The exchequer chamber, in 1837, declared it to have "become part of the common law of the land" (*Alstan* v. *Atlay, 7 A.* and *E.* 289).

3. The particular constitutions of English synods are numerous and cover a large field. At least in legal theory, the only distinction between pre-Reformation and post-Reformation constitutions is in favour of the former—so long as they do not contravene the royal prerogative or the law of the land (see 25 Hen. VIII. c. 19). The most important are collected together and digested (so far as regards England) in Lyndwood's *Provinciale*, a work which remains of great authority in English courts. These constitutions are again divided into two classes: (*a*) provincial constitutions promulgated by provincial synods, usually in the name of the presiding archbishop or bishop; and (*b*) decrees of papal legates, Otho in 1236 and Othobon (Ottobuono de' Fieschi, afterwards Pope Adrian V.) in 1269. Canons passed since 25 Hen. VIII. c. 19 have not the parliamentary confirmation which that act has been held to give to previous canons, and do not necessarily bind the laity, although made under the king's licence and ratified by him. This doctrine laid down by Lord Hardwicke in *Middleton* v. *Croft* (2 *Stra.* 1056) was approved in 1860 in *Marshall* v. *Bp. of Exeter* (L.R. 3 H.L. 17). Nevertheless, there are many provisions in these post-Reformation canons which are declaratory of the ancient usage and law of the Church, and the law

which they thus record is binding on the laity. The chief body of English post-Reformation canon law is to be found in the canons of 1603, amended in 1865 and 1888. The canons of 1640 are apparently upon the same footing as those of 1603; notwithstanding objections made at the time that they were void because convocation continued to sit after the dissolution of parliament. The opinion of all the judges taken at the time was in favour of the legality of this procedure. 13 Car. ii. c. 12 simply provided that these canons should not be given statutory force by the operation of that act.

In addition to the enactment of canons (strictly so-called) the English provincial synods since the Henrician changes have 202
legislated—in 1570 by the enactment of the Thirty-Nine Articles, in 1661 by approving the present Book of Common Prayer, and in 1873 by approving shorter forms of matins and evensong.

The distinction between pre-Henrician and post-Henrician procedure lies in the requirement, since 25 Hen. VIII., of the royal licence and confirmation. Apparently diocesan synods may still enact valid canons without the king's authority; but these bodies are not now called.

The prevailing legal view of the position of the Church of England in regard to canon law has been just stated, and that is the view taken by judicial authority for the past three centuries. On the other hand, it is suggested by, *e.g.*, the late Professor Maitland, that it was not, in fact, the view taken here in the later middle ages—that in those ages there was no theory that "reception" here was necessary to validate papal decrees. It is said by this school of legal historians that, from the Conquest down to Henry VIII., the Church of England was regarded by churchmen not as in any sense as separate entity, but as two provinces of the extra-territorial, super-national Catholic Church, and that the pope at this period was contemplated as the *princeps* of this Catholic Church, whose edicts bound everywhere, as those of Augustus had bound in the Roman empire.

It is right that this view should be stated, but it is not that of the writer of this article.

As to *Ireland*, in a national synod of the four Irish provinces held at Dublin before the four archbishops, in 1634, a hundred canons were promulgated with the royal licence, containing much matter not dealt with by similar constitutions in England. In 1711, some further canons were promulgated (with royal licence) by another national synod. Some forms of special prayer were appended to these canons.

In 1869 the Irish Church Act (32 and 33 Vict. c. 42) "disestablished" the Irish Church, sect. 19 repealed any act of parliament, law or custom whereby the bishops, clergy or laity of the said church were prohibited from holding synods or electing representatives thereto for the purpose of making rules for the well-being and ordering of the said church, and enacted that no such law, &c., should hinder the said bishops, clergy and laity, by such representatives, lay and clerical, and so elected as they shall appoint, from meeting in general synod or convention and in such general synod or convention forming constitutions and providing for future representation of the members of the church in diocesan synods, general convention or otherwise. The Church of Ireland, so set free, created for herself new legislative authorities, unknown to the old canon law, viz. mixed synods of clergy and laity, and a system of representation by election, unknown to primitive or medieval times. Similar changes had, however, been introduced during the preceding century in some parts of the Anglican communion outside the British Isles (see *infra*). Sect. 20 of the same statute kept alive the old ecclesiastical law of Ireland by way of assumed contract (cf. Ecclesiastical Jurisdiction).

Under the provisions of this statute, the "archbishops and bishops of the ancient Apostolic and Catholic Church of Ireland" (so they describe themselves), together with representatives of the clergy and laity, assembled in 1870, in "General Convention," to "provide for the regulation" of that church. This Convention declared that a General Synod of the archbishops and bishops, with representatives of the clergy and laity, should have chief legislative power in the Irish Church, with such administrative power as might be necessary and consistent with the church's episcopal constitution. This General Synod was to consist of two Houses—the House of Bishops and the House of Lay and Clerical Representatives. No question was to be carried unless there were in its favour a majority of the clerical and lay representatives, voting either conjointly or by orders, and also a majority of the bishops, should they desire to vote. This General Synod was given full power to alter or amend canons, or to repeal them, or to enact new ones. For any alteration or amendment of "articles, doctrines, rites or rubrics," a two-thirds majority of each order of the representative house was required and a year's delay for consultation of the diocesan synods. Provisions were made as to lay representation in the diocesan synods. The Convention also enacted some canons and a statute in regard to ecclesiastical tribunals (see Ecclesiastical Jurisdiction). It expressly provided that its own legislation might be repealed or amended by future general synods.

In 1871 the General Synod attempted to codify its canon law in forty-eight canons which, "and none other," were to have force and effect as the canons of the Church of Ireland. Since 1871 the General Synod has, from time to time, put forth other canons.

The post-Reformation history of canon law in the Anglican communion in *Scotland* has differed from the story of that law in the last four centuries in Ireland. After the legislation under William and Mary disestablishing episcopacy in Scotland and subjecting its professors to civil penalties, little attention was given to canon law for many years. Synods of bishops at Edinburgh in 1724 and 1731 dealt with some disputed questions of ritual and ceremonial. In 1743 an assembly of five bishops enacted sixteen canons. A "primus" was to be chosen indifferently from the bishops, but to have no other powers than those of convoking and presiding over synods. He was to hold office only during pleasure of the other bishops. Bishops were to be elected by the presbyters of the district. Such election was subject to the confirmation of the majority of the bishops. In 1811, a "Code of Canons" was enacted by a "General Ecclesiastical Synod," consisting of the bishops, the deans (viz. presbyters appointed by the bishops in each diocese to defend the interests of the presbyters and now for the first time given "decisive" voice in synods) and certain clerical representatives from the "districts" or dioceses. Future synods, called for the purpose of altering the code, were to consist of two chambers. The first was to be composed of the bishops; the second to consist of the "deans" and clerical representatives. No law or canon was to be enacted or abrogated, save by the consent of both chambers. These canons were revised in 1828, 1829 and 1838. The code of this last year created diocesan synods, to be held annually and to consist of the bishop, dean and all instituted clergy of the diocese. It also provided for the annual meeting of a purely episcopal synod, which was to receive appeals from either clergy or laity. In 1862-1863, another General Synod further revised and amended the Code of Canons. This revised code enabled the bishop to appoint a learned and discreet layman to act as his chancellor, to advise him in legal matters and be his assessor at diocesan synods. Assistant curates and mission priests were, under certain restrictions, given seats in diocesan synods. Male communicants were also permitted to be present at such synods, with a deliberative but not "decisive" voice; unless in special circumstances the bishop excluded them. Canon 46 provides that "if any question shall arise as to the interpretation of this Code of Canons or of any part thereof, the general principles of canon law shall be alone deemed applicable thereto." This provision was reenacted in Canon 47 of 1876. Canon 51 of 1890, however, weakens this provision. It enacts that: "The preceding canons shall in all cases be construed in accordance with the principles of the civil law of Scotland. Nevertheless, it shall be lawful, in cases of dispute or difficulty concerning the interpretation of these canons, to appeal to any generally recognized principles of canon law." The canons of 1862-1863 also provided for a lay share in the election of bishops. In 1890 the 32nd canon enacted that the "General Synod" should thereafter be called the Provincial Synod.

The canon law in Scotland before the 16th century was generally that of the continent of Europe. The usages of the church were similar to those in France, and had not the insular character of those in England and Ireland. The canon law regulating marriage, legitimacy and succession was taken over by the Scottish secular courts (see Ecclesiastical Jurisdiction) and survived as part of the common law of the land almost unimpaired. Thus, the courts recognize marriages by *verba de* 203

praesenti or by *verba de futuro cum copula*—in this last matter following a decree of Gregory IX.—and also legitimation *per subsequens matrimonium*. But though one of the *fontes juris Scotiae*, canon law never was of itself authoritative in Scotland. In the canons of her national provincial councils (at whose yearly meetings representatives attended on behalf of the king) that country possessed a canon law of her own, which was recognized by the parliament and the popes, and enforced in the courts of law. Much of it, no doubt, was borrowed from the *Corpus juris canonici* and the English provincial canons. But the portions so adopted derived their authority from the Scottish Church. The general canon law, unless where it has been acknowledged by act of parliament, or a decision of the courts, or sanctioned by the canons of a provincial council, is only received in Scotland according to equity and expediency.

The "Protestant Episcopal Church *in the United States*" is the organization of the Anglican Communion in the American colonies before the separation. This communion was subject to "all the laws of the Church of England applicable to its situation" (Murray Hoffman, *A Treatise on the Law of the Protestant Episcopal Church*, New York, 1850, p. 17). This body of law the Protestant Episcopal Church of the United States took over (*op. cit.* p. 41 et seq.; F. Vinton, *A Manual Commentary on the General Canon Law and the Constitution of the Protestant Episcopal Church*, New York, 1870, p. 16 et seq.). Much, however, of the English post-Reformation canonical legislation was not applicable to the United States, because of different circumstances, as *e.g.* a very large portion of the canons of 1603 (Vinton, p. 32). In 1789, a General Convention, consisting of clerical and lay deputies as well as of bishops, assumed for itself and provided for its successors supreme legislative power. The concurrence of both "orders," clerical and lay, was required for the validity of any vote. Since 1853 a lay deputy to the Convention has been required to be a communicant (*ib.* p. 102). Upon the American bishops numbering more than three, they became a separate "House" from the "Convention." The House of Bishops was given a right to propose measures to the "House of Deputies," and to negative acts of the House of Deputies, provided they complied with certain forms. Similar "constitutions" providing for representation of the laity have been adopted by the different dioceses (Hoffman, *op. cit.* p. 184 et seq.). Deacons are also admitted to a deciding voice in every diocese but New Jersey, where they may speak but not vote. A great body of legislation has been put forth by these bodies during the past century.

Since 1870, at least, the "Church of the Province of *South Africa*" has secured autonomy while yet remaining a part of the Anglican Communion. By its constitution of that year the English Church in South Africa adopts the laws and usages of the Church of England, as far as they are applicable to an unestablished church, accepts the three creeds, the Thirty-Nine Articles, the Book of Common Prayer, the decisions of the undisputed general councils, the Authorized English Version of the Scriptures, disclaims the right of altering any of these standards of faith and doctrine, except in agreement with such alterations as may be adopted by a general synod of the Anglican Communion. But in interpreting these standards of faith and doctrine, the Church of the Province of South Africa is not bound by decisions other than those of its own Church courts, or such court as the Provincial Synod may recognize as a tribunal of appeal. The Provincial Synod is the legislative authority subject to a general synod of the Anglican Communion, provided such latter synod include representatives from the Church of South Africa. The Provincial Synod consists of (1) the House of Bishops, (2) the House of the Clergy, (3) the House of the Laity. No resolution can be passed which is not accepted by all three orders. Bishops are elected by the clergy with the assent of lay representatives, subject to the confirmation of the metropolitan and comprovincial bishops. The metropolitan is to be consecrated in England by the archbishop of Canterbury. He now bears the title of archbishop. All bishops are to enter into a contract to obey and maintain the constitution and canons of the province. Canon 18 of the Code of 1870 recognizes the offices of catechist, reader and sub-deacon (Wirgman, *The English Church and People in South Africa*, p. 223 et seq.).

In the West Indies, Canada, Australia and New Zealand, provincial and diocesan synods or conventions have been formed on one or other of the types above mentioned and have enacted canons.

(W. G. F. P.)

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1 The councils which we are about to mention, up to the 9th century, have been published several times, notably in the great collections of Hardouin, Mansi, &c.; they will be found brought together in one small volume in Bruns, *Canones apostolorum et conciliorum* (Berlin, 1839).

2 The date of this council was formerly unknown; it is ascribed to 343 by the Syriac Nestorian collection recently published by M. Chabot, *Synodicon Orientale*, p. 278, note 4.

3 See Boudinhon, "Note sur le concile de Laodicée," in the *Compte rendu du premier congrès des savants catholiques à Paris*, 1888 (Paris, 1889), vol. ii. p. 420.

4 For the further history of the law of the Greek Church and that of the Eastern Churches, see Vering, *Kirchenrecht*, §§ 14-183 (ed. 1893). The Russian Church, as we know, adopted the Greek ecclesiastical law.

5 Edited by Pierre Pithou (Paris, 1588), and later by Chifflet, *Fulg. Ferrandi opera* (Dijon, 1694); reproduced in Migne, *Patr. Lat.* vol. 67, col. 949.

6 Published by Quesnel in his edition of the works of St Leo, vol. ii. (Paris, 1675); reproduced by the brothers Ballerini, with learned dissertations, *Opera S. Leonis*, vol. iii., Migne, *P.L. 56.*

7 Malnory, *Saint Césaire d'Arles* (Paris, 1894).

8 *Collectio canonum Ecclesiae Hispanae* (Madrid, 1808); reproduced in Migne, *P.L. 84.*

9 L. Duchesne, "Le Concile d'Elvire" in the *Mélanges Renier*.

10 For the Penitentials, see Wasserschleben, *Die Bussordnungen der abendländischen Kirche* (Halle, 1851); Mgr. H.J. Schmitz, *Die Bussbücher und die Bussdisciplin der Kirche* (2 vols., Mainz, 1883, 1898).

11 This is proved, in spite of the contrary opinions of Wasserschleben and Schmitz, by M. Paul Fournier, "Étude sur les Pénitentiels," in the *Revue d'histoire et de littérature religieuses*, vol. vi. (1901), pp. 289-317, and vol. vii., 1902, pp. 59-70 and 121-127.

12 In Migne, *P.L.* 105, col. 651.

13 Edited by Wasserschleben (Giessen, 1874). See also P. Fournier, "De l'influence de la collection irlandaise sur la formation des collections canoniques," in *Nouvelle Revue historique de droit français et étranger*, vol. xxiii, note I.

14 The collection of the False Decretals has been published with a long critical introduction by P. Hinschius, *Decretales Pseudo-Isidorianae et capitula Angilramni* (Leipzig, 1863). For the rest of the bibliography, see Decretals (False).

15 The latest edition is in Pertz, *Monumenta Germaniae*, vol. ii. part ii.

16 Edited by Wasserschleben (Leipzig, 1840); reproduced by Migne, *P.L. 132.*

17 Edited several times; in Migne, *P.L. 140.*

18 P. Fournier, "Le Premier Manuel canonique de la réforme du XIe siècle," in *Mélanges de l'École française de Rome*, xiv. (1894).

19 Unpublished.

20 Edited by Mgr. Pio Martinucci (Venice, 1869). On this collection see Wolf von Glanvell, *Die Kanonessammlung des Kardinals Deusdedit* (Paderborn, 1905).

21 Unpublished.

22 Several times edited; in Migne, *P.L.* 161. See P. Fournier, "Les Collections canoniques attribuées à Yves de Chartres," *Bibliothèque de l'École des Chartres* (1896 and 1897).

23 Printed in Martene, *Nov. Thesaur. anecdot.* vol. v. col. 1019.

24 See P. Fournier, "Deux Controverses sur les origines du Décret de Gratien," in the *Revue d'histoire et de littérature religieuses*, vol. iii. (1898), pp. n. 2 and 3.

25 See Laurin, *Introductio in corpus juris canonici*, c. vii. p. 73.

26 By referring to the decretals of Gregory IX. for the texts inserted there, E. Friedberg has succeeded in giving a much abridged edition of the *Quinque compilationes* (Leipzig, 1882).

27 Edited by Schulte, *Die Summa des Paucapaiea* (Giessen, 1890).

28 Edited by Thaner, *Die Summa Magistri Rolandi* (Innsbruck, 1874); later by Gietl, *Die Sentenzen Rolands* (Freiburg im B., 1891).

29 Edited by H. Singer, *Die Summa Decretorum des Magister Rufinus* (Paderborn, 1902).

30 Edited by Schulte, *Die Summe des Stephanus Tornacensis* (Giessen, 1891).

31 He made a Summa of his own collection, ed. E. Laspeyres, *Bernardi Papiensis Summa Decretalium* (Mainz, 1860). The commentaries of Innocent IV. and Henry of Susa have been frequently published.

32 The history of this commission and the rules which it followed for editing the *Decretum*, will be found in Laurin, *Introductio in corpus juris canonici*, p. 63, or in the Prolegomena to Friedberg's edition of the *Decretum*.

33 Quoted by Hogan, *Clerical Studies*, p. 235.

34 There are innumerable editions of the council of Trent. That which is favoured by canonists is Richter's edition (Leipzig, 1863), in which each chapter *de reformatione* is followed by a selection of decisions of the S.C. of the council.

35 Republished by F. Sentis, from one of the few copies which have escaped destruction: *Clementis Papae VIII. Decretales, quae vulgo nunenpantur Liber septimus Decretalium Clementis VIII.* (Freiburg im B., 1870).

36 *Omnium concilii Vaticani ... documentorum collectio*, per Conradum Martin (Paderborn, 1873), p. 152.

CANOPUS, or Canobus, an ancient coast town of Lower Egypt, a hundred and twenty stadia, or 15 m. east of Alexandria, the principal port in Egypt for Greek trade before the foundation of Alexandria, situated at the mouth of the westernmost (Canopic or Heracleotic) branch of the Nile, on the western bank. The channel, which entered the Mediterranean at the western end of the Bay of Aboukir, is entirely silted up, but on the shore at Aboukir there are extensive traces of the city with its quays, &c. Excavation has disclosed granite monuments with the name of Rameses II., but they may have been brought at a late period for the adornment of the place. It is not certain that Canopus was an old Egyptian town, but it appears in Herodotus as an ancient port. In the 9th year of Ptolemy Euergetes (239 B.C.) a great assembly of priests at Canopus passed an honorific degree, *inter alia*, conferring the title Εὐεργέτης "Benefactor" on the king. Two examples of this decree are known, inscribed in hieroglyphic, demotic and Greek. From it we learn that the native form of the name of Canopus was Karob. A temple of Osiris was built by Euergetes, but very near to Canopus was an older shrine, a temple of Heracles mentioned by Herodotus as an asylum for fugitive slaves. The decree shows that Heracles here stands for Ammon. Osiris was worshipped at Canopus under a peculiar form, a vase with a human head, and was identified with Canopus, the pilot of Menelaus, who was said to have been buried here: the name canopic has been applied, through an old misunderstanding, to the vases with human and animal heads in which the internal organs were placed by the Egyptians after embalming. In the Roman epoch the town was notorious for its dissoluteness. Aboukir means "father Cyrus," referring to a Coptic saint of that name.

(F. Ll. G.)

CANOPY (through Fr. *canapé*, from Med. Lat. *canapeum*, classical *conopeum*, a mosquito curtain, Gr. κώνωψ, a gnat), the upper part or cover of a niche, or the projecting ornament over an altar or scat or tomb. Early English canopies are generally simple, with trefoiled or cinquefoiled heads; but in the later styles they are very rich, and divided into compartments with pendants, knots, pinnacles, &c. The triangular arrangement over an Early English and Decorated doorway is often called a canopy. The triangular canopies in the north of Italy are peculiar. Those in England are generally part of the arrangement of the arch mouldings of the door, and form, as it were, the hood-moulds to them, as at York. The former are above and independent of the door mouldings, and frequently support an arch with a tympanum, above which is a triangular canopy, as in the Duomo at Florence. Sometimes the canopy and arch project from the wall, and are carried on small jamb shafts, as at San Pietro Martire, at Verona. There is an extremely curious canopy, being a sort of horseshoe arch, surmounting and breaking into a circular arch, at Tournai. Similar canopies are often over windows, as at York, over the great west window, and lower tiers in the towers. These are triangular, while the upper windows in the towers have ogee canopies.

CANOSA (anc. *Canusium*), a town of Apulia, Italy, in the province of Bari, situated on the right bank of the Ofanto (anc. *Aufidus*), 505 ft. above sea-level, 15 m. S.W. of Barletta by rail. Pop. (1901) 24,230. It was rebuilt in 963 below the Roman city, which had been abandoned after its devastation by the Saracens in the 9th century. The former cathedral of S. Sabino (the bishopric passed in 1818 to Andria), in the southern Romanesque style, was consecrated in 1101: it has five domes (resembling St Mark's at Venice, except that it is a Latin cross, instead of a Greek cross, in plan) and many ancient columns. The archiepiscopal throne and pulpit of the end of the 11th century are also fine. On the south side of the building is the detached mausoleum of Bohemund, son of Robert Guiscard, who died in 1111, constructed partly in Byzantine, partly in the local style. It has fine bronze doors with long inscriptions; the exterior is entirely faced with *cipollino* (Carystian) marble. The conception of this mortuary chapel, which is unique at this period, was undoubtedly derived from the *turbeh* before a mosque; these turbehs are square, domed-roofed tombs in which the sultans and distinguished Mahommedans are buried (E. Bertaux, *L'Art dans l'Italie mêridionale*, Paris, 1904, i. 312). A medieval castle crowns the hill on the side of which the city stands. (See Canusium.)

(T. As.)

CANOSSA, a ruined castle, 1890 ft. above sea-level, in Emilia, Italy, 12 m. S.W. of Reggio Emilia, commanding a fine view of the Apennines. It belonged to the countess Matilda of Tuscany (d. 1115), and is famous as the scene of the penance performed by the emperor Henry IV. before Pope Gregory VII. in 1077. The castle was destroyed by the inhabitants of Reggio in 1255.

CANOVA, ANTONIO (1757-1822), Italian sculptor, was born on the 1st of November 1757, at Passagno, an obscure village situated amid the recesses of the hills of Asolo, where these form the last undulations of the Venetian Alps, as they subside into the plains of Treviso. At three years of age Canova was deprived of both parents, his father dying and his mother remarrying. Their loss, however, was compensated by the tender solicitude and care of his paternal grandfather and grandmother, the latter of whom lived to experience in her turn the kindest personal attention from her grandson, who, when he had the means, gave her an asylum in his house at Rome. His father and grandfather followed the occupation of stone-cutters or minor statuaries; and it is said that their family had for several ages supplied Passagno with members of that calling. As soon as Canova's hand could hold a pencil, he was initiated into the principles of drawing by his grandfather Pasino. The latter possessed some knowledge both of drawing and of architecture, designed well, and showed considerable taste in the execution of ornamental works. He was greatly attached to his art; and upon his young charge he looked as one who was to perpetuate, not only the family name, but also the family profession.

The early years of Canova were passed in study. The bias of his mind was to sculpture, and the facilities afforded for the gratification of this predilection in the workshop of his grandfather were eagerly improved. In his ninth year he executed two small shrines of Carrara marble, which are still extant. Soon after this period he appears to have been constantly employed under his grandfather. Amongst those who patronized the old man was the patrician family Falier of Venice, and by this means young Canova was first introduced to the senator of that name, who afterwards became his most zealous patron. Between the younger son, Giuseppe Falier, and the artist a friendship commenced which terminated only with life. The senator Falier was induced to receive him under his immediate protection. It has been related by an Italian writer and since repeated by several biographers, that Canova was indebted to a trivial circumstance—the moulding of a lion in butter—for the warm interest which Falier took in his welfare. The anecdote may or may not be true. By his patron Canova was placed under Bernardi, or, as he is generally called by filiation, Torretto, a sculptor of considerable eminence, who had taken up a temporary residence at Pagnano, a village in the vicinity of the senator's mansion. This took place whilst Canova was in his thirteenth year; and with Torretto he continued about two years, making in many respects considerable progress. This master returned to Venice, where he soon afterwards died; but by the high terms in which he spoke of his pupil to Falier, the latter was induced to bring the young artist to Venice, whither he accordingly went, and was placed under a nephew of Torretto. With this instructor he continued about a year, studying with the utmost assiduity. After the termination of this engagement he began to work on his own account, and received from his patron an order for a group, "Orpheus and Eurydice." The first figure, which represents Eurydice in flames and smoke, in the act of leaving Hades, was completed towards the close of his sixteenth year. It was highly esteemed by his patron and friends, and the artist was now considered qualified to appear before a public tribunal. The kindness of some monks supplied him with his first workshop, which was the vacant cell of a monastery. Here for nearly four years he laboured with the greatest perseverance and industry. He was also regular in his attendance at the academy, where he carried off several prizes. But he relied far more on the study and imitation of nature. From his contemporaries he could learn nothing, for their style was vicious. From their works, therefore, he reverted to living models, as exhibited in every variety of situation. A large portion of his time was also devoted to anatomy, which science was regarded by him as "the secret of the art." He likewise frequented places of public amusement, where he carefully studied the expressions and attitudes of the performers. He formed a resolution, which was faithfully adhered to for several years, never to close his eyes at night without having produced some design. Whatever was likely to forward his advancement in sculpture he studied with ardour. On archaeological pursuits he bestowed considerable attention. With ancient and modern history he rendered himself well acquainted and he also began to acquire some of the continental languages.

Three years had now elapsed without any production coming from his chisel. He began, however, to complete the group for his patron, and the Orpheus which followed evinced the great advance he had made. The work was universally applauded, and laid the foundation of his fame. Several groups succeeded this performance, amongst which was that of "Daedalus and Icarus," the most celebrated work of his noviciate. The simplicity of style and the faithful imitation of nature which characterized them called forth the warmest admiration. His merits and reputation being now generally recognized, his thoughts began to turn from the shores of the Adriatic to the banks of the Tiber, for which he set out at the commencement of his twenty-fourth year.

Before his departure for Rome, his friends had applied to the Venetian senate for a pension, to enable him to pursue his studies without embarrassment. The application was ultimately successful. The stipend amounted to three hundred ducats (about £60 per annum), and was limited to three years. Canova had obtained letters of introduction to the Venetian ambassador, the Cavaliere Zulian, and enlightened and generous protector of the arts, and was received in the most hospitable manner. His arrival in Rome, on the 28th of December 1780, marks a new era in his life. It was here he was to perfect himself by a study of the most splendid relics of antiquity, and to put his talents to the severest test by a competition with the living masters of the art. The result was equal to the highest hopes cherished either by himself or by his friends. The work which first established his fame at Rome was "Theseus vanquishing the Minotaur." The figures are of the heroic size. The victorious Theseus is represented as seated on the lifeless body of the monster. The exhaustion which visibly pervades his whole frame proves the terrible nature of the conflict in which he has been engaged. Simplicity and natural expression had hitherto characterized Canova's style; with these were now united more exalted conceptions of grandeur and of truth. The Theseus was regarded with fervent admiration.

Canova's next undertaking was a monument in honour of Clement XIV.; but before he proceeded with it he deemed it necessary to request permission from the Venetian senate, whose servant he considered himself to be, in consideration of the pension. This he solicited in person, and it was granted. He returned immediately to Rome, and opened his celebrated studio close to the Via del Babuino. He spent about two years of unremitting toil in arranging the design and composing the models for the tomb of the pontiff. After these were completed, other two years were employed in finishing the monument, and it was finally opened to public inspection in 1787 The work, in the opinion of enthusiastic *dilettanti*, stamped the author as the first artist of modern times. After five years of incessant labour, he completed another cenotaph to the memory of Clement XIII., which raised his fame still higher. Works now came rapidly from his chisel. Amongst these is Psyche, with a butterfly, which is placed on the left hand, and held by the wings with the right. This figure, which is intended as a personification of man's immaterial part, is considered as in almost every respect the most faultless and classical of

Canova's works. In two different groups, and with opposite expression, the sculptor has represented Cupid with his bride; in the one they are standing, in the other recumbent. These and other works raised his reputation so high that the most flattering offers were sent him from the Russian court to induce him to remove to St Petersburg, but these were declined. "Italy," says he, in writing of the occurrence to a friend, "Italy is my country—is the country and native soil of the arts. I cannot leave her; my infancy was nurtured here. If my poor talents can be useful in any other land, they must be of some utility to Italy; and ought not her claim to be preferred to all others?"

Numerous works were produced in the years 1795-1797, of which several were repetitions of previous productions. One was the celebrated group representing the "Parting of Venus and Adonis." This famous production was sent to Naples. The French Revolution was now extending its shocks over Italy; and Canova sought obscurity and repose in his native Passagno. Thither he retired in 1798, and there he continued for about a year, principally employed in painting, of which art also he had some knowledge. He executed upwards of twenty paintings about this time. One of his productions is a picture representing the dead body of the Saviour just removed from the cross, surrounded by the three Marys, S. John, Joseph of Arimathea, and, somewhat in the background, Nicodemus. Above appears the Father, with the mystic dove in the centre of a glory, and surrounded by a circle of cherubs. This composition, which was greatly applauded, he presented to the parochial church of his native place. Events in the political world having come to a temporary lull, he returned to Rome; but his health being impaired from arduous application, he took a journey through a part of Germany, in company with his friend Prince Rezzonico. He returned from his travels much improved, and again commenced his labours with vigour and enthusiasm.

Canova's sculptures have been distributed under three heads:—(1) Heroic compositions; (2) Compositions of grace and elegance; and (3) Sepulchral monuments and relievos. In noticing the works which fall under each of these divisions, it will be impossible to maintain a strict chronological order, but perhaps a better idea of his productions may thus be obtained. Their vast number, however, prevents their being all enumerated.

(1) His "Perseus with the Head of Medusa" appeared soon after his return. The moment of representation is when the hero, flushed with conquest, displays the head of the "snaky Gorgon," whilst the right hand grasps a sword of singular device. By a public decree, this fine work was placed in one of the *stanze* of the Vatican hitherto reserved for the most precious works of antiquity; but it would be a mistake to say that it wholly sustains this comparison, or that it rivals the earlier realization of the same subject in Italian art, that by Cellini. In 1802, at the personal request of Napoleon, Canova repaired to Paris to model a bust of the first consul. The artist was entertained with munificence, and various honours were conferred upon him. The statue, which is colossal, was not finished till six years after. On the fall of the great Napoleon, Louis XVIII. presented this statue to the British government, by whom it was afterwards given to the duke of Wellington. "Palamedes," "Creugas and Damoxenus," the "Combat of Theseus and the Centaur," and "Hercules and Lichas" may close the class of heroic compositions, although the catalogue might be swelled by the enumeration of various others, such as "Hector and Ajax," and the statues of Washington, King Ferdinand of Naples, and others. The group of "Hercules and Lichas" is considered as the most terrible conception of Canova's mind, and in its peculiar style as scarcely to be excelled.

(2) Under the head of compositions of grace and elegance, the statue of Hebe takes the first place in point of date. Four times has the artist embodied in stone the goddess of youth, and each time with some variation. The only material improvement, however, is the substitution of a support more suitable to the simplicity of the art. Each of the statues is, in all its details, in expression, attitude and delicacy of finish, strikingly elegant. The "Dancing Nymphs" maintain a character similar to that of the Hebe. The "Graces" and the "Venus" are more elevated. The "Awakened Nymph" is another work of uncommon beauty. The mother of Napoleon, his consort Maria Louisa (as Concord), to model whom the author made a further journey to Paris in 1810, the princess Esterhazy and the muse Polymnia (Elisa Bonaparte) take their place in this class, as do the ideal heads, comprising Corinna, Sappho, Laura, Beatrice and Helen of Troy.

(3) Of the cenotaphs and funeral monuments the most splendid is the monument to the archduchess Maria Christina of Austria, consisting of nine figures. Besides the two for the Roman pontiffs already mentioned, there is one for Alfieri, another for Emo, a Venetian admiral, and a small model of a cenotaph for Nelson, besides a great variety of monumental relievos.

The events which marked the life of the artist during the first fifteen years of the period in which he was engaged on the above-mentioned works scarcely merit notice. His mind was entirely absorbed in the labours of his studio, and, with the exception of his journeys to Paris, one to Vienna, and a few short intervals of absence in Florence and other parts of Italy, he never quitted Rome. In his own words, "his statues were the sole proofs of his civil existence." There was, however, another proof, which modesty forbade him to mention, an ever-active benevolence, especially towards artists. In 1815 he was commissioned by the Pope to superintend the transmission from Paris of those works of art which had formerly been conveyed thither under the direction of Napoleon. By his zeal and exertions, for there were many conflicting interests to reconcile, he adjusted the affair in a manner at once creditable to his judgment and fortunate for his country. In the autumn of this year he gratified a wish he had long entertained of visiting London, where he received the highest tokens of esteem. The artist for whom he showed particular sympathy and regard in London was Haydon, who might at the time be counted the sole representative of historical painting there, and whom he especially honoured for his championship of the Elgin marbles, then recently transported to England, and ignorantly depreciated by polite connoisseurs. Canova returned to Rome in the beginning of 1816, with the ransomed spoils of his country's genius. Immediately after, he received several marks of distinction,—by the hand of the Pope himself his name was inscribed in "the Golden Volume of the Capitol," and he received the title of marquis of Ischia, with an annual pension of 3000 crowns, about £625.

He now contemplated a great work, a colossal statue of Religion. The model filled Italy with admiration; the marble was procured, and the chisel of the sculptor ready to be applied to it, when the jealousy of churchmen as to the site, or some other cause, deprived the country of the projected work. The mind of Canova was inspired with the warmest sense of devotion, and though foiled in this instance he resolved to consecrate a shrine to the cause. In his native village he began to make preparations for erecting a temple which was to contain, not only the above statue, but other works of his own; within its precincts were to repose also the ashes of the founder. Accordingly he repaired to Passagno in 1810. At a sumptuous entertainment which he gave to his workmen, there occurred an incident which marks the kindliness of his character. When the festivities of the day had terminated, he requested the shepherdesses and peasantgirls of the adjacent hamlets to pass in review before him, and to each he made a present, expending on the occasion about £400. We need not, therefore, be surprised that a few years afterwards, when the remains of the donor came to be deposited in their last asylum, the grief which the surrounding peasantry evinced was in natural expression so intense as to eclipse the studied solemnity of more pompous mourning.

After the foundation-stone of this edifice had been laid, Canova returned to Rome; but every succeeding autumn he continued to visit Passagno, in order to direct the workmen, and encourage them with pecuniary rewards and medals. In the meantime the vast expenditure exhausted his resources, and compelled him to labour with unceasing assiduity notwithstanding age and disease. During the period which intervened between commencing operations at Passagno and his decease, he executed or finished some of his most striking works. Amongst these were the group "Mars and Venus," the colossal figure of Pius VI., the "Pietà," the "St John," the "recumbent Magdalen." The last performance which issued from his hand was a colossal bust of his friend, the Count Cicognara. In May 1822 he paid a visit to Naples, to superintend the construction of wax moulds for an equestrian statue of the perjured Bourbon king Ferdinand. This journey materially injured his health, but he rallied again on his return to Rome. Towards the latter end of the year he paid his annual visit to

the place of his birth, when he experienced a relapse. He proceeded to Venice, and expired there on the 13th of October 1822, at the age of nearly sixty-five. His disease was one which had affected him from an early age, caused by the continual use of carving-tools, producing a depression of the ribs. The most distinguished funeral honours were paid to his remains, which were deposited in the temple at Passagno on the 25th of the same month.

Canova, in a certain sense, renovated the art of sculpture in Italy, and brought it back to that standard from which it had declined when the sense both of classical beauty and moderation, and of Titanic invention and human or superhuman energy as embodied by the unexampled genius of Michelangelo, had succumbed to the overloaded and flabby mannerisms of the 17th and 18th centuries. His finishing was refined, and he had a special method of giving a mellow and soft appearance to the marble. He formed his models of the same size as the work was intended to be. The prominent defect of Canova's attractive and highly trained art is that which may be summed up in the word artificiality,—that quality, so characteristic of the modern mind, which seizes upon certain properties of conception and execution in the art of the past, and upon certain types of beauty or emotion in life, and makes a compound of the two—regulating both by the standard of taste prevalent in contemporary "high society," a standard which, referring to cultivation and refinement as its higher term, declines towards fashion as the lower. Of his moral character a generous and unwearied benevolence formed the most prominent feature. The greater part of the vast fortune realized by his works was distributed in acts of this description. He established prizes for artists and endowed all the academies of Rome. The aged and unfortunate were also the objects of his peculiar solicitude. His titles were numerous. He was enrolled amongst the nobility of several states, decorated with various orders of knighthood, and associated in the highest professional honours.

See the *Life of Canova* by Memes; that by Missirini; the *Biografia* by the Count Cicognara; *Canova et ses ouvrages*, by Quatremère de Quincy (1834); *Opere scelte di Antonio Canova*, by Anzelmi (Naples, 1842); *Canova*, by A.G. Meyer (1898); and *La Relazione del Canova con Napoli ... memorie con documenti inediti*, by Angelo Borzelli (1901).

(W. M. R.)

CANOVAS DEL CASTILLO, ANTONIO (1828-1897), Spanish statesman, was born in Malaga on the 8th of February 1828. Educated in his native town, he went to Madrid in 1845, bent upon finding means to complete his literary and philosophical studies. His uncle, Don Serafin Estebañez Calderon, found him a situation as clerk in the Madrid-Aranjuez railway, but Canovas soon took to journalism and literature, earning enough to support himself and pay for his law studies at the Madrid University. During this period he published his two best works—an historical novel, *Las Campanas de Huesca*, and the history of the decay of Spain from Philip III. to Charles II. under the house of Austria. He became a politician through his Junius-like letters to the "Murcielago"—*The Bat*, a satirical political journal—and by drawing up the manifesto of Manzanares in 1854 for Marshal O'Donnell, of whom he always remained a loyal adherent. Canovas entered the Cortes in 1854; he was made governor of Cadiz in 1857, sub-director of the state department in 1858, under-secretary at the home office in 1860, minister of the interior in 1864, minister of the colonies in 1865, minister of finance in 1866, and was exiled by Marshal Narvaez in the same year, afterwards becoming a bitter opponent of all the reactionary cabinets until the revolution of 1868. He took no part in preparing that event. He sat in the Cortes Constituyentes of 1869 as a doctrinaire Conservative, combating all Radical and democratic reforms, and defending the exiled Bourbons; but he abstained from voting when the Cortes elected Amadeus king on the 16th of November 1870. He did not object to some of his political friends, like Silvela and Elduayen, entering the cabinets of King Amadeus, and in 1872 declared that his attitude would depend on the concessions which government would make to Conservative principles. After the abdication of Amadeus and the proclamation of the federal republic, Canovas took the lead of the propaganda in favour of the restoration of the Bourbons, and was their principal agent and adviser. He drew up the manifesto issued in 1874 by the young king Alphonso XII., at that time a cadet at Sandhurst; but he dissented from the military men who were actively conspiring to organize an Alphonsist *pronunciamiento*. Like Marshal Concha, marquis del Duero, he would have preferred to let events develop enough to allow of the dynasty being restored without force of arms, and he severely blamed the conduct of the generals when he first heard of the *pronunciamiento* of Marshal Campos at Sagunto. Sagasta thereupon caused Canovas to be arrested (30th of December 1874); but the next day the Madrid garrison also proclaimed Alphonso XII. king, and Canovas showed the full powers he had received from the king to assume the direction of affairs. He formed a regency ministry pending the arrival of his majesty, who confirmed his appointment, and for six years Canovas was premier except during the short-lived cabinets of Marshal Jovellar in 1875 and Marshal Campos for a few months in 1879. Canovas was, in fact, the soul of the Restoration. He had to reconstruct a Conservative party out of the least reactionary parties of the days of Queen Isabella and out of the more moderate elements of the revolution. With such followers he made the constitution of 1876 and all the laws of the monarchy, putting a limited franchise in the place of universal suffrage, curtailing liberty of conscience, rights of association and of meeting, liberty of the press, checking democracy, obliging the military to abstain from politics, conciliating the Carlists and Catholics by his advances to the Vatican, the Church and the religious orders, pandering to the protectionists by his tariff policy, and courting abroad the friendship of Germany and Austria after contributing to the marriage of his king to an Austrian princess. Canovas crowned his policy by countenancing the formation of a Liberal party under Sagasta, flanked by Marshal Serrano and other Liberal generals, which took office in 1881. He again became premier in 1883, and remained in office until November 1885; but he grew very unpopular, and nearly endangered the monarchy in 1885 by his violent repression of popular and press demonstrations, and of student riots in Madrid and the provinces. At the death of Alphonso XII. he at once advised the queen regent to send for Sagasta and the Liberals, and during five years he looked on quietly whilst Sagasta re-established universal suffrage and most of the liberties curtailed in 1876, and carried out a policy of free trade on moderate lines. In 1890 Canovas took office under the queen regent, and one of his first acts was to reverse the tariff policy of the Liberals, denouncing all the treaties of commerce, and passing in 1892 a highly protectionist tariff. This was the starting-point of the decline in foreign trade, the advance of foreign exchanges, the decay of railway traffic, and the monetary and financial crisis which continued from 1892 to 1898. Splits in the Conservative ranks forced Canovas to resign at the end of 1893, and Sagasta came in for eighteen months, Canovas resumed office in March 1895 immediately after the outbreak of the Cuban insurrection, and devoted most of his time and efforts, with characteristic determination, to the preparation of ways and means for sending 200,000 men to the West Indies to carry out his stern and unflinching policy of no surrender, no concessions and no reforms. He was making up his mind for another effort to enable General Weyler to enforce the reforms that had been wrung from the Madrid government, more by American diplomacy than from a sense of the inevitable, when the bullet of an anarchist, in August 1897, at the baths of Santa Agueda, cut short his career. On the whole, Canovas must be regarded as the greatest Spanish statesman of the close of the 19th century. He was not only a politician but also a man of the world, a writer of considerable merit, a scholar well versed in social, economic and philosophical questions, a great debater, a clever lecturer, a member of all the Madrid academies and a patron of art and letters.

(A. E. H.)

CANROBERT, FRANÇOIS CERTAIN (1809-1895), marshal of France, was born at St Céré (Lot) on the 27th of June 1809 and educated at St Cyr; he received a commission as sub-lieutenant in 1828, becoming lieutenant in 1833. He went to Algeria in 1835, served in the expedition to Mascara, at the capture of Tlemcen, and in 1837 became captain. In the same year he was wounded in the storm of Constantine, receiving the Legion of Honour for his conduct. In 1839 he was employed in organizing a battalion of the Foreign Legion for the Carlist Wars. In 1841 he was again serving in Africa. Promoted lieutenant-colonel in 1846 and colonel of the 3rd regiment in 1847, he commanded the expedition against Ahmed Sghir in 1848, and defeated the Arabs at the Djerma Pass. Transferred to the Zouaves, he defeated the Kabyles, and in 1849 displayed both courage and energy in reinforcing the blockaded garrison of Bou Sada, and in command of one of the attacking columns at Zaatcha (December 1849). For his valour on the latter occasion he received the rank of general of brigade and the commandership of the Legion of Honour. He led the expedition against Narah in 1850 and destroyed the Arab stronghold. Summoned to Paris, he was made aide-de-camp to the president, Louis Napoleon, and took part in the *coup d'etat* of the 2nd of December 1851. In the Crimean War he commanded a division at the Alma, where he was twice wounded. He held a dormant commission entitling him to command in case of St Arnaud's death, and he thus succeeded to the chief command of the French army a few days after the battle. He was slightly wounded and had a horse killed under him at Inkerman, when leading a charge of Zouaves. Disagreements with the English commander-in-chief and, in general, the disappointments due to the prolongation of the siege of Sevastopol led to his resignation of the command, but he did not return to France, preferring to serve as chief of his old division almost up to the fall of Sevastopol. After his return to France he was sent on diplomatic missions to Denmark and Sweden, and made a marshal and senator of France (grand cross Legion of Honour, and honorary G.C.B.). He commanded the III. army corps in Lombardy in 1859, distinguishing himself at Magenta and Solferino. He successively commanded the camp at Châlons, the IV. army corps at Lyons and the army of Paris. In the Franco-German War he commanded the VI. army corps, which won the greatest distinction in the battle of Gravelotte, where Canrobert commanded on the St Privat position. The VI. corps was amongst those shut up in Metz and included in the surrender of that fortress. After the war Canrobert was appointed a member of the superior council of war, and was also active in political life, being elected senator for Lot in 1876 and for Charente in 1879 and again in 1885. He died at Paris on the 28th of January 1895 and his remains received a public funeral. His *Souvenirs* were published in 1898 at Paris.

CANT, ANDREW (1590?-1663), a leader of the Scottish Covenanters. About 1623 the people of Edinburgh called him to be their minister, but he was rejected by James I. Ten years later he was minister of Pitsligo in Aberdeenshire, a charge which he left in 1638 for that of Newbattle in Mid-Lothian. In July of that year he went with other commissioners to Aberdeen in the vain attempt to induce the university and the presbytery of that city to subscribe the National Covenant, and in the following November sat in the general assembly at Glasgow which abolished episcopacy in Scotland. In 1640 he was chaplain to the Scottish army and then settled as minister at Aberdeen. Though a stanch Covenanter, he was a zealous Royalist, preaching before Charles I. in Edinburgh, and stoutly advocating the restoration of the monarchy in the time of the Commonwealth. Cant's frequent and bitter attacks on various members of his congregation led in 1660 to complaints laid before the magistrates, in consequence of which he resigned his charge. His son Andrew was principal of Edinburgh University (1675-1685).

CANT, (1) (Possibly through the Fr. from Lat. *cantos*, corner), in architecture, a term used where the corner of a square is cut off, octagonally or otherwise. Thus a bay window, the sides of which are not parallel, or at right angles to the spectator, is said to be canted. (2) (From the Lat. *cantare*, to sing, very early in use, in a depreciatory sense, of religious services), a word appearing in English in the 16th century 'for the whining speech of beggars; hence it is applied to thieves' or gipsies' jargon, to the peculiar language of any class or sect, to any current phrase or turn of language, and particularly to the hypocritical use of pious phraseology.

CANTABRI, an ancient tribe which inhabited the north coast of Spain near Santander and Bilbao and the mountains behind—a district hence known as Cantabria. Savage and untameable mountaineers, they long defied the Roman arms and made themselves a name for wild freedom. They were first attacked by the Romans about 150 B.C.; they were not subdued till Agrippa and Augustus had carried out a series of campaigns (29-19 B.C.) which ended in their partial annihilation. Thenceforward their land was part of the province Hispania Tarraconensis with some measure of local self-government. They became slowly Romanized, but developed little town life and are rarely mentioned in history. They provided recruits for the Roman *auxilia*, like their neighbours the Astŭres, and their land contained lead mines, of which, however, little is known.

CANTABRIAN MOUNTAINS (Span. *Cordillera Cantabrica*), a mountain chain which extends for more than 300 m. across northern Spain, from the western limit of the Pyrenees to the borders of Galicia, and on or near the coast of the Bay of Biscay. The Cantabrians stretch from east to west, nearly parallel to the sea, as far as the pass of Leitariegos, afterwards trending southward between Leon and Galicia. Their western boundary is marked by the valley of the river Miño (Portuguese Minho), by the lower Sil, which flows into the Miño, and by the Cabrera, a small tributary of the Sil. Some geographers regard the mountains of Galicia beyond the Miño as an integral part of the same system; others confine the name to the eastern half of the highlands between Galicia and the Pyrenees, and call their western half the Asturian Mountains. There are also many local names for the subsidiary ranges within the chain. As a whole, the Cantabrian Mountains are remarkable for their intricate ramifications, but almost everywhere, and especially in the east, it is possible to distinguish two principal ranges, from which the lesser ridges and mountain masses radiate. One range, or series of ranges, closely follows the outline of the coast; the other, which is loftier, forms the northern limit of the great tableland of Castile and Leon, and is sometimes regarded as a continuation of the Pyrenees. The coastal range rises in some parts sheer

above the sea, and everywhere has so abrupt a declivity that the streams which flow seaward are all short and swift. The descent from the southern range to the high plateaus of Castile is more gradual, and several large rivers, notably the Ebro, rise here and flow to the south or west. The breadth of the Cantabrian chain, with all its ramifications, increases from about 60 m. in the east to about 115 m. in the west. Many peaks are upwards of 6000 ft. high, but the greatest altitudes are attained in the central ridges on the borders of Leon, Oviedo, Palencia and Santander. Here are the Peña Vieja (8743 ft.), Prieta (8304 ft.) and Espinguete (7898 ft.); an unnamed summit in the Peñas de Europa, to which range the Peña Vieja also belongs, rises on the right bank of the Sella to a height of 8045 ft.; farther west the peaks of Manipodre, Ubiña, Rubia and Cuiña all exceed 7000 ft. A conspicuous feature of the chain, as of the adjacent tableland, is the number of its *parameras*, isolated plateaus shut in by lofty mountains or even by precipitous walls of rock. At the south-western extremity of the chain is el Vierzo, once a lake-bed, now a valley drained by the upper Sil and enclosed by mountains which bifurcate from the main range south of the pass of Leitariegos—the Sierra de Justredo and Montañas de Leon curving towards the east and south-west, the Sierra de Picos, Sierra del Caurel and other ranges curving towards the west and south-east. The Cantabrians are rich in coal and iron; an account of their geological structure is given under Spain. They are crossed at many points by good roads and in their eastern half by several railways. In the west, near the pass of Pájares, the railway from Leon to Gijón passes through the Perruca tunnel, which is 2 m. long and 4200 ft. above sea-level; the railway descends northward through fifty-eight smaller tunnels. The line from Leon to Orense also traverses a remarkable series of tunnels, bridges and deep cuttings.

CANTACUZINO, Cantacuzen or Cantacuzene, the name of a family which traces its origin to the Byzantine emperors and writers of the same name (see under John V., Cantacuzene). The founder of the family, Andronik, migrated to Rumania in 1633, and from his two sons Constantine and Gheorge sprang the two principal lines which afterwards branched into numerous families of nobles and high dignitaries, including hospodars (rulers) of Walachia and Moldavia. The Cantacuzinos were represented in every branch of administration and in the world of letters. Under their influence the Rumanian language and literature in the 17th century reached their highest development. Among the more prominent members of the family the following may be mentioned, (1) Sherban Cantacuzino (1640-1688), appointed hospodar of Walachia in 1679. He served under the Turks in the siege of Vienna, and when they were defeated it is alleged that he conceived the plan of marching on Constantinople to drive the Turks out of Europe, the western powers having promised him their moral support. In the midst of his preparations he died suddenly, poisoned, it is said, by the boyars who were afraid of his vast plans. Far more important was his activity in economic and literary directions. He introduced the maize into Rumania; it is now the staple food of the country. He founded the first Rumanian school in Bucharest; he assisted liberally in the establishment of various printing offices; and under his auspices the famous Rumanian Bible appeared in Bucharest in 1688. Through his influence also the Slavonic language was officially and finally abolished from the liturgy and the Rumanian language substituted for it. (2) Stefan Cantacuzino, son of Constantine, prince of Walachia, 1714-1716. (3) Demetrius Cantacuzino, prince of Moldavia, 1674-1676. He left an unsatisfactory record. Descendants of Demetrius and Sherban have emigrated to Russia, and held high positions there as governors of Bessarabia and in other responsible posts. (4) Of the Moldavian Cantacuzinos, Theodore is well known as a chronicler of his times (*c.* 1740). (5) Gheorge Cantacuzino (b. 1837), son of Gregori (1800-1849). He was appointed in 1870 minister of public instruction in Rumania; in 1889, president of the chamber; in 1892, president of the senate; from 1899 he was head of the Conservative party, and from 1905 to 1907 prime minister (see also Rumania: *History*).

(M. G.)

CANTAGALLO, an inland town of the state of Rio de Janeiro, Brazil, about 100 m. by rail N.E. of the port of Rio de Janeiro, with which it is connected by the Cantagallo railway. Pop. (1890) of the municipality, 26,067, of whom less than one-fourth live in the town. Cantagallo is situated in the fertile Parahyba valley and is the commercial centre of a rich coffee-producing district. There are exhausted gold placer mines in its vicinity, but they were not rich enough to cause any considerable development in mining. Coffee production is the principal industry, but sugar-cane is grown to a limited extent, and some attention is given to the raising of cattle and swine. The district is an excellent fruit region.

CANTAL, a department of central France, formed from Haute-Auvergne, the southern portion of the old province of Auvergne. It is bounded N. by the department of Puy-de-Dôme, E. by Haute-Loire, S.E. by Lozère, S. by Aveyron and Lozère, and W. by Corrèze and Lot. Area 2231 sq. m. Pop. (1906) 228,600. Cantal is situated in the middle of the central plateau of France. It takes its name from the Monts du Cantal, a volcanic group occupying its central region, and continued towards the north and east by ranges of lower altitude. The Plomb du Cantal, the culminating summit of the department, attains a height of 6096 ft.; and its neighbours, the Puy Mary and the Puy Chavaroche, attain a height of 5863 and 5722 ft. respectively. Immediately to the east of this central mass lies the lofty but fertile plateau of Planèze, which merges into the Monts de la Margeride on the eastern border. The valley of the Truyère skirts the Planèze on the south and divides it from the Monts d'Aubrac, at the foot of which lies Chaudesaigues, noted for its thermal springs, the most important in the department. Northwards the Monts du Cantal are connected with the Monts Dore by the volcanic range of Cézallier and the arid plateaus of Artense. In the west of the department grassy plateaus and beautiful river valleys slope gently down from the central heights. Most of the streams of the department have their sources in this central ridge and fall by a short and rapid course into the rivers which traverse the extensive valleys on either side. The principal rivers are the Alagnon, a tributary of the Allier; the Celle and Truyère, tributaries of the Lot; and the Cère and Rue, tributaries of the Dordogne. The climate of the department varies considerably in the different localities. In the alluvial plain between Murat and St Flour, and in the south-west in the arrondissement of Aurillac, it is generally mild and dry; but in the northern and central portions the winters are long and severe and the hurricanes peculiarly violent. The cold and damp of the climate in these districts are great obstacles to the cultivation of wheat, but rye and buckwheat are grown in considerable quantities, and in natural pasture Cantal is extremely rich. Cattle are accordingly reared with profit, especially around Salers and in the Monts d'Aubrac, while butter and Roquefort cheese are made in large quantities. Large flocks of sheep pasture in the Monts d'Aubrac and elsewhere in the department; goats are also reared. The inhabitants are simple and primitive and accustomed to live on the scantiest fare. Many of them migrate for part of the year to Paris and the provinces, where they engage in the humblest occupations. The principal articles of food are rye, buckwheat and chestnuts. The internal

resources of the department are considerable; but the difficulty of land-carriage prevents them being sufficiently developed. The hills and valleys abound with game and the streams with fish. Cantal produces a vast variety of aromatic and medicinal plants; and its mineral products include coal, antimony and lime. The department has no prominent manufactures. Live-stock, cheese, butter and coal are the principal exports; coal, wine, cereals, flour and earthenware are imported. The department is served by the railways of the Orléans and Southern companies, the construction of which at some points demanded considerable engineering skill, notably in the case of the viaduct of Garabit spanning the gorge of the Truyère. Cantal is divided into four arrondissements—Aurillac, Mauriac, Murat and St Flour—23 cantons and 267 communes. It belongs to the region of the XIII. army corps and to the académie (educational division) of Clermont-Ferrand. Its bishopric is at St Flour and depends on the archbishopric of Bourges. Its court of appeal is at Riom. The capital is Aurillac (*q.v.*), and St Flour (*q.v.*) is the other principal town.

CANTARINI, SIMONE (1612-1648), called Simone da Pesaro, painter and etcher, was born at Oropezza near Pesaro in 1612. He was a disciple of Guido Reni and a fellow-student of Domenichino and Albano. The irritability of his temper and his vanity were extreme; and it is said that his death, which took place at Verona in 1648, was occasioned by chagrin at his failure in a portrait of the duke of Mantua. Others relate that he was poisoned by a Mantuan painter whom he had injured. His pictures, though masterly and spirited, are deficient in originality. Some of his works have been mistaken for examples of Guido Reni, to whom, indeed, he is by some considered superior in the extremities of the figures. Among his principal paintings are “St Anthony,” at Cagli; the “Magdalene,” at Pesaro; the “Transfiguration,” in the Brera Gallery, Milan; the “Portrait of Guido,” in the Bologna gallery; and “St Romuald,” in the Casa Paolucci. His most celebrated etching is “Jupiter, Neptune and Pluto, honouring the arms of Cardinal Borghese.”

CANTATA (Italian for a song or story set to music), a vocal composition accompanied by instruments and generally containing more than one movement. In the 16th century, when all serious music was vocal, the term had no reason to exist, but with the rise of instrumental music in the 17th century cantatas began to exist under that name as soon as the instrumental art was definite enough to be embodied in sonatas. From the middle of the 17th till late in the 18th century a favourite form of Italian chamber music was the cantata for one or two solo voices, with accompaniment of harpsichord and perhaps a few other solo instruments. It consisted at first of a declamatory narrative or scene in recitative, held together by a primitive aria repeated at intervals. Fine examples may be found in the church music of Carissimi; and the English vocal solos of Purcell (such as *Mad Tom* and *Mad Bess*) show the utmost that can be made of this archaic form. With the rise of the Da Capo aria the cantata became a group of two or three arias joined by recitative. Handel’s numerous Italian duets and trios are examples on a rather large scale. His Latin motet *Silete Venti*, for soprano solo, shows the use of this form in church music.

The Italian solo cantata naturally tended, when on a large scale, to become indistinguishable from a scene in an opera. In the same way the church cantata, solo or choral, is indistinguishable from a small oratorio or portion of an oratorio. This is equally evident whether we examine the unparalleled church cantatas of Bach, of which nearly 200 are extant, or the *Chandos Anthems* of Handel. In Bach’s case many of the larger cantatas are actually called oratorios; and the *Christmas Oratorio* is a collection of six church cantatas actually intended for performance on six different days, though together forming as complete an artistic whole as any classical oratorio.

The essential point, however, in Bach’s church cantatas is that they formed part of a church service, and moreover of a service in which the organization of the music was far more coherent than is possible in the Anglican church. Many of Bach’s greatest cantatas begin with an elaborate chorus followed by a couple of arias and recitatives, and end with a plain chorale. This has often been commented upon as an example of Bach’s indifference to artistic climax in the work as a whole. But no one will maintain this who realizes the place which the church cantata occupied in the Lutheran church service. The text was carefully based upon the gospel or lessons for the day; unless the cantata was short the sermon probably took place after the first chorus or one of the arias, and the congregation joined in the final chorale. Thus the unity of the service was the unity of the music; and, in the cases where all the movements of the cantata were founded on one and the same chorale-tune, this unity has never been equalled, except by those 16th-century masses and motets which are founded upon the Gregorian tones of the festival for which they are written.

In modern times the term cantata is applied almost exclusively to choral, as distinguished from solo vocal music. There has, perhaps, been only one kind of cantata since Bach which can be recognized as an art form and not as a mere title for works otherwise impossible to classify. It is just possible to recognize as a distinct artistic type that kind of early 19th-century cantata in which the chorus is the vehicle for music more lyric and songlike than the oratorio style, though at the same time not excludeing the possibility of a brilliant climax in the shape of a light order of fugue. Beethoven’s *Glorreiche Augenblick* is a brilliant “pot-boiler” in this style; Weber’s *Jubel Cantata* is a typical specimen, and Mendelssohn’s *Walpurgisnacht* is the classic. Mendelssohn’s “Symphony Cantata,” the *Lobgesang*, is a hybrid work, partly in the oratorio style. It is preceded by three symphonic movements, a device avowedly suggested by Beethoven’s ninth symphony; but the analogy is not accurate, as Beethoven’s work is a symphony of which the fourth movement is a choral finale of essentially single design, whereas Mendelssohn’s “Symphony Cantata” is a cantata with three symphonic preludes. The full lyric possibilities of a string of choral songs were realized at last by Brahms in his *Rinaldo*, set to a text which Goethe wrote at the same time as he wrote that of the *Walpurgisnacht*. The point of Brahms’s work (his only experiment in this *genre*) has naturally been lost by critics who expected in so voluminous a composition the qualities of an elaborate choral music with which it has nothing whatever to do. Brahms has probably said the last word on this subject; and the remaining types of cantata (beginning with Beethoven’s *Meeres-stille*, and including most of Brahms’s and many notable English small choral works) are merely so many different ways of setting to choral music a poem which is just too long to be comprised in one movement.

(D. F. T.)

CANTEEN (through the Fr. *cantine*, from Ital. *cantina*, a cellar), a word chiefly used in a military sense for an official sutler’s shop, where provisions, &c., are sold to soldiers. The word was formerly applied also to portable equipments for carrying liquors and food, or for cooking in the field. Another sense of the word, which has survived to the present day, is

that of a soldier's water-bottle, or of a small wooden or metal can for carying a workman's liquor, &c.

CANTEMIR, the name of a celebrated family of Tatar origin, which came from the Crimea in the 17th century and settled in Moldavia.

Constantine Cantemir became a prince of Moldavia, 1685-1693. He was a good and conscientious ruler, who protected the people from the rapacity of the tax-gatherers and introduced peace into his country. He was succeeded on the throne by his son Antioch, who ruled twice, 1696-1700 and 1705-1707.

His youngest brother, Demetrius or Demeter Cantemir (b. October 26, 1673), was made prince of Moldavia in 1710; he ruled only one year, 1710-1711, when he joined Peter the Great in his campaign against the Turks and placed Moldavia under Russian suzerainty. Beaten by the Turks, Cantemir emigrated to Russia, where he and his family finally settled. He died at Kharkov in 1723. He was known as one of the greatest linguists of his time, speaking and writing eleven languages, and being well versed in Oriental scholarship. He was a voluminous and original writer of great sagacity and deep penetration, and his writings range over many subjects. The best known is his *History of the Growth and Decay of the Ottoman Empire*. He also wrote a history of oriental music, which is no longer extant; the first critical history of Moldo-Walachia; the first geographical, ethnographical and economic description of Moldavia, *Descriptio Moldaviae*, under the name of *Historia Hieroglyphica*, to which he furnished a key, and in which the principal persons are represented by animals; also the history of the two ruling houses of Brancovan and Cantacuzino; and a philosophical treatise on the old theme of the disputation between soul and body, written in Greek and Rumanian under the title *Divanul Lumii*.

The latter's son, Antioch Cantemir (born in Moldavia, 1700; died in Paris, 1744), became in 1731 Russian minister in Great Britain, and in 1736 minister plenipotentiary in Paris. He brought to London the Latin MS. from whence the English translation of his father's history of the Turkish empire was made by N. Tindal, London, 1756, to which he added an exhaustive biography and bibliography of the author (pp. 455-460). He was a Russian poet and almost the first author of satires in modern Russian literature.

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(M. G.)

CANTERBURY, CHARLES MANNERS-SUTTON, 1st Viscount (1780-1845), speaker of the House of Commons, was the elder son of Charles Manners-Sutton (*q.v.*), afterwards archbishop of Canterbury, and was born on the 29th of January 1780. Educated at Eton and Trinity College, Cambridge, he graduated B.A. in 1802, and was called to the bar at Lincoln's Inn in 1806. At the general election of this year he was returned to parliament in the Tory interest as member for Scarborough, and in 1809 became judge-advocate-general in the ministry of Spencer Perceval. He retained this position until June 1817, when he was elected speaker in succession to Charles Abbot, created Baron Colchester, refusing to exchange this office in 1827 for that of home secretary. In 1832 he abandoned Scarborough and was returned to parliament as one of the members for the university of Cambridge. Before the general election of 1832 Manners-Sutton had intimated his desire to retire from the position of speaker and had been voted an annuity of £4000 a year. The ministry of Earl Grey, however, reluctant to meet the reformed House of Commons with a new and inexperienced occupant of the chair, persuaded him to retain his office, and in 1833 he was elected speaker for the seventh time. Some feeling had been shown against him on this occasion owing to his Tory proclivities, and the Whigs frequently complained that outside the House he was a decided partisan. The result was that when a new parliament met in February 1835 a sharp contest ensued for the speakership, and Manners-Sutton was defeated by James Abercromby, afterwards Lord Dunfermline. In March 1835 the retiring speaker was raised to the peerage as Baron Bottesford and Viscount Canterbury. In 1835 he was appointed high commissioner for Canada, but owing to domestic reasons he never undertook the appointment. He died in London on the 21st of July 1845 and was buried at Addington. His first wife was Lucy (d. 1815), daughter of John Denison of Ossington, by whom he had two sons and a daughter. Both his sons, Charles John (1812-1869), and John Henry Thomas (1814-1877), succeeded in turn to the viscounty. By his second wife, Ellen (d. 1845), widow of John Home-Purves, he had a daughter.

CANTERBURY, a city and county of a city, the metropolis of an archdiocese of the Church of England, and a municipal, county and parliamentary borough of Kent, England, 62 m. E.S.E, of London by the South-Eastern & Chatham railway. Pop. (1901) 24,889. It lies on the river Stour, which here debouches from a beautiful narrow valley of the North Downs, the low but abrupt elevations of which command fine views of the city from the west and south, while the river presently enters upon the flat belt of land which separates the elevated Isle of Thanet from the rest of Kent. This belt represents the existence, in early historic times, of a sea-strait, and Fordwich, little more than 2 m. north-east of Canterbury, was once accessible for shipping. The city surrounds the precincts of the great cathedral.

The Cathedral.—It was to Canterbury, as the capital of Aethelberht, the fourth Saxon king of Kent, that in 597 Augustine and his fellow-missionaries came from Rome, and their settlement by Aethelberht in his capital became the origin of its position, held ever since, as the metropolis of the Church of England. Aethelberht, whose queen, Bertha, was already a Christian, gave the missionaries a church whose mythical founder was King Lucius. Augustine was a Benedictine and established the monastery of that order attached to the cathedral; this foundation was set upon a firm basis after the Norman Conquest by Archbishop Lanfranc, who placed its charge (as distinct from that of the diocese) in the hands of a prior.

Preparatory to the description of the cathedral, the principal epochs in the history of its erection may be noted. The Romano-British church occupied by St Augustine, of basilica form, remained long in use, though it was largely rebuilt by Archbishop Odo, *c.* 950; after further vicissitudes it was destroyed by fire in 1067. Archbishop Lanfranc, taking up his office in 1070, undertook the building of an entirely new church, but under Anselm (*c.* 1100) Prior Ernulf rebuilt the eastern part, and his successor Conrad carried on the work. A fire destroyed much of this part of the building in 1174, and from that year the architect, William of Sens, took up the work of

History of the building.

rebuilding until 1178, when, on his suffering serious injury by falling from a scaffold, another William, commonly distinguished as the Englishman, carried on the work and completed it in 1184. In 1376 Archbishop Sudbury entered upon the construction of a new nave, and Prior Chillenden continued this under Archbishop Courtenay. The building of the central tower was undertaken *c.* 1495 by Prior Goldstone, with the counsel of Selling, his predecessor, and Archbishop Morton.

Exterior.

This Perpendicular tower is the most notable feature of the exterior. It rises in two storeys to a height of 235 ft. from the ground, and is known variously as Bell Harry tower from the great bell it contains, or as the Angel steeple from the gilded figure of an angel which formerly adorned the summit. The Perpendicular nave is flanked at the west front by towers, whose massive buttresses, rising in tiers, serve to enhance by contrast the beautiful effect of the unbroken straight lines of Bell Harry tower. The south-western of these towers is an original Perpendicular structure by Prior Goldstone, while the north-western was copied from it in 1834-1840, replacing a Norman tower which had carried a spire until 1705 and had become unsafe. The north-west and south-west transepts are included in Chillenden's Perpendicular reconstruction; but east of these earlier work is met with. The south-east transept exhibits Norman work; the projecting chapel east of this is known as Anselm's tower. The cathedral terminates eastward in a graceful apsidal form, with the final addition of the circular eastern chapel built by William the Englishman, and known as the Corona or Becket's Crown. St Andrew's tower or chapel on the north side, corresponding to Anselm's on the south, is the work of Ernulf. From this point westward the various monastic buildings adjoin the cathedral on the north side, so that the south side is that from which the details of the exterior must be examined.

Interior.

When the nave of the cathedral is entered, the complete separation of the interior into two main parts, not only owing to the distinction between the two main periods of building; but by an actual structural arrangement, is realized as an unusual and, as it happens, a most impressive feature. In most English cathedrals the choir is separated from the nave by a screen; at Canterbury not only is this the case, but the separation is further marked by a broad flight of steps leading up to the screen, the choir floor (but not its roof) being much higher than that of the nave. Chillenden, in rebuilding the nave, retained only the lower parts of some of the early Norman walls of Lanfranc and the piers of the central tower arches. These piers were encased or altered on Perpendicular lines. In the choir, the late 12th-century work of the two Williams, the notable features are its great length, the fine ornamentation and the use of arches both round and pointed, a remarkable illustration of the transition between the Norman and Early English styles; the prolific use of dark marble in the shafts and mouldings strongly contrasting with the light stone which is the material principally used; and, finally, the graceful incurve of the main arcades and walls at the eastern end of the choir where it joins the chapel of the Trinity, an arrangement necessitated by the preservation of the earlier flanking chapels or towers of St Anselm and St Andrew. From the altar eastward the floor of the church is raised again above that of the choir. The choir screen was built by Prior de Estria, *c.* 1300. The organ is not seen, being hidden in the triforium and played from the choir. There are several tombs of archbishops in the choir. The south-east transept serves as the chapel of the King's school and exhibits the work of William of Sens in alteration of that of Ernulf. Anselm's chapel or tower, already mentioned, may be noticed again as containing a Decorated window (1336). This style is not common in the cathedral.

Becket's shrine. Pilgrimages.

Behind the altar is Trinity Chapel, in the centre of which stood the celebrated shrine of St Thomas of Canterbury. The priory owed its chief fame to the murder of Archbishop Becket (1170) in the church, his canonization as St Thomas of Canterbury, and the resort of the Christian world on pilgrimage to his shrine. Miracles were almost immediately said to be worked at his grave in the crypt and at the well in which his garments had been washed; and from the time when Henry II. did his penance for the murder in the church, and the battle of Alnwick was gained over the Scots a few days afterwards—it was supposed as a result—the fame of the martyr's power and the popularity of his worship became established in England. On the rebuilding of the cathedral after the fire of 1174, a magnificent shrine was erected for him in Trinity Chapel, which was built for the purpose, and became thronged for three centuries by pilgrims and worshippers of all classes, from kings and emperors downward. Henceforward the interests of the city became bound up in those of the cathedral, and were shown in the large number of hostels for the accommodation of pilgrims, and of shops containing wares especially suited to their tastes. A pilgrimage to Canterbury became not only a pious exercise, but a favourite summer excursion; and the poet Chaucer, writing in the 14th century, gives an admirable picture of such pilgrimages, with the manners and behaviour of a party of pilgrims, leisurely enjoying the journey and telling stories on the road. The English language even preserved two words originating in these customs—a "canterbury," or a "canterbury tale," a phrase used for a fiction, and a "canter," which is a short form for a "canterbury gallop," an allusion to the easy pace at which these pilgrimages were performed. The shrine with its vast collected wealth was destroyed, and every reminiscence connected with it as far as possible effaced, by King Henry VIII.'s commissioners in 1538. But some of the beautiful old windows of stained glass, illustrating the miracles wrought in connexion with the saint, are preserved. The north-west transept was the actual scene of Becket's murder; the spot where he fell is shown on the floor, but this part of the building is of later date than the tragedy.

Close to the site of the shrine is the fine tomb of Edward the Black Prince, with a remarkable portrait effigy, and above it his helmet, shield and other equipment. There is also in this chapel the tomb of King Henry IV. The Corona, at the extreme cast of the church, contains the so-called St Augustine's chair in which the archbishops are enthroned. It is of marble, but its name is not deserved, as it dates probably from *c.* 1200. The western part of the crypt, beneath the choir, is the work of Ernulf, and perhaps incorporates some of Lanfranc's work. The chapel of St John or St Gabriel, beneath Anselm's tower, is still used for service, in which the French language is used; it was devoted to this purpose in 1561, on behalf of French Protestant refugees, who were also permitted to carry on their trade as weavers in the crypt. The eastern and loftier part of the crypt, with its apsidal termination, is the work of William the Englishman. Here for some time lay the body of Becket, and here the celebrated penance of Henry II. was performed.

Monastic buildings.

The chief entrance to the precincts is through an ornate gateway at the south-west, called Christchurch gateway, and built by Prior Goldstone in 1517. Among the remains of the monastic buildings there may be mentioned the Norman ruins of the infirmary, the fine two-storeyed treasury and the lavatory tower, Norman in the lower part and Perpendicular in the upper. The cloisters are of various dates, containing a little rich Norman work, but were very largely rebuilt by Prior Chillenden. The upper part of the chapter-house is also his work, but the lower is by Prior de Estria. The library is modern. The site of the New Hall of the monastery is covered by modern buildings of King's school, but the Norman entry-stair is preserved—a magnificent example of the style, with highly ornate arcading.

The principal dimensions of the cathedral arc: length (outside) 522 ft., nave 178 ft., choir 180 ft. The nave is 71 ft. in breadth and 80 ft. in height.

Province and diocese.

The archbishop of Canterbury is primate of all England; the ecclesiastical province of Canterbury covers England and Wales south of Cheshire and Yorkshire; and the diocese covers a great part of Kent with a small part of Sussex. The following is a list of archbishops of Canterbury:—

1. Augustine, 597 to 605.
2. Lawrence (Laurentius), 605 to 619.
3. Mellitus, 619 to 624.
4. Justin. 624 to 627.

49. John Peckham, 1279 to 1292.
50. Robert Winchelsea, 1293 to 1313.
51. Walter Reynolds, 1313 to 1327.
52. Simon de Meopham, 1328 to 1333.

5. Honorius, 627 to 653.
6. Deusdedit (Frithona), 655 to 664.
7. Theodore, 668 to 690.
8. Brethwald (Berhtuald), 693 to 731.
9. Taetwine. 731 to 734.
10. Nothelm, 734 to 740.
11. Cuthbert, 740 to 758.
12. Breogwine, 759 to 762.
13. Jaenberht, 763 to 790.
14. Aethelhard, 790 to 803.
15. Wulfred, 803 to 829.
16. Fleogild, 829 to 830.
17. Ceolnoth, 830 to 870.
18. Aethelred, 870 to 889.
19. Plegemund, 889 to 914.
20. Aethelm, 914 to 923.
21. Wulfelm, 923 to 942.
22. Odo, 942 to 959.
23. Aelsine, 959.
24. Dunstan, 960 to 988.
25. Aethelgar, 988 to 989.
26. Sigeric, 990 to 994.
27. Aelfric, 995 to 1005.
28. Alphege (Aelfeah), 1005 to 1012.
29. Lyfing, 1013 to 1020.
30. Aethelnoth, 1020 to 1038.
31. Eadsige, 1038 to 1050.
32. Robert of Jumièges, 1051 to 1052.
33. Stigand, 1052 to 1070.
34. Lanfranc, 1070 to 1089.
35. Anselm, 1093 to 1109.
36. Ralph de Turbine, 1114 to 1122.
37. William de Corbeuil (Curbellio), 1123 to 1136.
38. Theobald, 1139 to 1161.
39. Thomas Becket, 1162 to 1170.
40. Richard, 1174 to 1184.
41. Baldwin, 1185 to 1190.
42. Reginald Fitz-Jocelyn, 1191.
43. Hubert Walter, 1193 to 1205.
44. Stephen Langton, 1207 to 1228.
45. Richard Wethershed, 1229 to 1231.
46. Edmund Rich (de Abbendon) 1234 to 1240.
47. Boniface of Savoy, 1241 to 1270.
48. Robert Kilwardby, 1273 to 1278.
53. John Stratford, 1333 to 1348.
54. John de Ufford, 1348 to 1349.
55. Thomas Bradwardin, 1349.
56. Simon Islip, 1349 to 1366.
57. Simon Langham, 1366 to 1368.
58. William Whittlesea, 1368 to 1374.
59. Simon Sudbury, 1375 to 1381.
60. William Courtenay, 1381 to 1396.
61. Thomas Arundel, 1396 to 1414.
62. Henry Chicheley, 1414 to 1443.
63. John Stafford, 1443 to 1452.
64. John Kemp, 1452 to 1454.
65. Thomas Bourchier, 1454 to 1486.
66. John Morton, 1486 to 1500.
67. Henry Dean (Dene), 1501 to 1503.
68. William Warham, 1503 to 1532.
69. Thomas Cranmer, 1533 to 1556.
70. Reginald Pole, 1556 to 1558.
71. Matthew Parker, 1559 to 1575.
72. Edmund Grindal, 1575 to 1583.
73. John Whitgift, 1583 to 1604.
74. Richard Bancroft, 1604 to 1610.
75. George Abbot, 1610 to 1633.
76. William Laud, 1633 to 1645.
77. William Juxon, 1660 to 1663.
78. Gilbert Sheldon, 1663 to 1677.
79. William Sancroft, 1678 to 1691.
80. John Tillotson, 1691 to 1694.
81. Thomas Tenison, 1694 to 1715.
82. William Wake, 1716 to 1737.
83. John Potter, 1737 to 1747.
84. Thomas Herring, 1747 to 1757.
85. Matthew Hutton, 1757 to 1758.
86. Thomas Secker, 1758 to 1768.
87. Frederick Cornwallis, 1768 to 1783.
88. John Moore, 1783 to 1805.
89. Charles Manners-Sutton, 1805 to 1828.
90. William Howley, 1828 to 1848.
91. John Bird Sumner, 1848 to 1862.
92. Charles Thomas Longley, 1862 to 1868.
93. Archibald Campbell Tait, 1868 to 1882.
94. Edward White Benson, 1882 to 1896.
95. Frederick Temple, 1896 to 1903.
96. Randall Thomas Davidson.

The archbishop has a seat at Lambeth Palace, London. There are fragments in Palace Street of the old archbishop's palace which have been incorporated with a modern palace.

Other Ecclesiastical Foundations.—Canterbury naturally abounded in religious foundations. The most important, apart from the cathedral, was the Benedictine abbey of St Augustine. This was erected on a site granted by King Aethelberht outside his capital, in a tract called Longport. Augustine dedicated it to St Peter and St Paul, but Archbishop Dunstan added the sainted name of the founder to the dedication, and in common use it came to exclude those of the apostles. The site is now occupied by St Augustine's Missionary College, founded in 1844 when the property was acquired by A.J.B. Beresford Hope. Some ancient remnants are preserved, the principal being the entrance gateway (1300), with the cemetery gate, dated a century later, and the guest hall, now the refectory; but the scanty ruins of St Pancras' chapel are of high interest, and embody Roman material. The chapel is said to have received its dedication from St Augustine on account of the special association of St Pancras with children, and in connexion with the famous story of St Gregory, w hose attention was first attracted to Britain when he saw the fair-faced children of the Angles who had been brought to Rome, and termed them "not Angles but angels."

There were lesser houses of many religious orders in Canterbury, but only two, those of the Dominicans near St Peter's church in St Peter's Street, and the Franciscans, also in St Peter's Street, have left notable remains. The Dominican refectory is used as a chapel. Among the many churches, St Martin's, Longport, is of the first interest. This was the scene of the earliest work of Augustine in Canterbury, and had seen Christian service before his arrival. Its walls contain Roman masonry, but whether it is in part a genuine remnant of a Romano-British Christian church is open to doubt. There are Norman, Early English and later portions; and the font may be in part pre-Norman, and is indeed associated by tradition with the baptism of Aethelberht himself. St Mildred's church exhibits Early English and Perpendicular work, and the use of Roman material is again visible here. St Paul's is of Early English origin; St Dunstan's, St Peter's and Holy Cross are mainly Decorated and Perpendicular. The village of Harbledown, on the hill west of Canterbury on the London road, from the neighbourhood of which a beautiful view over the city is obtained, has many associations with the ecclesiastical life of Canterbury. It is mentioned by Chaucer in his pilgrimage under the name, appropriate to its site, of "Bob up and down." The almshouses, which occupy the site of Lanfranc's hospital for lepers, include an ancient hall and a chapel in which the west door and northern nave arcade are Norman, and are doubtless part of Lanfranc's buildings. The neighbouring parish church is in great part rebuilt. Among the numerous charitable institutions in Canterbury there are several which may be called the descendants of medieval ecclesiastical foundations.

City Buildings, &c.—The old city walls may be traced, and the public walk called the Dane John (derived probably from *donjon*) follows the summit of a high artificial mound within the lines. The cathedral is finely seen from this point. Only the massive turreted west gate, of the later part of the 14th century, remains out of the former six city gates. The site of the castle is not far from the Dane John, and enough remains of the Norman keep to show its strength and great size. Among other buildings and institutions there may be mentioned the guildhall in High Street, of the early part of the 18th century; the museum, which includes a fine collection of local, including many Roman, relics; and the school of art, under municipal management, but founded by the painter T. Sidney Cooper (d. 1902), who was a resident at Harbledown. A modern statue of a muse commemorates the poet Christopher Marlowe (1564-1593), a native of the city; and a pillar indicates the place where a number of persons were burnt at the stake in the reign of Mary.

The King's school, occupying buildings adjacent to the cathedral, developed out of the early teaching furnished by the monastery. It was refounded by Henry VIII. in 1541 (whence its name), and is managed on the lines of ordinary public schools. It has about 250 boys; and there is besides a junior or preparatory school. The school is still connected with the ecclesiastical foundation, the dean and chapter being its governors.

A noted occasion of festivity in Canterbury is the Canterbury cricket-week, when the Kent county cricket eleven engages in matches with other first-class teams, and many visitors are attracted to the city.

Canterbury has a considerable agriculture trade, breweries, tanneries, brickworks and other manufactures. The parliamentary borough returns one member. The city is governed by a mayor, 6 aldermen and 18 councillors. Area, 3955 acres.

History of the City.—The existence of a Romano-British town on the site of Canterbury has already been indicated. It was named *Durovernum*, and was a flourishing county town on the road from the Kentish ports to London. Mosaic pavements and other remains have been found in considerable abundance. The city, known by the Saxons as *Cantwaraburh*, the town of the men of Kent, was the metropolis of Aethelberht's kingdom. At the time of the Domesday survey Canterbury formed part of the royal demesne and was governed by a portreeve as it had been before the Conquest. In the 13th and 14th centuries, two bailiffs presided over the burghmote, assisted by a larger and smaller council. Henry II., by an undated charter, confirmed former privileges and granted to the citizens that no one should implead them outside the city walls and that the pleas of the crown should be decided according to the customs of the city. In 1256 Henry III. granted them the city at an annual fee farm of £60, also the right of electing their bailiffs. Confirmations of former charters with additional liberties were granted by later sovereigns, and Henry VI. incorporated Canterbury, which he called "one of our most ancient cities," under the style of the mayor and commonalty, the mayor to be elected by the burgesses. James I. in 1609 confirmed these privileges, giving the burgesses the right to be called a body corporate and to elect twelve aldermen and a common council of twenty-four. Charles II., after calling in the charters of corporations, granted a confirmation in 1684. Canterbury was first represented in parliament in 1283, and it continued to return two members until 1885, when the number was reduced to one. A fair was granted by Henry VI. to the citizens to be held in the city or suburbs on the 4th of August and the two days following; other fairs were in the hands of the monasteries; the corn and cattle markets and a general market have been held by prescription from time immemorial. Canterbury was a great centre of the silk-weaving trade in the 17th century, large numbers of Walloons, driven by persecution to England, having settled there in the reign of Elizabeth. In 1676 Charles II. granted a charter of incorporation to the Walloon congregation under style of the master, wardens and fellowship of weavers in the city of Canterbury. The market for the sale of corn and hops was regulated by a local act in 1801.

See A.P. Stanley, *Historical Memorials of Canterbury* (London, 1855); J. Brent, *Canterbury in the Olden Time* (Canterbury, 1879); J.W. Legg and W.H. St J. Hope, *Inventories of Christchurch, Canterbury* (London, 1902); *Victoria County History, Kent*.

CANTHARIDES, or Spanish Flies, the common blister-beetles (*Cantharis vesicatoria*) of European pharmacy. They are bright, iridescent, golden-green or bluish-coloured beetles (see Coleoptera), with the breast finely punctured and pubescent, head and thorax with a longitudinal channel, and elytra with two slightly elevated lines. The insect is from half-an-inch to an inch in length, and from one to two lines broad, the female being broader in the abdomen and altogether larger than the male. It is a native of the south of Europe, being found in Spain, France, Germany, Italy, Hungary and the south of Russia, and it is also obtained in Siberia. The Spanish fly is also occasionally found in the south of England. The insects feed upon ash, lilac, privet and jasmine leaves, and are found more rarely on elder, rose, apple and poplar trees. Their presence is made known by a powerful disagreeable odour, which penetrates to a considerable distance. They are collected for use at late evening or early morning, while in a dull bedewed condition, by shaking them off the trees or shrubs into cloths spread on the ground; and they are killed by dipping them into hot water or vinegar, or by exposing them for some time over the vapour of vinegar. They are then dried and put up for preservation in glass-stoppered bottles; and they require to be very carefully guarded against mites and various other minute insects, to the attacks of which they are peculiarly liable. It has been shown by means of spectroscopic observations that the green colour of the elytra, &c., is due to the presence of chlorophyll; and that the variations of the spectral bands are sufficient, after the lapse of many years, to indicate with some certainty the kind of leaves on which the insects were feeding shortly before they were killed.

Cantharides owe their value to the presence of a peculiar chemical principle, to which the name *cantharidin* has been given. It is most abundant in large full-grown insects, while in very young specimens no cantharidin at all has been found. From about one-fourth to rather more than one-half per cent, of cantharidin has been obtained from different samples; and it has been ascertained that the elytra or wing-sheaths of the insect, which alone are used in pharmacy, contain more of the active principle than the soft parts taken together; but apparently cantharidin is most abundant in the eggs and generative organs.

Cantharidin constitutes from ½ to 1% of cantharides. It has the formula $C_{10}H_{14}O_4$, and on hydrolysis is converted into cantharinic acid, $C_{10}H_{14}O_5$. It crystallizes in colourless plates and is readily soluble in alcohol, ether, &c., but not in water. The British Pharmacopeia contains a large number of preparations of cantharides, but the only one needing special mention is the tincture, which is meant for internal administration; the small dose is noteworthy, five minims being probably the maximum for safety.

The external action of cantharides or cantharidin is extremely characteristic. When it is applied to the skin there are no obvious consequences for some hours. Thereafter the part becomes warm and painful, owing to marked local vascular dilatation. This is the typical *rubefacient* action. Soon afterwards there is an accumulation under the epidermis of a serum derived from the dilated blood-vessels. The numerous small blisters or vesicles thus derived coalesce, forming a large sac full of "blister-fluid." The drug is described as a counter-irritant, though the explanation of this action is very doubtful. Apparently there is an influence on the afferent nerves of the part which causes a reflex contraction—some authors say dilatation—of the vessels in the internal organs that are under the control of the same segment of the nervous system as that supplying the area of skin from which the exciting impulse comes. When applied in this fashion a certain quantity of the cantharides is absorbed.

Taken internally in any but minute doses, the drug causes the most severe gastro-intestinal irritation, the vomited and evacuated matters containing blood, and the patient suffering agonizing pain and extreme depression. The further characteristic symptoms are displayed in the genito-urinary tract. The drug circulates in the blood in the form of an albuminate and is slowly excreted by the kidneys. The effect of large doses is to cause great pain in the renal region and urgent wish to micturate. The urine is nevertheless small in amount and contains albumen and blood owing to the local inflammation produced in the kidney by the passage of the poison through that organ. The drug often has a marked aphrodisiac action, producing priapism, or in the female sex the onset of the catamenia or abortion.

Cantharides is used externally for its counter-irritant action. There are certain definite contra-indications to its use. It must not be employed in cases of renal disease, owing to the risks attendant upon absorption. It must always be employed with caution in the case of elderly persons and children; and it must not be applied to a paralysed limb (in which the power of healing is deficient), nor to parts upon which the patient lies, as otherwise a bed-sore is likely to follow its use. The drug is administered internally in certain cases of impotence and occasionally in other conditions. Its criminal employment is

usually intended to heighten sexual desire, and has frequently led to death.

The toxic symptoms have already been detailed, the patient usually dying from arrest of the renal functions. The treatment is far from satisfactory, and consists in keeping up the strength and diluting the poison in the blood and in the urine by the administration of bland fluids, such as soda-water, milk and plain water, in quantities as large as possible. External warmth should also be applied to the regions specially affected by the drug.

A very large number of other insects belonging to the same family possess blistering properties, owing to their containing cantharidin. Of these the most remarkable is the Telini "fly" of India (*Mylabris cichorii*), the range of which extends from Italy and Greece through Egypt and central Asia as far as China. It is very rich in cantharidin, yielding fully twice as much as ordinary cantharides. Several green-coloured beetles are, on account of their colour, used as adulterants to cantharides, but they are very easily detected by examination with the eye, or, if powdered, with the microscope.

CANTICLES. The Old Testament book of Canticles, or the Song of Solomon, is called in Hebrew *The Song of Songs* (that is, *the choicest of songs*), or, according to the full title which stands as the first verse of the book, *The choicest of the songs of Solomon*. In the Western versions the book holds the third place among the so-called Solomonic writings, following Proverbs and Ecclesiastes. In Hebrew Bibles it stands among the *Megilloth*, the five books of the Hagiographa which have a prominent place in the Synagogue service. In printed Bibles and in German MSS. it is the first of these because it is read at the Passover, which is the first great feast of the sacred year of the Jews.

No part of the Bible has called forth a greater diversity of opinions than the Song of Solomon, and this for two reasons. In the first place, the book holds so unique a position in the Old Testament, that the general analogy of Hebrew literature is a very inadequate key to the verbal difficulties, the artistic structure, and the general conception and purpose of the poem. In point of language the departures from ordinary Hebrew are almost always in the direction of Aramaic. Many forms unique in Biblical Hebrew are at once explained by the Aramaic dialects, but not a few are still obscure. The philological difficulties of the book are, however, less fundamental than those which lie in the unique character of the Song of Solomon in point of artistic form, and in the whole atmosphere of thought and feeling in which it moves. Even in these respects it is not absolutely isolated. Parallels to the peculiar imagery may be found in the book of Hosea, in Ezekiel xvi. and xxiii. and above all in the 45th Psalm; but such links of union to the general mass of the Old Testament literature are too slight to be of material assistance in the solution of the literary problem of the book. Here, again, as in the lexical difficulties already referred to, we are tempted or compelled to argue from the distant and insecure analogy of other Eastern literatures, or are thrown back upon traditions of uncertain origin and ambiguous authority.

The power of tradition has been the second great source of confusion of opinion about the Song of Solomon. To tradition we owe the title, which apparently indicates Solomon as the author and not merely as the subject of the book. The authority of titles in the Old Testament is often questionable, and in the present case it is certain on linguistic grounds that the title is not from the hand that wrote the poem; while to admit that it gives a correct account of the authorship is to cut away at one stroke all the most certain threads of connexion between the book and our historical knowledge of the Old Testament people and literature.

To tradition, again, we owe the prejudice in favour of an allegorical interpretation, that is, of the view that from verse to verse the Song sets forth the history of a spiritual and not merely of an earthly love. To apply such an exegesis to Canticles is to violate one of the first principles of reasonable interpretation. True allegories are never without internal marks of their allegorical design. The language of symbol is not so perfect that a long chain of spiritual ideas can be developed without the use of a single spiritual word or phrase; and even were this possible it would be false art in the allegorist to hide away his sacred thoughts behind a screen of sensuous and erotic imagery, so complete and beautiful in itself as to give no suggestion that it is only the vehicle of a deeper sense. Apart from tradition, no one, in the present state of exegesis, would dream of allegorizing poetry which in its natural sense is so full of purpose and meaning, so apt in sentiment, and so perfect in imagery as the lyrics of Canticles. We are not at liberty to seek for allegory except where the natural sense is incomplete. This is not the case in the Song of Solomon. On the contrary, every form of the allegorical interpretation which has been devised carries its own condemnation in the fact that it takes away from the artistic unity of the poem and breaks natural sequences of thought.[1] The allegorical interpretation of the Song of Solomon bad its rise in the very same conditions which forced a deeper sense, now universally discarded, upon so many other parts of scripture. Yet strangely enough there is no evidence that the Jews of Alexandria extended to the book their favourite methods of interpretation. The arguments which have been adduced to prove that the Septuagint translation implies an allegorical exegesis are inadequate;[2] and Philo does not mention the book. Nor is there any allusion to Canticles in the New Testament. The first trace of an allegorical view identifying Israel with the "spouse" appears to be in the Fourth Book of Ezra, near the close of the 1st Christian century (v. 24, 26; vii. 26). Up to this time the canonicity of the Canticles was not unquestioned; and the final decision as to the sanctity of the book, so energetically carried through by R. Aqiba, when he declared that "the whole world is not worth the day on which the Song of Songs was given to Israel; for all the scriptures (or Hagiographa) are holy, but the Canticles most holy," must be understood as being at the same time a victory of the allegorical interpretation over the last remains of a view which regarded the poem as simply erotic.[3]

The form in which the allegorical theory became fixed in the synagogue is contained in the Midrash *Chazita* and in the Targum, which is a commentary rather than a translation. The spouse is Israel, her royal lover the divine king, and the poem is explained as tracing the great events of the people's history from the Exodus to the Messianic glory and final restoration.[4]

The authority of Origen, who, according to Jerome, surpassed himself in his commentary of ten volumes on this book, established the allegorical theory in the Christian church in the two main forms in which it has since prevailed. The bridegroom is Christ, the bride either the church or the believing soul. The latter conception is, of course, that which lends itself most readily to purposes of mystical edification, and which has made Canticles the manual in all ages of a wide-spread type of religious contemplation. But the other view, which identifies the bride with the church, must be regarded as the standard of orthodox exegesis. Of course the allegorical principle admitted of very various modifications, and readily adapted itself to new religious developments, such as the rise of Mariolatry. Within the limits of the orthodox traditions the allegory took various colours, according as its mystical or its prophetical aspect was insisted on. Among medieval commentators of the former class S. Bernard holds a pre-eminent place; while the second class is represented by Nicolaus de Lyra, who, himself a converted Jew, modified the Jewish interpretation so as to find in the book an account of the *processus ecclesiae* under the Old and New Testaments. The prophetic exegesis reached its culminating point in the post-Reformation period, when Cocceius found in the Canticles a complete conspectus of church history. But the relaxation of traditional authority opened the door to still stranger vagaries of interpretation. Luther was tempted to understand the book of the political relations of Solomon and his people. Others detected the loves of Solomon and Wisdom—a view which found a supporter in Rosenmüller.

The history of the literal interpretation begins with the great "commentator" of the Syrian Church, Theodorus of

Mopsuestia (died 429), who condemned equally the attempt to find in the book a prophecy of the blessings given to the church, and the idea even at that time expressed in some quarters that the book is immoral. Theodorus regarded the Canticles as a poem written by Solomon in answer to the complaints of his people about his Egyptian marriage; and this was one of the heresies charged upon him after his death, which led to his condemnation at the second council of Constantinople (553 A.D.). A literal interpretation was not again attempted till in 1544 Chateillon (Castellio or Castalion) lost his regency at Geneva for proposing to expel the book from the canon as impure. Grotius (*Annot. in V.T.*, 1644) took up a more moderate position. Without denying the possibility of a secondary reference designed by Solomon to give his poem a more permanent value, he regards the Canticles as primarily an ὁαρίστυς (conjugal prattle) between Solomon and Pharaoh's daughter. The distinction of a primary and secondary sense gradually became current not only among the Remonstrants, but in England (Lightfoot, Lowth) and even in Catholic circles (Bossuet, 1693). In the actual understanding of the book in its literal sense no great progress was made. Solomon was still viewed as the author, and for the most part the idea that the poem is a dramatic epithalamium was borrowed from Origen and the allegorists, and applied to the marriage of Pharaoh's daughter.

From Grotius to Lowth the idea of a typical reference designed by Solomon himself appears as a mere excrescence on the natural interpretation, but as an excrescence which could not be removed without perilling the place of Canticles in the canon, which, indeed, was again assailed by Whiston in 1723. But in his notes on Lowth's lectures, J.D. Michaelis, who regarded the poem as a description of the enduring happiness of true wedded love long after marriage, proposed to drop the allegory altogether, and to rest the canonicity of the book, as of those parts of Proverbs which treat of conjugal affection, on the moral picture it presents (1758).

Then came Herder's exquisite little treatise on *Solomon's Songs of Love, the Oldest and Sweetest of the East* (1778). Herder, possessing delicacy of taste and sympathetic poetical genius, delighted in the Canticles as the transparently natural expression of innocent and tender love. He expressed the idea that the poem is simply a sequence of independent songs without inner unity, grouped so as to display various phases and stages of love in a natural order, culminating in the placid joys of wedded life. The theory of Herder, which refuses to acknowledge any continuity in the book, was accepted by Eichhorn on the part of scholars, and with some hesitation by Goethe on the part of the poets. Commentaries based on this view are those of Döpke (1829), Magnus (1842), Noyes (1846).

The prevalent view of the 19th century, however, recognizes in the poem a more or less pronounced dramatic character, and following Jacobi (1771) distinguishes the shepherd, the true love of the Shulamite, from King Solomon, who is made to play an ignominious part. Propounded by Stäudlin (1792) and Ammon (1795), this view was energetically carried out by Umbreit (1820), and above all by Ewald, whose acuteness gave the theory a new development, while his commanding influence among Hebrew scholars acquired for it general recognition. Ewald assumed a very simple dramatic structure, and did not in his first publication (1826) venture to suppose that the poem had ever been acted on a stage. His less cautious followers have been generally tempted to dispose of difficulties by introducing more complicated action and additional interlocutors (so, for example, Hitzig, 1855; Ginsburg, 1857; Renan, 1860); while Böttcher (1850) did his best to reduce the dramatic exposition to absurdity by introducing the complexities and stage effects of a modern operetta. Another view is that of Delitzsch (1851 and 1875) and his followers, who also plead for a dramatic form—though without supposing that the piece was ever acted—but adhere to the traditional notion that Solomon is the author, who celebrates his love to a peasant maiden, whom he made his wife, and in whose company the proud monarch learned to appreciate the sweetness of a true affection and a simple rustic life.

In view of the prevalence of the "dramatic" theory of Canticles during the 19th century, and its retention by some comparatively recent writers (Oettli, Driver, Adeney, Harper), it seems desirable that this theory should be presented in some detail. A convenient summary of the form it assumed in the hands of Ewald (the shepherd-hypothesis) and of Delitzsch (the king-hypothesis) is given by Driver (*Literature of the Old Testament*, ch. x. § 1). The following presentation of the theory, on the general lines of Ewald, gives that form of it which Robertson Smith was able to accept in 1876.

The centre of attraction is throughout a female figure, and the unity of this figure is the chief test of the unity of the book. In the long canto, i. 1-ii .7, the heroine appears in a royal palace (i. 4) among the daughters of Jerusalem, who are thus presumably ladies of the court of Zion. At i. 9, an additional interlocutor is introduced, who is plainly a king, and apparently Solomon (i. 9, 12). He has just risen from table, and praises the charms of the heroine with the air of a judge of beauty, but without warmth. He addresses her simply as "my friend" (not as English version, "my love"). The heroine, on the contrary, is passionately in love, but nothing can be plainer than that the object of her affection is not the king. She is not at home in the palace, for she explains (i. 6) that she has spent her life as a peasant girl in the care of vineyards. Her beloved, whom she knows not where to find (i. 7), but who lies constantly on her heart and is cherished in her bosom like a spray of the sweet henna flowers which Oriental ladies delight to wear (i. 13, 14), is like herself a peasant—a shepherd lad (i. 7)—with whom she was wont to sit in the fresh greenwood under the mighty boughs of the cedars (i. 16, 17). Even before the king's entrance the ladies of the court are impatient at so silly an affection, and advise her, "if she is really so witless," to begone and rejoin her plebeian lover (i. 8). To them she appeals in ii. 5, 6, where her self-control, strung to the highest pitch as she meets the compliments of the king with reminiscences of her absent lover, breaks down in a fit of half-delirious sickness. The only words directed to the king are those of i. 12, which, if past tenses are substituted for the presents of the English version, contain a pointed rebuff. Finally, ii. 7 is, on the plainest translation, a charge not to arouse love till it please. The moral of the scene is the spontaneity of true affection.

Now, at viii. 5, a female figure advances leaning upon her beloved, with whom she claims inseparable union,—"for love is strong as death, its passion inflexible as the grave, its fire a divine flame which no waters can quench or floods drown. Yea, if a man would give all his wealth for love he would only be contemned." This is obviously the sentiment of ii. 7, and the suitor, whose wealth is despised, must almost of necessity be identified with the king of chapter i., if, as seems reasonable, we place viii. ii, 12 in the mouth of the same speaker—"King Solomon has vineyards which bring him a princely revenue, and enrich even the farmers. Let him and them keep their wealth; my vineyard is before me" (*i.e.* I possess it in present fruition). The last expression is plainly to be connected with i. 6. But this happiness has not been reached without a struggle. The speaker has proved herself an impregnable fortress (ver. 10), and, armed only with her own beauty and innocence, has been in his eyes as one that found peace. The sense is that, like a virgin fortress, she has compelled her assailant to leave her in peace. To these marks of identity with the heroine of ch. i. are to be added that she appears here as dwelling in gardens, there as a keeper of vineyards (i. 6, and viii. 13), and that as there it was her brethren that prescribed her duties, so here she apparently quotes words in which her brothers, while she was still a child, speculated as to her future conduct and its reward (viii. 8, 9).

If this analysis of the commencement and close of the book is correct, it is certain that the poem is in a sense dramatic, that is, that it uses dialogue and monologue to develop a story. The heroine appears in the opening scene in a difficult and painful situation, from which in the last chapter she is happily extricated. But the dramatic progress which the poem exhibits scarcely involves a plot in the usual sense of that word. The words of viii. 9, 10 clearly indicate that the deliverance of the heroine is due to no combination of favouring circumstances, but to her own inflexible fidelity and virtue.

The constant direction of the maiden's mind to her true love is partly expressed in dialogue with the ladies of the court (the daughters of Jerusalem), who have no dramatic individuality, and whose only function in the economy of the piece is to give the heroine opportunity for a more varied expression of her feelings. In i. 8 we found them contemptuous. In chapter iii. they appear to be still indifferent; for when the heroine relates a dream in which the dull pain of separation and the

uneasy consciousness of confinement and danger in the unsympathetic city disappear for a moment in imagined reunion with her lover, they are either altogether silent or reply only by taking up a festal part song describing the marriage procession of King Solomon (iii. 6-11), which stands in jarring contrast to the feelings of the maiden.[5] A second dream (v. 2-8), more weird and melancholy, and constructed with that singular psychological felicity which characterizes the dreams of the Old Testament, gains more sympathy, and the heroine is encouraged to describe her beloved at large (v. 10-vi. 3). The structure of these dialogues is so simple, and their purpose is so strictly limited to the exhibition of the character and affection of the maiden, that it is only natural to find them supplemented by a free use of pure monologue, in which the heroine recalls the happiness of past days, or expresses her rising hope of reunion with her shepherd, and restoration to the simple joys of her rustic life. The vivid reminiscence of ii. 8-17 takes the form of a dialogue within the main dialogue of the poem, a picture within a picture—the picture of her beloved as he stood at her window in the early spring time, and of her own merry heart as she laughingly answered him in the song with which watchers of the vineyards frighten away the foxes. It is, of course, a fault of perspective that this reminiscence is as sharp in outline and as strong in colour as the main action. But no one can expect perspective in such early art, and recollection of the past is clearly enough separated from present reality by ii. 16, 17. The last monologue (vii. 10-viii. 3), in which the hope of immediate return with her lover is tempered by maidenly shame, and a maiden's desire for her mother's counsel, is of special value for a right appreciation of the psychology of the love which the poem celebrates, and completes a picture of this flower of the northern valleys which is not only firm in outline, but delicate in touch. The subordinate action which supports the portraiture of the maiden of Galilee is by no means easy to understand.

We come next to chapter vi., which again sings the praises of the heroine, and takes occasion in this connexion to introduce, with the same want of perspective as we observed in ch. ii., a dialogue descriptive of Solomon's first meeting with the maiden. We learn that she was an inhabitant of Shulem or Shunem in Issachar, whom the king and his train surprised in a garden on the occasion of a royal progress through the north. Her beauty drew from the ladies of the court a cry of admiration. The maiden shrinks back with the reply—"I was gone down into my garden to see its growth.... I know not how my soul hath brought me among the chariots of princes"; but she is commanded to turn and let herself be seen in spite of her bashful protest—"Why do ye gaze on the Shulamite as at a dance of Mahanaim (a spectacle)?" Now the person in whose mouth this relation is placed must be an eye-witness of the scene, and so none other than the king. But in spite of the verbal repetition of several of the figures of ch. iv.... the tone in which the king now addresses the Shulamite is quite changed. She is not only beautiful but terrible, her eyes trouble him, and he cannot endure their gaze. She is unique among women, the choice and only one of her mother. The unity of action can only be maintained by ignoring vii. 1-9, and taking the words of Solomon in chapter vi. in their obvious sense as implying that the king at length recognizes in the maiden qualities of soul unknown in the harem, a character which compels respect, as well as a beauty that inflames desire. The change of feeling which was wrought in the daughters of Jerusalem in the previous scene now extends to Solomon himself, and thus the glad utterances of vii. 10, seq., have a sufficient motive, and the *dénouement* is no longer violent and unprepared.

The *nodus* of the action is fully given in chapter i., the final issue in chapter viii. The solution lies entirely in the character and constancy of the heroine, which prevail, in the simplest possible way, first over the ladies of the court and then over the king.

The attractiveness of the above theory cannot be denied; but it may be asked whether the attraction does not lie in the appeal to modern taste of a story which is largely the product of modern imagination. It supposes a freedom of intercourse between lovers inconceivable for the East. The initial situation of the maiden in the harem of Solomon is left as a problem for the reader to discover, until he comes to its supposed origin in vi. 11; the expedient might be granted in the case of one of Browning's *Men and Women*, but seems very improbable in the present case. The more elaborate dramatic theories can find no parallel in Semitic literature to the "drama" of Canticles, the book of Job being no exception to this statement; whilst even the simpler theories ask us to believe that the essential parts of the story—the rape of the Shulamite, the change in Solomon's disposition, her release from the harem—are to be supplied by the reader from obscure and disputable references. More serious still is the fact that any progress of action from first to last is so difficult to prove. In the first chapter we listen to a woman speaker desiring to be kissed by the man who has brought her into his chambers, and speaking of "our bed"; in the last we leave her "leaning upon her beloved." The difficulties of detail are equally great. To suppose that all the male love-making, by hypothesis unsuccessful, belongs to Solomon, whilst the heroine addresses her passionate words to the continuously absent shepherd, is obviously unconvincing; yet, if this shepherd speaks in iv. 8-v. 1, how are we to explain his appearance in the royal harem? This and other difficulties were acknowledged by Robertson Smith, notably the presence of vii. 1-9, which he proposed to set aside as an interpolation, because of its sensuality and of the difficulty of working it into the dramatic scheme. The fact that this passage has subsequently become the central element in the new interpretation of the book is, perhaps, a warning against violent measures with difficulties.

Attention has already been drawn to Herder's proposal, accepted by some later writers, including Diestel and Reuss, to regard the book as a collection of detached songs. This received new and striking confirmation from the anthropological data supplied by J.G. Wetstein (1873), Prussian consul at Damascus. His observations of the wedding customs of Syrian peasants led him to believe that Canticles is substantially a collection of songs originally sung at such festivities. Wetstein's contribution was republished shortly afterwards by Delitzsch, in an appendix to his *Commentary*; but it received little attention. The first amongst Old Testament scholars to perceive its importance seems to have been Stade, who accepted Wetstein's view in a footnote to his *History of the Jewish People* (ii. p. 197), published in 1888; to Budde, however, belongs the distinction of the systematic and detailed use of Wetstein's suggestions, especially in his *Commentary* (1898). This interpretation of the book is accepted by Kautzsch (1896), Siegfried (1898), Cheyne (1899), and other eminent scholars. The last-named states the theory tersely as follows: "The book is an anthology of songs used at marriage festivals in or near Jerusalem, revised and loosely connected by an editor without regard to temporal sequence" (*Ency. Bibl.* 691). The character of the evidence which has contributed to the acceptance of this view may be indicated in Wetstein's own statements:—

> "The finest time in the life of the Syrian peasant consists of the first seven days after his wedding, in which he and his young wife play the part of king (*melik*) and queen (*melika*), both being so treated and served by their village and the invited communities of the neighbourhood. The majority of the greater village weddings fall in the month of March, the finest of the Syrian year. The winter rains being over, and the sun still refreshing, not oppressive as in the following months, the weddings are celebrated in the open air on the village threshing-floor, which at this time of the year is with few exceptions a flowery mead. ... We pass over the wedding-day itself with its displays, the sword-dance of the bride, and the great feast. On the morrow, bridegroom and bride awake as king and queen. Already before sunrise they receive the leader of the bridesmen, as their vizier, and the bridesmen themselves; the latter thereupon fetch the threshing-board and bring it to the threshing-floor, singing a rousing song of battle or love, generally both. There it is erected as a throne, and after the royal couple have taken their seats and the necessary formalities are gone through, a great dance in honour of the young couple begins; the accompanying song is concerned only with themselves, its principal element being the inevitable *wasf*, *i.e.* a description of the physical perfections of both and their ornaments. The eulogy of the queen is more moderate, and praises her visible, rather than veiled, charms; this is due to the fact that she is to-day a married woman, and that the *wasf* sung on the previous day during her sword-dance has left nothing to desire. This *wasf* is the weak element in Syrian wedding-songs according to our taste; its comparisons are to us frequently too clumsy and reveal the stereotyped pattern. It is the same with the little collection of charming wedding-songs and fragments of them which has been received into the canon of the Old Testament under the name of Canticles; the *wasf* (iv.—vii.) is considerably below the rest in poetical value.

With this dance begin the sports, lasting seven days, begun in the morning on the first, shortly before midday on the other days, and continuing far into the night by the light of the fires that are kindled; on the last day alone all is over by sunset. During the whole week both royalties are in marriage attire, must do no work and have no cares; they have only to look down from the *merteba* (throne) on the sports carried on before them, in which they themselves take but a moderate part; the queen, however, occasionally gives a short dance to attract attention to her bridal attire."[6]

For the general application of these and the related customs to the interpretation of the book, reference should be made to Budde's *Commentary*, which recognizes four *wasfs*, viz. iv. 1-7 (describing the bride from head to breasts), v. 10-16 (the bridegroom), vi. 4-7 (similar to and partly repeating iv. 1-7), and vii. 1-9, belonging to the sword-dance of the bride, her physical charms being sung from feet to head (cf. vii. 1; "Why look ye on the Shulamite as (on) a dance of camps?" *i.e.* a war-dance). This dance receives its name from the fact that she dances it with a sword in her hand in the firelight on the evening of her wedding-day, and amid a circle of men and women, whilst such a *wasf* as this is sung by the leader of the choir. The passage relating to the litter of Solomon (iii. 6-11)—an old difficulty with the dramatizers—relates to the erection of the throne on the threshing-floor.[7] The terms "Solomon" and "the Shulamite" are explained as figurative references to the famous king, and to Abishag the Shulamite, "fairest among women," on the lines of the use of "king" and "queen" noted above. Other songs of Canticles are referred by Budde to the seven days of festivities. It need hardly be said that difficulties still remain in the analysis of this book of wedding-songs; whilst Budde detects 23 songs, besides fragments, Siegfried divides the book into 10.[8] Such differences are to be expected in the case of a collection of songs, some admittedly in dialogue form, all concerned with the common theme of the love of man and woman, and without any external indication of the transition from one song to the next.

Further, we must ask whether the task has been complicated by any editorial rearrangement or interpolation; the collector of these songs has certainly not reproduced them in the order of their use at Syrian weddings. Can we trace any principle, or even any dominant thought in this arrangement? In this connexion we touch the reason for the reluctance of some scholars to accept the above interpretation, viz. the alleged marks of literary unity which the book contains (*e.g.* Driver, *loc. cit.*). These are (1) general similarity of treatment, seen in the use of imagery (the bride as a garden, iv. 12; vi. 2, 3), the frequent references to nature and to particular places, and the recurrence of descriptions of male and female beauty; (2) references to "Solomon" or "the king," to "the Shulamite" and to "the daughters of Jerusalem" (from which, indeed, the dramatic theory has found its chief inspiration); (3) indications that the same person is speaking in different places (cf. the two dreams of a woman, and the vineyard references, i. 6; viii. 12); (4) repetitions of words and phrases especially of the refrains, "disturb not love" (ii. 7; iii. 5; viii. 4), and "until the day break" (ii. 17; iv. 6). But of these (1) is no more than should be expected, since the songs all relate to the same subject, and spring from a common world of life and thought of the same group of people; (2) finds at least a partial parallel and explanation in the use of "king" and "queen" noted above; whilst (3) and (4) alone seem to require something more than the work of a mere collector of the songs. It is, of course, true that, in recurrent ceremonies, the same thought inevitably tends to find expression in the same words. But this hardly meets the case of the refrains, whilst the reference to the vineyard at beginning and end does suggest some literary connexion. It is to be noted that the three refrains "disturb not love" severally follow passages relating to the consummation of the sexual relation, whilst the two refrains "until the day break" appear to form an invitation and an answer in the same connexion, whilst the "Omnia vincit Amor" passage in the last chapter forms a natural climax (cf. Haupt's translation). So far, then, as this somewhat scanty evidence goes, it may point to some one hand which has given its semblance of unity to the book by underlining the joy of consummated love—to which the vineyard and garden figures throughout allude—and by so arranging the collection that the descriptions of this joy find their climax in viii. 6-7.[9]

Whatever conclusion, however, may be reached as to the present *arrangement* of Canticles, the recognition of wedding-songs as forming its nucleus marks an important stage in the interpretation of the book; even Rothstein (1902), whilst attempting to resuscitate a dramatic theory, "recognizes... the possibility that older wedding-songs (as, for instance, the *wasfs*) are worked up in the Song of Songs" (Hastings' *D.B.* p. 594b). The drama he endeavours to construct might, indeed, be called "The Tokens of Virginity," since he makes it culminate in the procedure of Deut. xxii. 13 f., which still forms part of the Syrian ceremonies. But his reconstruction is open to the same objection as all similar attempts, in that the vital moments of the dramatic action have to be supplied from without. Thus between v. 1 and v. 2, the baffled king is supposed to have disappeared, and to have been replaced by the happy lover; between viii. 7 and viii. 8, we are required to imagine "the bridal night and its mysteries"; whilst between viii. 9 and viii. 10, we must suppose the evidence that the bride has been found a virgin is exhibited. He also attempts, with considerable ingenuity, to trace the legend involved in the supposed drama to the fact that Abishag remained a virgin in regard to David (I Kings i. 4) whilst nothing is said of her marriage to Solomon.[10]

On the view accepted above, Canticles describes in a number of separate poems the central passion of human life, and is wholly without didactic tendencies. Of its earliest history as a book we have no information. It is already included in the Hebrew canon (though its right to be there is disputed) when the first explicit mention of the book occurs. We have no evidence, therefore, of the theory of interpretation prevalent at the time of its incorporation with the other books of the canon. It seems, however, fair to infer that it would hardly have found acceptance but for a Solomonic theory of authorship and a "religious" theory of meaning. The problem raised by its present place in the canon occurs in relation to mistaken Jewish theories about other books also; it suggests, at least, that divine inspiration may belong to the life of a people rather than to the letter of their literature. Of that life Canticles portrays a central element—the passion of love—in striking imagery and graceful language, however far its oriental standard of taste differs from that of the modern West.

From the nature of the book, it is impossible to assign a precise date for its origin; the wedding-songs of which it chiefly consists must belong to the folklore of more than one century. The only evidence we possess as to date is drawn from the character of the Hebrew in which the book is written, which shows frequent points of contact with new Hebrew.[11] On this ground, we may suppose the present form of the work to date from the Greek period, *i.e.* after 332 B.C. This is the date accepted by most recent writers, *e.g.* Kautzsch, Cheyne, Budde, Rothstein, Jacob, Haupt. This late date finds some confirmation in the fact that Canticles belongs to the third and latest part of the Old Testament canon, and that its canonicity was still in dispute at the end of the 1st century A.D. The evidence offered for a north Israelite origin, on the ground of linguistic parallels and topographical familiarity (Driver, *loc. cit.*), does not seem very convincing; Haupt, however, places the compilation of the book in the neighbourhood of Damascus.

LITERATURE.—Most of the older books of importance are named above; Ginsburg, *The Song of Songs* (1857), gives much information as to the history of the exegesis of Canticles; Diestel's article, "Hohes Lied," in Schenkel's *Bibel Lexikon* (1871), reviews well the history of interpretation prior to Wetstein; cf. also Riedel, *Die Auslegung des Hohenliedes in der jüdischen Gemeinde und der griechischen Kirche* (1898). The most important commentary is that by Budde, in Marti's *Kurzer Hand-Commentar* (*Die fünf Megilloth*) (1898), where references to the literature of the 19th century are given. To his list add Siegfried, "Prediger und Hoheslied," in Nowack's *Handkommentar* (1898); Cheyne's article "Canticles," in the *Encyclopaedia Biblica* (1899); Dalman, *Palästinischer Diwan* (1901), parallels to the songs; Rothstein's article, "Song of Songs," in Hastings' *Dictionary of the Bible* (1902); G. Jacob, *Das Hohelied auf Grund arabischer und anderer Parallelen von neuem Untersucht* (1902); A. Harper, *The Song of Songs* (1902); Haupt, "The Book of Canticles," in *The American Journal of Semitic Languages* (July 1902); Scholz, *Kommentar über das Hohelied und Psalm 45* (1904) (written from the Roman Catholic dogmatic standpoint of allegorical interpretation, with a vigorous criticism of other positions). No commentator in English, except Haupt, in the article named above, has yet worked on the lines of the above anthology theory. Haupt gives valuable notes, with a translation and rearrangement of the separate songs.

(W. R. S.; H. W. R.*)

1 An argument for the allegorical interpretation has been often drawn from Mahommedan mysticism—from the poems of Hafiz, and the songs still sung by dervishes. See Jones, *Poëseos Asiaticae Com.* pt. in. cap. 9; Rosenmüller's remarks on Lowth's *Praelectio*, xxxi., and Lane's *Modern Egyptians*, ch. xxiv. But there is no true analogy between the Old Testament and the pantheistic mysticism of Islam, and there is every reason to believe that, where the allegory takes a form really analogous to Canticles, the original sense of these songs was purely erotic.

2 Repeated recently by Scholz, *Kommentar*, pp. iii. and iv.

3 The chief passages of Jewish writings referring to this dispute are Mishna *Jadaim*, iii. 5 and Tosifta *Sanhedrin*, xii. For other passages see Grätz's *Commentary*, p. 115, and in control of his criticism the introduction to the commentary of Delitzsch.

4 The text of the Targum in the Polyglots and in Buxtorf's Rabbinic Bible is not complete. The complete text is given in the Venice editions, and in Lagarde's *Hagiographa Chaldaice* (Lipsiae, 1873). The Polyglots add a Latin version. A German version is given by Riedel in his very useful book, *Die Auslegung des Hohenliedes* (1898), which also reviews the interpretation of Canticles by Hippolytus, Origen and later Greek writers.

5 Ewald and others make this song a distinct scene in the action of the poem, supposing that the author here exhibits the honourable form of espousal by which Solomon thought to vanquish the scruples of the damsel. This view, however, seems to introduce a complication foreign to the plan of the book.

6 Wetstein, *Zeitschrift f. Ethn.*, 1873, pp. 270-302; quoted and condensed by Budde as above in *Comm.* p. xvii.; for a fuller reproduction of Wetstein in English see Harper, *The Song of Songs*, pp. 74-76.

7 For the connexion of the threshing-floor with marriage through the idea of sexual fertility, we may compare many primitive ideas and customs, such as those described by Frazer (*The Golden Bough*, ii. p. 181 f., 186).

8 Castelli (*Il Cantico dei Cantici*, 1892) has written a very attractive little book on Canticles (quite apart from the Wetstein development) regarded as "a poem formed by a number of dialogues mutually related by a certain succession"; they require for their understanding nothing but some indication of the speaker at each transition (such as we find in codex A of the Septuagint).

9 On the erotic meaning of many of the figures employed see the notes of Haupt in *The American Journal of Semitic Languages* (July 1902); also G. Jacob, *Das Hohelied* (1902), who rightly protests against the limitation in the *Comm.* of Budde and Siegfried (p. 10) of all the songs to the marriage relation. Haupt thinks that the songs were not originally composed for weddings, though used there (p. 207, *op. cit.*). Diestel had pointed out, in another connexion (*B.L.* 125), that nothing is said in the book of the blessing of children, the chief end of *marriage* from a Hebrew standpoint.

10 Rothstein's criticism of Budde turns chiefly on the latter's admission of redactional elements, introducing "movement and action," and may be summed up in the statement that "Budde himself by the characteristics he assigns to the redactor points the way again past his own hypothesis to the dramatical view of the Song" (*loc cit.* 594b). A. Harper, "The Song of Songs" (*Cambridge Bible*) also criticizes Budde at length in favour of the conventional dramatical theory (Appendix).

11 *E.g.* the late form of the relative pronoun used throughout except in title; foreign words, Persian and Greek; Aramaic words and usages (details in the *Comm.* or in *E.B.* 693).

CANTILEVER (a word of doubtful origin, probably derived from "lever," in its ordinary meaning, and "cant," an angle or edge, or else from modern Lat. *quanta libra*, of what weight), a building term for a stone, iron or wooden bracket, considerably greater in length than depth, used to support a gallery, &c.; and for a system of bridge-building (see Bridges).

CANTILUPE, THOMAS DE (*c.* 1218-1282), English saint and prelate, was a son of William de Cantilupe, the 2nd baron (d. 1251), one of King John's ministers, and a nephew of Walter de Cantilupe, bishop of Worcester. He was educated at Paris and Orleans, afterwards becoming a teacher of canon law at Oxford and chancellor of the university in 1262. During the Barons' War Thomas favoured Simon de Montfort and the baronial party. He represented the barons before St Louis of France at Amiens in 1264; he was made chancellor of England in February 1265, but was deprived of this office after 218
Montfort's death at Evesham, and lived out of England for some time. Returning to England, he was again chancellor of Oxford University, lectured on theology, and held several ecclesiastical appointments. In 1274 he attended the second council of Lyons, and in 1275 he was appointed bishop of Hereford. Cantilupe was now a trusted adviser of Edward I.; he attended the royal councils, and even when differing from the king did not forfeit his favour. The archbishop of Canterbury, Robert Kilwardby, was also his friend; but after Kilwardby's death in 1279 a series of disputes arose between the bishop and the new archbishop, John Peckham, and this was probably the cause which drove Cantilupe to visit Italy. He died at Orvieto, on the 25th of August 1282, and he was canonized in 1330. Cantilupe appears to have been an exemplary bishop both in spiritual and secular affairs. His charities were large and his private life blameless; he was constantly visiting his diocese, correcting offenders and discharging other episcopal duties; and he compelled neighbouring landholders to restore estates which rightly belonged to the see of Hereford. In 1905 the Cantilupe Society was founded to publish the episcopal registers of Hereford, of which Cantilupe's is the first in existence.

See the *Ada Sanctorum, Boll.*, 1st October; and the *Register of Thomas de Cantilupe*, with introduction by W.W. Capes (1906).

CANTILUPE, WALTER DE (*d.* 1265), bishop of Worcester, came of a family which had risen by devoted service to the crown. His father and his elder brother are named by Roger of Wendover among the "evil counsellors" of John, apparently for no better reason than that they were consistently loyal to an unpopular master. Walter at first followed in his father's footsteps, entering the service of the Exchequer and acting as an itinerant justice in the early years of Henry III. But he also took minor orders, and, in 1236, although not yet a deacon, received the see of Worcester. As bishop, he identified himself with the party of ecclesiastical reform, which was then led by Edmund Rich and Robert Grosseteste. Like his leaders he was sorely divided between his theoretical belief in the papacy as a divine institution and his instinctive condemnation of the policy which Gregory IX. and Innocent IV. pursued in their dealings with the English church. At first a court favourite, the bishop came at length to the belief that the evils of the time arose from the unprincipled alliance of crown and papacy. He raised his voice against papal demands for money, and after the death of Grosseteste (1253) was the chief spokesman of the nationalist clergy. At the parliament of Oxford (1258) he was elected by the popular party as one of their representatives on

the committee of twenty-four which undertook to reform the administration; from that time till the outbreak of civil war he was a man of mark in the councils of the baronial party. During the war he sided with Montfort and, through his nephew, Thomas, who was then chancellor of Oxford, brought over the university to the popular side. He was present at Lewes and blessed the Montfortians before they joined battle with the army of the king; he entertained Simon de Montfort on the night before the final rout of Evesham. During Simon's dictatorship, the bishop appeared only as a mediating influence; in the triumvirate of "Electors" who controlled the administration, the clergy were represented by the bishop of Chichester. Walter de Cantilupe died in the year after Evesham (1266). He was respected by all parties, and, though far inferior in versatility and force of will to Grosseteste, fully merits the admiration which his moral character inspired. He is one of the few constitutionalists of his day whom it is impossible to accuse of interested motives.

See the *Chronica Maiora* of Matthew Paris ("Rolls" series, ed. Luard); the *Chronicon de Bellis* (ed. Halliwell, Camden Society); and the *Annales Monastici* ("Rolls" series, ed. Luard); also T.F. Tout in the *Political History of England*, vol. iii. (1905).

CANTO (from the Lat. *cantus*, a song), one of the divisions of a long poem, a convenient division when poetry was more usually sung by the minstrel to his own accompaniment than read. In music, the *canto*, in a concerted piece, is that part to which the air is given. In modern music this is nearly always the soprano. The old masters, however, more frequently allotted it to the tenor. *Canto fermo*, or *cantus firmus*, is that part of the melody which remains true to the original motive, while the other parts vary with the counterpoint; also in Church music the simple straightforward melody of the old chants as opposed to *canto figurato*, which is full of embellishments of a florid character (see Plain Song).

CANTON, JOHN (1718-1772), English natural philosopher, was born at Stroud, Gloucestershire, on the 31st of July 1718. At the age of nineteen, he was articled for five years as clerk to the master of a school in Spital Square, London, with whom at the end of that time he entered into partnership. In 1750 he read a paper before the Royal Society on a method of making artificial magnets, which procured him election as a fellow of the society and the award of the Copley medal. He was the first in England to verify Benjamin Franklin's hypothesis of the identity of lightning and electricity, and he made several important electrical discoveries. In 1762 and 1764 he published experiments in refutation of the decision of the Florentine Academy, at that time generally accepted, that water is incompressible; and in 1768 he described the preparation, by calcining oyster-shell with sulphur, of the phosphorescent material known as Canton's phosphorus. His investigations were carried on without any intermission of his work as a schoolmaster. He died in London on the 22nd of March 1772.

CANTON (more correctly Kwang-chow Fu), a large and populous commercial city of China, in the province of Kwangtung, situated on the eastern bank of the Pearl river, which at Canton is somewhat broader than the Thames at London Bridge, and is navigable 300 m. into the interior. The Pearl river has an additional course of 80 m. to the sea, the first part of which lies through a rich alluvial plain. Beyond this rises a range of hills terminating in abrupt escarpments along the course of the river. The bold shore thus formed compresses the stream at this point into a narrow pass, to which the Chinese have given the name of Hu-mun, or Tiger's Gate. This the Portuguese translated into Boca Tigre, whence the designation of "the Bogue," by which it is commonly known among Europeans. When viewed from the hills on the north, Canton appears to be little more than an expanse of reddish roofs relieved by a few large trees,—two pagodas shooting up within the walls, and a five-storeyed tower near the northern gate, being the most conspicuous objects. These hills rise 1200 ft. above the river. Little or no vegetation is seen on them; and their acclivities, covered for miles with graves and tombs, serve as the necropolis of this vast city. Three or four forts are built on the points nearest the northern walls. Facing the city on the opposite side of the river is the suburb and island of Honan. The part of Canton enclosed by walls is about 6 m. in circumference, and has a partition wall, running east and west, and dividing the city into two unequal parts. The northern and larger division is called the old, and the southern the new city. Including the suburbs, the city has a circuit of nearly 10 m. The houses stretch along the river for 4 m., and the banks are almost entirely concealed by boats and rafts. The walls of the city are of brick, on a foundation of sandstone and granite, are 20 ft. thick, and rise to an average height of 25 ft. On the north side the wall rises to include a hill which it there meets with, and on the other three sides the city is surrounded by a ditch, which is filled by the rising tide, when, for a time, the revolting mass of filth that lies in its bed is concealed from view. There are twelve outer gates—four of which are in the partition wall, and two water gates, through which boats pass from east to west across the new city. The gates are all shut at night, and in the daytime a guard is stationed at them to preserve order. The streets, amounting in all to upwards of 600, are long, straight, and very narrow. They are mostly paved and are not as dirty as those of some of the other cities in the empire; in fact, considering the habits of the people and the inattention of the government to these matters, Canton may be said to be a well-governed and comparatively cleanly city. The houses are in general small, seldom consisting of more than two storeys, the ground floor serving as a shop, and the rest of the house, with the court behind, being used as a warehouse. Here are to be found the productions of every quarter of the globe; and the merchants are in general attentive, civil, expert men of business, and generally assiduous.

The temples and public buildings of Canton are numerous, but none of them presents features worthy of special remark. There are two pagodas near the west gate of the old city, and 124 temples, pavilions, halls and other religious edifices within the city. One of the pagodas called the *Kwangtah*, or Plain Pagoda, is a Mahommedan mosque, which was erected by the Arabian voyagers who were in the habit of visiting Canton about ten centuries ago. It rises in an angular tapering tower to the height of 160 ft. The other is an octagonal pagoda of nine storeys, 170 ft. in height, and was first erected more than thirteen centuries ago. A Buddhist temple at Honan, opposite the foreign factories, and named in Chinese *Hai-ch'wang-sze*, or the Temple of the Ocean Banner, is one of the largest in Canton. Its grounds, which cover about seven acres, are surrounded by a wall, and are divided into courts, gardens and a burial-ground, where are deposited the ashes of priests, whose bodies are burned. There are about 175 priests connected with this establishment. Besides the *Hai-ch'wang-sze* the most noteworthy temples in and about the city are those of the Five Hundred Gods and of Longevity, both in the western suburbs; the Tatar City Temple and the Temple of the Five Genii. The number of priests and nuns in Canton is not exactly known, but they probably exceed 2000, nine-tenths of whom are Buddhists. The temples are gloomy-looking edifices. The areas in front of them are usually occupied by hucksters, beggars and idlers, who are occasionally driven off to make room

for the mat-sheds in which the theatrical performances got up by the wealthy inhabitants are acted. The principal hall, where the idol sits enshrined, is lighted only in front, and the inner apartments are inhabited by a class of men almost as senseless as the idols they serve.

The residences of the high officers of government are all within the walls of the old city. The residence of the governor-general used to be in the south-west corner of the new city, but it was utterly destroyed by the bombardment in 1856. The site remained desolate until 1860, when it was taken possession of by the French authorities, who erected a Roman Catholic cathedral upon it. The residence of the commander-in-chief is in the old city, and is said to be one of the best houses in Canton. There are four prisons in the city, all large edifices. For the space of 4 or 5 m. opposite Canton boats and vessels are ranged parallel to each other in such close order as to resemble a floating city; and these marine dwellings are occupied by numerous families, who reside almost constantly on the water. In the middle of the river lie the Chinese junks, some of them of from 600 to 1000 tons burden, which trade to the north and to the Strait Settlements. The various gilds and associations among the people and the merchants from other provinces have public halls each for its own particular use. The number of these buildings is not less than 150. Canton was long the only seat of British trade with China, and was no doubt fixed upon by the Chinese government for the European trade, as being the most distant from the capital Peking.

Formerly only a limited number of merchants, called the *hong* or security merchants, were allowed to trade with foreigners. They were commonly men of large property and were famed for integrity in their transactions. All foreign cargoes passed through the hands of these merchants, and by them also the return cargoes were furnished. They became security for the payment of customs duties, and it was criminal for any other merchant to engage in the trade with foreigners.

Although it is in the same parallel of latitude as Calcutta, the climate of Canton is much cooler, and is considered superior to that of most places situated between the tropics. The extreme range of the thermometer is from 38° to 100° F., though these extremes are rarely reached. In ordinary years the winter minimum is about 42° and the maximum in summer 96°. The hot season is considered to last from May to October; during the rest of the year the weather is cool. In shallow vessels ice sometimes forms at Canton; but so rarely is snow seen that when in February 1835 a fall to the depth of 2 in. occurred, the citizens hardly knew its proper name. Most of the rain falls during May and June, but the amount is nothing in comparison with that which falls during a rainy season in Calcutta. July, August and September are the regular monsoon months, the wind coming from the south-west with frequent showers, which allay the heat. In the succeeding months the northerly winds begin, with some interruptions at first, but from October to January the temperature is agreeable, the sky clear and the air invigorating. Few large cities are more generally healthy than Canton, and epidemics rarely prevail there.

Provisions and refreshments of all sorts are abundant, and in general are excellent in quality and moderate in price. It is a singular fact that the Chinese make no use of milk, either in its natural state or in the form of butter or cheese. Among the delicacies of a Chinese market are to be seen horse-flesh, dogs, cats, hawks, owls and edible birds'-nests. The business between foreigners and natives at Canton is generally transacted in a jargon known as "pidgin English," the Chinese being extremely ready in acquiring a sufficient smattering of English words to render themselves intelligible.

The intercourse between China and Europe by the way of the Cape of Good Hope began in 1517, when Emanuel, king of Portugal, sent an ambassador, accompanied by a fleet of eight ships, to Peking, on which occasion the sanction of the emperor to establish a trade at Canton was obtained. It was in 1596, in the reign of Queen Elizabeth, that the English first attempted to open an intercourse with China, but ineffectually, for the two ships which were despatched on this mission were lost on the outward voyage, and it was not till about 1634 that English ships visited Canton. Unfortunately at this time a misunderstanding having occurred with the Chinese authorities owing to the treachery of the Portuguese, a rupture and a battle took place, and it was with difficulty that peace was again restored. In 1673 China was again visited by an English ship which was subsequently refused admission into Japan, and in 1677 a factory was established at Amoy. But during an irruption of the Tatars three years later this building was destroyed, and it was not till 1685 that the emperor permitted any trade with Europeans at that port. Upon the union of the two East India Companies in London, an imperial edict was issued, restricting the foreign commerce to the port of Canton.

Tea was first imported into England about the year 1667, and in 1689 a customs duty of 5s. per lb was for the first time imposed. From this date to 1834 the East India Company held a monopolv of the trade at Canton, and during this period the prosperity of the port increased and multiplied, notwithstanding the obstructions which were constantly thrown in the way of the "barbarians" by the Chinese government. The termination of the Company's monopoly brought no alteration in the conduct of the native authorities, whose oppressions became before long so unbearable that in 1839 war was declared on the part of Great Britain. In 1841, while the forces under Sir Hugh (afterwards Lord) Gough were preparing to capture Canton, Captain Elliott entered into negotiations with the Chinese, and consented to receive a pecuniary ransom in lieu of occupying the city. Meanwhile the war was carried on in central China, and finally resulted in the conclusion of the Nanking treaty in August 1842, under the terms of which four additional ports, viz. Shanghai, Ningpo, Fu-chow and Amoy, were thrown open to foreign trade, and foreigners were granted permission to enter the city of Canton, from which they had hitherto been excluded. This latter provision of the treaty, however, the Chinese refused to carry out; and after endless disputes about this and other improper acts of the Chinese government, war was again declared in 1856, the immediate cause of which was an insult offered to the British flag by the capture of certain Chinese on board the "Arrow," a small craft trading under English colours. The outbreak of hostilities was followed by the pillage and destruction of the foreign "factories" in December 1856 by a Chinese mob, and twelve months later Canton was taken by assault by a force under Sir Charles Straubenzee, which had been sent out from England for the purpose. From this time until October 1861 the city was occupied by an English and French garrison, and the administration of affairs was entrusted to an allied commission, consisting of two English officers and one French officer, acting under the English general. Since the withdrawal of this garrison, the city of Canton has been freely open to foreigners of all nationalities, and the English consul has his residence in the Yamun formerly occupied by the allied commissioners, within the city walls.

On the conclusion of peace it became necessary to provide a foreign settlement for the merchants whose "factories" had been destroyed, and after some consultation it was determined to fill in and appropriate as the British settlement an extensive mud flat lying to the westward of the old factory site, and known as Sha-mien or "The Sand Flats." This site having been leased, it was converted into an artificial island by building a massive embankment of granite in an irregular oval form. Between the northern face of the site and the Chinese suburb a canal of 100 ft. in width was constructed, thus forming an island of about 2850 ft. in length and 950 ft. in greatest breadth. The expense of making this settlement was 325,000 Mexican dollars, four-fifths of which were defrayed by the British government and one-fifth by the French government. The British portion of the new settlement was laid out in eighty-two lots; and so bright appeared the prospect of trade at the time of their sale that 9000 dollars and upwards was paid in more than one instance for a lot with a river frontage, measuring 12,645 sq. ft. The depression in trade, however, which soon followed acted as a bar to building, and it was not until the British consulate was erected in 1865 that the merchants began to occupy the settlement in any numbers. The British consulate occupies six lots, with an area of 75,870 sq. ft. in the centre of the site, overlooking the river, and is enclosed with a substantial wall. A ground-rent of 15,000 cash (about £3) per *mow* (a third of an acre) is annually paid by the owners of lots to the Chinese government.

The Sha-mien settlement possesses many advantages. It is close to the western suburb of Canton, where reside all the wholesale dealers as well as the principal merchants and brokers; it faces the broad channel known as the Macao Passage, up which the cool breezes in summer are wafted almost uninterruptedly, and the river opposite to it affords a safe and

commodious anchorage for steamers up to 1000 tons burden. Steamers only are allowed to come up to Canton, sailing vessels being restricted to the anchorage at Whampoa. There is daily communication by steamer with Hong-Kong, and with the Portuguese colony of Macao which lies near the mouth of the river. Inland communication by steam is now open by the west river route to the cities of Wuchow and Nanking. The opening of these inland towns to foreign trade, which has been effected, cannot but add considerably to the volume of Canton traffic. The native population is variously estimated at from 1,500,000 to 2,000,000, the former being probably nearer the truth. The foreign residents number about 400. Canton is the headquarters of the provincial government of Kwangtung and Kwangsi, generally termed the two Kwang, at the head of which is a governor-general or viceroy, an office which next to that of Nanking is the most important in the empire. It possesses a mint built in 1889 by the then viceroy Chang Chih-tung, and equipped with a very complete plant supplied from England. It turns out silver subsidiary coinage and copper cash. Contracts have been entered into to connect Canton by railway with Hong-Kong (Kowlun), and by a grand trunk line with Hankow on the Yangtsze. It is connected by telegraph with all parts. The value of the trade of Canton for the year 1904 was £13,749,582, £7,555,090 of which represented imports and £6,194,490 exports.

(R. K. D.)

CANTON, a city of Fulton county, Illinois, U.S.A., in the W. part of the state, 12 m. N. of the Illinois river, and 28 m. S.W. of Peoria. Pop. (1890) 5604; (1900) 6564 (424 foreign-born); (1910) 10,453. Canton is served by the Chicago, Burlington & Quincy, the Toledo, Peoria & Western, and the Illinois Central Electric Interurban railways. About 1 m. from the centre of the city are the Canton Chautauqua grounds. The city has a public library. Canton is situated in a rich agricultural region, for which it is a supply point, and there are large coal-mines in the vicinity. Among the manufactures are agricultural implements (particularly ploughs), machine-shop and foundry products (particularly mining-cars and equipment), flour, cigars, cigar-boxes, brooms, and bricks and tile. The municipal water-works are supplied from a deep artesian well. Canton was laid out in 1825; it was incorporated as a town in 1837 and as a village in 1849, and was chartered as a city in 1854.

CANTON, a village and the county-seat of St Lawrence county, New York, U.S.A., 17 m. S.E. of Ogdensburg, on the Grasse river. Pop. (1890) 2580; (1900) 2757; (1905) 3083; (1910) 2701. The village is served by the Rome, Watertown & Ogdensburg division of the New York Central & Hudson River railway. Canton is the seat of St Lawrence University (co-educational; chartered in 1856; at first Universalist, afterwards unsectarian), having a college of letters and science, which developed from an academy, opened in 1859; a theological school (Universalist), opened in 1858; a law school, established in 1869, discontinued in 1872 and re-established in Brooklyn, New York, in 1903 as the Brooklyn Law School of St Lawrence University; and a state school of agriculture, established in 1906 by the state legislature and opened in 1907. In 1907-1908 the university had 52 instructors, 168 students in the college of letters and science, 14 students in the theological school, 287 in the law school and 13 in the agricultural school. The Clinton Liberal Institute (Universalist, 1832), which was removed in 1879 from Clinton to Fort Plain, New York, was established in Canton in 1901. The Grasse river furnishes water-power, and the village has saw-, planing- and flour-mills, and plant for the building of small boats and launches. The village corporation owns a fine water-supply system. Canton was first settled in 1800 by Daniel Harrington of Connecticut and was incorporated in 1845. It was for many years the home of Silas Wright, who was buried here.

CANTON, a city and the county-seat of Stark county, Ohio, U.S.A., on Nimisillen Creek, 60 m. S. by E. of Cleveland. Pop. (1890) 26,189; (1900) 30,667, of whom 4018 were foreign-born; and (1910) 50,217. It is served by the Pennsylvania, the Baltimore & Ohio, and the Wheeling & Lake Erie railways, and is connected by an interurban electric system with all the important cities and towns within a radius of 50 m. It lies at an elevation of about 1030 ft. above sea-level, in a wheat-growing region, in which bituminous coal, limestone, and brick and potter's clay abound. Meyer's Lake in the vicinity is a summer attraction. The principal buildings are the post-office, court-house, city hall, an auditorium with a seating capacity of 5000, a Masonic building, an Oddfellows' temple, a Y.M.C.A. building and several handsome churches. On Monument Hill, in West Lawn Cemetery, in a park of 26 acres—a site which President McKinley had suggested for a monument to the soldiers and sailors of Stark county—there is a beautiful monument to the memory of McKinley, who lived in Canton. This memorial is built principally of Milford (Mass.) granite, with a bronze statue of the president, and with sarcophagi containing the bodies of the president and Mrs McKinley, and has a total height, from the first step of the approaches to its top, of 163 ft. 6 in., the mausoleum itself being 98 ft. 6 in. high and 78 ft. 9 in. in diameter; it was dedicated on the 30th of September 1907, when an address was delivered by President Roosevelt. Another monument commemorates the American soldiers of the Spanish-American War. Among the city's manufactures are agricultural implements, iron bridges and other structural iron work, watches and watch-cases, steel, engines, safes, locks, cutlery, hardware, wagons, carriages, paving-bricks, furniture, dental and surgical chairs, paint and varnish, clay-working machinery and saw-mill machinery. The value of the factory product in 1905 was $10,591,143, being 10.6% more than the product value of 1900. Canton was laid out as a town in 1805, became the county-seat in 1808, was incorporated as a village in 1822 and in 1854 was chartered as a city.

CANTON (borrowed from the Ital. *cantone,* a corner or angle), a word used for certain divisions of some European countries. In France, the canton, which is a subdivision of the arrondissement, is a territorial, rather than an administrative, unit. The canton, of which there are 2908, generally comprises, on an average, about twelve communes, though very large communes are sometimes divided into several cantons. It is the seat of a justice of the peace, and returns a member to the *conseil d'arrondissement* (see France). In Switzerland, canton is the name given to each of the twenty-two states comprising the Swiss confederation (see Switzerland).

In heraldry, a "canton" is a corner or square division on a shield, occupying the upper corner (usually the dexter). It is in area two-thirds of the quarter (see Heraldry).

CANTONMENT (Fr. *cantonnement*, from *cantonner*, to quarter; Ger. *Ortsunterkunft* or *Quartier*). When troops are distributed in small parties amongst the houses of a town or village, they are said to be in cantonments, which are also called quarters or billets. Formerly this method of providing soldiers with shelter was rarely employed on active service, though the normal method in "winter quarters," or at seasons when active military operations were not in progress. In the field, armies lived as a rule in camp (*q.v.*), and when the provision of canvas shelter was impossible in bivouac. At the present time, however, it is unusual, in Europe at any rate, for troops on active service to hamper themselves with the enormous trains of tent wagons that would be required, and cantonments or bivouacs, or a combination of the two have therefore taken the place, in modern warfare, of the old long rectilinear lines of tents that marked the resting-place and generally, too, the order of battle of an 18th-century army. The greater part of an army operating in Europe at the present day is accommodated in widespread cantonments, an army corps occupying the villages and farms found within an area of 4 m. by 5 or 6. This allowance of space has been ascertained by experience to be sufficient, not only for comfort, but also for subsistence for one day, provided that the density of the ordinary civil population is not less than 200 persons to the square mile. Under modern conditions there is little danger from such a dissemination of the forces, as each fraction of each army corps is within less than two hours' march of its concentration post. If the troops halt for several days, of course they require either a more densely populated country from which to requisition supplies, or a wider area of cantonments. The difficulty of controlling the troops, when scattered in private houses in parties of six or seven, is the principal objection to this system of cantonments. But since Napoleon introduced the "war of masses" the only alternative to cantoning the troops is bivouacking, which if prolonged for several nights is more injurious to the well-being of the troops than the slight relaxation of discipline necessitated by the cantonment system, when the latter is well arranged and policed. The troops nearest the enemy, however, which have to be maintained in a state of constant readiness for battle, cannot as a rule afford the time either for dispersing into quarters or for rallying on an alarm, and in western Europe at any rate they are required to bivouac. In India, the term "cantonment" means more generally a military station or standing camp. The troops live, not in private houses, but in barracks, huts, forts or occasionally camps. The large cantonments are situated in the neighbourhood of the North-Western frontier, of the large cities and of the capitals of important native states. Under Lord Kitchener's redistribution of the Indian army in 1903, the chief cantonments are Rawalpindi, Quetta, Peshawar, Kohat, Bannu, Nowshera, Sialkot, Mian Mir, Umballa, Muttra, Ferozepore, Meerut, Lucknow, Mhow, Jubbulpore, Bolarum, Poona, Secunderabad and Bangalore.

CANTÙ, CESARE (1804-1895), Italian historian, was born at Brivio in Lombardy and began his career as a teacher. His first literary essay (1828) was a romantic poem entitled *Algiso, o la Lega Lombarda* (new ed., Milan, 1876), and in the following year he produced a *Storia di Como* in two volumes (Como, 1829). The death of his father then left him in charge of a large family, and he worked very hard both as a teacher and a writer to provide for them. His prodigious literary activity led to his falling under the suspicions of the Austrian police, and he was mixed up in a political trial and arrested in 1833. While in prison writing materials were denied him, but he managed to write on rags with a tooth-pick and candle smoke, and thus composed the novel *Margherita Pusterla* (Milan, 1838). On his release a year later, as he was interdicted from teaching, literature became his only resource. In 1836 the Turinese publisher, Giuseppe Pomba, commissioned him to write a universal history, which his vast reading enabled him to do. In six years the work was completed in seventy-two volumes, and immediately achieved a general popularity; the publisher made a fortune out of it, and Cantù's royalties amounted, it is said, to 300,000 lire (£12.000). Just before the revolution of 1848, being warned that he would be arrested, he fled to Turin, but after the "Five Days" he returned to Milan and edited a paper called *La Guardia Nazionale*. Between 1849 and 1850 he published his *Storia degli Italiani* (Turin, 1855) and many other works. In 1857 the archduke Maximilian tried to conciliate the Milanese by the promise of a constitution, and Cantù was one of the few Liberals who accepted the olive branch, and went about in company with the archduke. This act was regarded as treason and caused Cantù much annoyance in after years. He continued his literary activity after the formation of the Italian kingdom, producing volume after volume until his death. For a short time he was member of the Italian parliament; he founded the Lombard historical society, and was appointed superintendent of the Lombard archives. He died in March 1895. His views are coloured by strong religious and political prejudice, and by a moralizing tendency, and his historical work has little critical value and is for the most part pure book-making, although he collected a vast amount of material which has been of use to other writers. In dealing with modern Italian history he is reactionary and often wilfully inaccurate. Besides the above-mentioned works he wrote *Gli Eretici in Italia* (Milan, 1873); *Cronistoria dell' Indipendenza italiana* (Naples, 1872-1877); *II Conciliatore e i Carbonari* (Milan, 1878), &c.

(L. V.*)

CANUSIUM (Gr. Κανύσιον, mod. *Canosa*), an ancient city of Apulia, on the right bank of the Aufidus (Ofanto), about 12 m. from its mouth, and situated upon the Via Traiana, 85 m. E.N.E. of Beneventum. It was said to have been founded by Diomede, and even at the time of Horace (*Sat.* i. 10. 30) both Greek and Latin were spoken there. The legends on the coins are Greek, and a very large number of Greek vases have been found in the necropolis. The town came voluntarily under Roman sovereignty in 318 B.C., afforded a refuge to the Roman fugitives after Cannae, and remained faithful for the rest of the war. It revolted in the Social War, in which it would appear to have suffered, inasmuch as Strabo (vi. 283) speaks of Canusium and Arpi as having been, to judge from the extent of their walls, the greatest towns in the plain of Apulia, but as having shrunk considerably in his day. Its importance was maintained, however, by its trade in agricultural products and in Apulian wool (which was there dyed and cleaned), by its port (probably Cannae) at the mouth of the Aufidus, and by its position on the high-road. It was a *municipium* under the early empire, but was converted into a *colonia* under Antoninus Pius by Herodes Atticus, who provided it with a water-supply. In the 6th century it was still the most important city of Apulia. Among the ancient buildings which are still preserved, an amphitheatre, an aqueduct and a city gate may be mentioned.

See N. Jacobone, *Ricerche sulla storia e la topografia di Canosa Antica* (Canosa di Puglia, 1905).

(T. As.)

CANUTE (Cnut), known as "the Great" (*c.* 995-1035), king of Denmark and England, second son of King Sweyn Forkbeard and his first wife, the daughter of the Polish prince, Mieszko, was born *c.* 995. On the death of his father he was compelled to quit England by a general rising of the Anglo-Saxons, on which occasion in a fit of rage, for he was not naturally cruel, he abandoned his hostages after cutting off their hands, ears and noses. In the following year, 1015, he returned with a great fleet manned by a picked host, "not a thrall or a freedman among them." He speedily succeeded in subduing all England except London, now the last refuge of King Æthelred and his heroic son, Edmund Ironside. On the death of Æthelred (23rd of April 1016) Canute was elected king by an assembly of notables at Southampton; but London clung loyally to Edmund, who more than once succeeded in raising the western shires against Canute. Edmund indeed approved himself the better general of the two, and would doubtless have prevailed, but for the treachery of his own ealdormen. This was notably the case at the great battle of Assandun, in which by the desertion of Eadric an incipient Anglo-Saxon victory was converted into a crushing defeat. Nevertheless, the antagonists were so evenly matched that the great men on both sides, fearing that the interminable war would utterly ruin the land, arranged a conference between Canute and Edmund on an island in the Severn, when they agreed to divide England between them, Canute retaining Mercia and the north, while Edmund's territory comprised East Anglia and Wessex with London. On the death of Edmund, a few months later (November 1016), Canute was unanimously elected king of all England at the beginning of 1017. The young monarch at once showed himself equal to his responsibilities. He did his utmost to deserve the confidence of his Anglo-Saxon subjects, and the eighteen years of his reign were of unspeakable benefit to his adopted country. He identified himself with the past history of England and its native dynasty by wedding Emma, or Ælgifu, to give her her Saxon name (the Northmen called her Alfifa), who came over from Normandy at his bidding, Canute previously repudiating his first wife, another Ælgifu, the daughter of the ealdorman Aelfhem of Deira, who, with her sons, was banished to Denmark. In 1018 Canute inherited the Danish throne, his elder brother Harold having died without issue. He now withdrew most of his army from England, so as to spare as much as possible the susceptibilities of the Anglo-Saxons. For the same reason he had previously dispersed all his warships but forty. On his return from Denmark he went a step farther. In a remarkable letter, addressed to the prelates, ealdormen and people, he declared his intention of ruling England by the English, and of upholding the laws of King Edgar, at the same time threatening with his vengeance all those who did not judge righteous judgment or who let malefactors go free. The tone of this document, which is not merely Christian but sacerdotal, shows that he had wisely resolved, in the interests of law and order, to form a close alliance with the native clergy. Those of his own fellow-countrymen who refused to co-operate with him were summarily dismissed. Thus, in 1021, the stiffnecked jarl Thorkil was banished the land, and his place taken by an Anglo-Saxon, the subsequently famous Godwin, who became one of Canute's chief counsellors. The humane and conciliatory character of his government is also shown in his earnest efforts to atone for Danish barbarities in the past. Thus he rebuilt the church of St Edmundsbury in memory of the saintly king who had perished there at the hands of the earlier Vikings, and with great ceremony transferred the relics of St Alphege from St Paul's church at London to a worthier resting-place at Canterbury. His work of reform and reconciliation was interrupted in 1026 by the attempt of Olaf Haraldson, king of Norway, in conjunction with Anund Jakob, king of Sweden, to conquer Denmark. Canute defeated the Swedish fleet at Stangebjerg, and so seriously injured the combined squadrons at the mouth of the Helgeaa in East Scania, that in 1028 he was able to subdue the greater part of Norway "without hurling a dart or swinging a sword." But the conquest was not permanent, the Norwegians ultimately rising successfully against the tyranny of Alfifa, who misruled the country in the name of her infant son Sweyn. Canute also succeeded in establishing the dominion of Denmark over the southern shores of the Baltic, in Witland and Samland, now forming part of the coast of Prussia. Of the details of Canute's government in Denmark proper we know but little. His most remarkable institution was the *Tinglid*, a military brotherhood, originally 3000 in number, composed of members of the richest and noblest families, who not only formed the royal bodyguard, but did garrison duty and defended the marches or borders. They were subject to strict discipline, embodied in written rules called the *Viderlog* or *Vederlag*, and were the nucleus not only of a standing army but of a royal council. Canute is also said to have endeavoured to found monasteries in Denmark, with but indifferent success, and he was certainly the first Danish king who coined money, with the assistance of Anglo-Saxon mint-masters. Of his alliance with the clergy we have already spoken. Like the other great contemporary kingdom-builder, Stephen of Hungary, he clearly recognized that the church was the one civilizing element in a world of anarchic barbarism, and his submission to her guidance is a striking proof of his perspicacity. But it was no slavish submission. When, in 1027, he went to Rome, with Rudolf III. of Burgundy, to be present at the coronation of the emperor Conrad II., it was quite as much to benefit his subjects as to receive absolution for the sins of his youth. He persuaded the pope to remit the excessive fees for granting the *pallium*, which the English and Danish bishops had found such a grievous burden, substituting therefor a moderate amount of Peter's pence. He also induced the emperor and other German princes to grant safe-conducts to those of his subjects who desired to make the pilgrimage to Rome.

Canute died at Shaftesbury on the 12th of November 1035 in his 40th year, and was buried at Winchester. He was cut off before he had had the opportunity of developing most of his great plans; yet he lived long enough to obtain the title of "Canute the Wealthy" (*i.e.* "Mighty"), and posterity, still more appreciative, has well surnamed him "the Great." A violent, irritable temper was his most salient defect, and more than one homicide must be laid to his charge. But the fierce Viking nature was gradually and completely subdued; for Canute was a Christian by conviction and sincerely religious. His humility is finely illustrated by the old Norman poem which describes how he commanded the rising tide of the Thames at Westminster to go back. The homily he preached to his courtiers on that occasion was to prepare them for his subsequent journey to Rome and his submission to the Holy See. Like his father Sweyn, Canute loved poetry, and the great Icelandic skalder, Thorar Lovtunge and Thormod Kolbrunarskjöld, were as welcome visitors at his court as the learned bishops. As an administrator Canute was excelled only by Alfred. He possessed in an eminent degree the royal gift of recognizing greatness, and the still more useful faculty of conciliating enemies. No English king before him had levied such heavy taxes, yet never were taxes more cheerfully paid; because the people felt that every penny of the money was used for the benefit of the country. According to the *Knytlinga Saga* King Canute was huge of limb, of great strength, and a very goodly man to look upon, save for his nose, which was narrow, lofty and hooked; he had also long fair hair, and eyes brighter and keener than those of any man living.

See *Danmarks Riges Historie. Old Tiden og den aeldre Middelalder*, pp. 382-406 (Copenhagen, 1897-1905); Freeman, *Norman Conquest* (Oxford, 1870-1875); Steenstrup, *Normannerne* (Copenhagen, 1876-1882).

(R. N. B.)

CANUTE VI. (1163-1202), king of Denmark, eldest son of Valdemar I., was crowned in his seventh year (1170), as his father's co-regent, so as to secure the succession. In 1182 he succeeded to the throne. During his twenty years' reign Denmark advanced steadily along the path of greatness and prosperity marked out for her by Valdemar I., consolidating and extending her dominion over the North Baltic coast and adopting a more and more independent attitude towards Germany. The emperor Frederick I.'s claim of overlordship was haughtily rejected at the very outset, and his attempt to stir up Duke Bogislav of Pomerania against Denmark's vassal, Jaromir of Rügen, was defeated by Archbishop Absalon, who destroyed 465 of Bogislav's 500 ships in a naval action off Strela (Stralsund) in 1184. In the following year Bogislav did homage to Canute on the deck of his long-ship, off Jomsborg in Pomerania, Canute henceforth styling himself king of the

Danes and Wends. This victory led two years later to the voluntary submission of the two Abodrite princes Niklot and Borwin to the Danish crown, whereupon the bulk of the Abodrite dominions, which extended from the Trave to the Warnow, including modern Mecklenburg, were divided between them. The concluding years of Canute's reign were peaceful, as became a prince who, though by no means a coward, was not of an overwhelmingly martial temperament. In 1197, however, German jealousy of Denmark's ambitions, especially when Canute led a fleet against the pirates of Esthonia, induced Otto, margrave of Brandenburg, to invade Pomerania, while in the following year Otto, in conjunction with Duke Adolf of Holstein, wasted the dominions of the Danophil Abodrites. The war continued intermittently till 1201, when Duke Valdemar, Canute's younger brother, conquered the whole of Holstein, and Duke Adolf was subsequently captured at Hamburg and sent in chains to Denmark. North Albingia, as the district between the Eider and the Elbe was then called, now became Danish territory. Canute died on the 12th of November 1202. Undoubtedly he owed the triumphs of his reign very largely to the statesmanship of Absalon and the valour of Valdemar. But he was certainly a prudent and circumspect ruler of blameless life, possessing, as Arnold of Lübeck (*c.* 1160-1212) expresses it, "the sober wisdom of old age even in his tender youth."

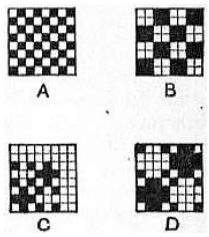
See *Danmarks Riges Historic. Oldtiden og den aeldre Middelalder* (Copenhagen, 1897-1905), pp. 721-735.

(R. N. B.)

CANVAS, a stout cloth which probably derives its name from *cannabis*, the Latin word for hemp. This would appear to indicate that canvas was originally made from yarns of the hemp fibre, and there is some ground for the assumption. This fibre and that of flax have certainly been used for ages for the production of cloth for furnishing sails, and for certain classes of cloth used for this purpose the terms "sailcloth" and "canvas" are synonymous. Warden, in his *Linen Trade*, states that the manufacture of sailcloth was established in England in 1590, as appears by the preamble of James I., cap. 23:—"Whereas the cloths called *Mildernix* and *Powel Davies*, whereof sails and other furniture for the navy and shipping are made, were heretofore altogether brought out of France and other parts beyond sea, and the skill and art of making and weaving of the said sailcloths never known or used in England until about the thirty-second year of the late Queen Elizabeth, about what time and not before the perfect art or skill of making or weaving of the said cloths was attained to, and since practised and continued in this realm, to the great benefit and commodity thereof." But this, or a similar cloth of the same name had been used for centuries before this time by the Egyptians and Phoenicians. Since the introduction of the power loom the cloth has undergone several modifications, and it is now made both from flax, hemp, tow, jute and cotton, or a mixture of these, but the quality of sailcloth for the British government is kept up to the original standard. All flax canvas is essentially of double warp, for it is invariably intended to withstand some pressure or rough usage.

In structure it is similar to jute tarpaulin; indeed, if it were not for the difference in the fibre, it would be difficult to say where one type stopped and the other began. "Bagging," "tarpaulin" and "canvas" form an ascending series of cloths so far as fineness is concerned, although the finest tarpaulins are finer than some of the lower canvases. The cloth may be natural colour, bleached or dyed, a very common colour being tan. It has an enormous number of different uses other than naval.

Amongst other articles made from it are:—receptacles for photographic and other apparatus; bags for fishing, shooting, golf and other sporting implements; shoes for cricket and other games, and for yachting; travelling cases and hold-alls, letter-bags, school-bags and nose-bags for horses. Large quantities of the various makes of flax and cotton canvases are tarred, and then used for covering goods on railways, wharves, docks, etc.



Sail canvas is, naturally, of a strong build, and is quite different from the canvas cloth used for embroidery purposes, often called "art canvas." The latter is similar in structure to cheese cloths and strainers, the chief difference being that the yarns for art canvas are, in general, of a superior nature. All kinds of vegetable fibres are used in their production, chief among which are cotton, flax and jute. The yarns are almost invariably two or more ply, an arrangement which tends to obtain a uniform thickness—a very desirable element in these open-built fabrics. The plain weave A in the figure is extensively used for these fabrics, but in many cases special weaves are used which leave the open spaces well defined. Thus weave B is often employed, while the "imitation gauze" weaves, C and D, are also largely utilized in the production of these embroidery cloths. Weave B is known as the hopsack, and probably owes its name to being originally used for the making of bags for hops. The cloth for this purpose is now called "hop pocketing," and is of a structure between bagging and tarpaulin. Another class of canvas, single warp termed "artists' canvas," is used, as its name implies, for paintings in oils. It is also much lighter than sail canvas, but must, of necessity, be made of level yarns. The best qualities are made of cream or bleached flax line, although it is not unusual to find an admixture of tow, and even of cotton in the commoner kinds. When the cloth comes from the loom, it undergoes a special treatment to prepare the surface for the paint.

CANVASS (an older spelling of "canvas"), to sift by shaking in a sheet of canvas, hence to discuss thoroughly; as a political term it means to examine carefully the chances of the votes in a prospective election, and to solicit the support of the electors.

CANYNGES, Canynge, **WILLIAM** (*c.* 1399-1474), English merchant, was born at Bristol in 1399 or 1400, a member of a wealthy family of merchants and cloth-manufacturers in that city. He entered, and in due course greatly extended, the family business, becoming one of the richest Englishmen of his day. Canynges was five times mayor of, and twice member of parliament for, Bristol. He owned a fleet of ten ships, the largest hitherto known in England, and employed, it is said, 800 seamen. By special license from the king of Denmark he enjoyed for some time a monopoly of the fish trade between Iceland, Finland and England, and he also competed successfully with the Flemish merchants in the Baltic, obtaining a large share of their business. In 1456 he entertained Margaret of Anjou at Bristol, and in 1461 Edward IV. Canynges undertook at his own expense the great work of rebuilding the famous Bristol church of St Mary, Redcliffe, and for a long time had a hundred workmen in his regular service for this purpose. In 1467 he himself took holy orders, and in 1469 was made dean of Westbury. He died in 1474. The statesman George Canning and the first viscount Stratford de Redcliffe were

descendants of his family.

See Pryce, *Memorials of the Canynges Family and their Times* (Bristol, 1854).

CANYON (Anglicized form of Span. *cañon*, a tube, pipe or cannon; the Spanish form being also frequently written), a type of valley with huge precipitous sides, such as the Grand Canyons of the Colorado and the Yellowstone livers, and the gorge of the Niagara river below the falls, due to rapid stream erosion in a "young" land. A river saws its channel vertically downwards, and a swift stream erodes chiefly at the bottom. In rainy regions the valleys thus formed are widened out by slope-wash and the resultant valley-slopes are gentle, but in arid regions there is very little side-extension of the valleys and the river cuts its way downwards, leaving almost vertical cliffs above the stream. If the stream be swift as in the western plateau of North America, the cutting action will be rapid. The ideal conditions for developing a canyon are: great altitude and slope causing swift streams, arid conditions with absence of side-wash, and hard rock horizontally bedded which will hold the walls up.

CANZONE, a form of verse which has reached us from Italian literature, where from the earliest times it has been assiduously cultivated. The word is derived from the Provençal *cansò*, a song, but it was in Italian first that the form became a literary one, and was dedicated to the highest uses of poetry. The canzone-strophe consists of two parts, the opening one being distinguished by Dante as the *fronte*, the closing one as the *sirma*. These parts are connected by rhyme, it being usual to make the rhyme of the last line of the *fronte* identical with that of the first line of the *sirma*. In other respects the canzone has great liberty, as regards number and length of lines, arrangement of rhymes and conduct of structure. An examination of the best Italian models, however, shows that the tendency of the canzone-strophe is to possess 9, 10, 11, 13, 14 or 16 verses, and that of these the strophe of 14 verses is so far the most frequent that it may almost be taken as the type. In this form it resembles an irregular sonnet. The *Vita Nuova* contains many examples of the canzone, and these are accompanied by so many explanations of their form as to lead us to believe that the canzone was originally invented or adopted by Dante. The following is the *proemio* or *fronte* of one of the most celebrated canzoni in the *Vita Nuova* (which may be studied in English in Dante Gabriel Rossetti's translation):—

"Donna pietosa e di novella etate,
Adorna assai di gentilezza umane,
Era là ov' io chiamava spesso Morte.
Veggendo gli occhi miei pien di pietate,
Ed ascoltando le parole vane,
Si mosse con paura a pianger forte;
Ed altro donne, che si furo accorte
Di me per quella che meco piangia,
Fecer lei partir via
Ed apprissârsi per farmi sentire.
Quel dicea: 'Non dormire';
E qual dicea: 'Perchè sì te sconforte?'
Allor lasciai la nuova fantasia,
Chiamando il nome della donna mia."

The *Canzoniere* of Petrarch is of great authority as to the form of this species of verse. In England the canzone was introduced at the end of the sixteenth century by William Drummond of Hawthornden, who has left some very beautiful examples. In German poetry it was cultivated by A.W. von Schlegel and other poets of the Romantic period. It is doubtful, however, whether it is in agreement with the genius of any language but Italian, and whether the genuine "Canzone toscana" is a form which can be reproduced elsewhere than in Italy.

(E. G.)

CAPE BRETON, the north-east portion of Nova Scotia, Canada, separated from the mainland by a narrow strait, known as the Gut of Canceau or Canso. Its extreme length from north to south is about 110 m., greatest breadth about 87 m., and area 3120 sq. m. It juts out so far into the Atlantic that it has been called "the long wharf of Canada," the distance to the west coast of Ireland being less by a thousand miles than from New York. A headland on the east coast is also known as Cape Breton, and is said by some to be the first land made by Cabot on his voyage in 1497-1498. The large, irregularly-shaped, salt-water lakes of Bras d'Or communicate with the sea by two channels on the north-east; a short ship canal connects them with St Peter's bay on the south, thus dividing the island into two parts. Except on the north-west, the coast-line is very irregular, and indented with numerous bays, several of which form excellent harbours. The most important are Aspy, St Ann's, Sydney, Mira, Louisburg, Gabarus, St Peter's and Mabou; of these, Sydney Harbour, on which are situated the towns of Sydney and North Sydney, is one of the finest in North America. There are numerous rivers, chiefly rapid hill streams not navigable for any distance; the largest are the Denys, the Margaree, the Baddeck and the Mira. Lake Ainslie in the west is the most extensive of several fresh-water lakes. The surface of the island is broken in several places by ranges of hills of moderate elevation, well wooded, and containing numerous picturesque glens and gorges; the northern promontory consists of a plateau, rising at Cape North to a height of 1800 ft. This northern projection is formed of Laurentian gneiss, the only instance in Nova Scotia of this formation, and is fringed by a narrow border of carboniferous rocks. South of this extends a Cambrian belt, a continuation of the same formation on the Atlantic coast of Nova Scotia. On various portions of the west coast, and on the south side of the island at Seacoal Bay and Little River (Richmond county), valuable seams of coal are worked. Still more important is the Sydney coal-field, which occupies the east coast from Mira Bay to St Ann's. The outcrop is plainly visible at various points along the coast, and coal has been mined in the neighbourhood from a very early period. Since 1893 the operations have been greatly extended, and over 3,000,000 tons a year are now shipped, chiefly to Montreal and Boston. The coal is bituminous, of good quality and easily worked, most of the seams dipping at a low angle. Several have been mined for some distance beneath the ocean. Slate, marble, gypsum and limestone are quarried, the

latter, which is found in unlimited quantities, being of great value as a flux in the blast-furnaces of Sydney. Copper and iron are also found, though not in large quantities.

Its lumber, agricultural products and fisheries are also important. Nearly covered with forest at the time of its discovery, it still exports pine, oak, beech, maple and ash. Oats, wheat, turnips and potatoes are cultivated, chiefly for home consumption; horses, cattle and sheep are reared in considerable numbers; butter and cheese are exported. The Bras d'Or lakes and the neighbouring seas supply an abundance of cod, mackerel, herring and whitefish, and the fisheries employ over 7000 men. Salmon are caught in several of the rivers, and trout in almost every stream, so that it is visited by large numbers of tourists and sportsmen from the other provinces and from the United States. The Intercolonial railway has been extended to Sydney, and crosses the Gut of Canso on a powerful ferry. From the same strait a railway runs up the west coast, and several shorter lines are controlled by the mining companies. Of these the most important is that connecting Sydney and Louisburg. Numerous steamers, with Sydney as their headquarters, ply upon the Bras d'Or lakes. The inhabitants are mainly of Highland Scottish descent, and Gaelic is largely spoken in the country districts. On the south and west coasts are found a number of descendants of the original French settlers and of the Acadian exiles (see Nova Scotia), and in the mining towns numbers of Irish are employed. Several hundred Mic Mac Indians, for the most part of mixed blood, are principally employed in making baskets, fish-barrels and butter-firkins. Nearly the whole population is divided between the Roman and Presbyterian creeds, and the utmost cordiality marks the relations between the two faiths. The population is steadily increasing, having risen from 27,580 in 1851 to over 100,000 in 1906.

There is some evidence in favour of early Norse and Icelandic voyages to Cape Breton, but they left no trace. It was probably visited by the Cabots in 1497-1498, and its name may either have been bestowed in remembrance of Cap Breton near Bayonne, by the Basque sailors who early frequented the coast, or may commemorate the hardy mariners of Brittany and Normandy.

In 1629 James Stewart, fourth Lord Ochiltree, settled a small colony at Baleine, on the east side of the island; but he was soon after taken prisoner with all his party by Captain Daniell of the French Company, who caused a fort to be erected at Great Cibou (now St Ann's Harbour). By the peace of St Germain in 1632, Cape Breton was formally assigned to France; and in 1654 it formed part of the territory granted by patent to Nicholas Denys, Sieur de Fronsac, who made several small settlements on the island, which, however, had only a very temporary success. When by the treaty of Utrecht (1713) the French were deprived of Nova Scotia and Newfoundland, they were still left in possession of Cape Breton, and their right to erect fortifications for its defence was formally acknowledged. They accordingly transferred the inhabitants of Plaisance in Newfoundland to the settlement of Havre à l'Anglois, which soon after, under the name of Louisburg, became the capital of Cape Breton (or Ile Royale, as it was then called), and an important military post.

Cod-fishing formed the staple industry, and a large contraband trade in French wines, brandy and sugar, was carried on with the English colonies to the south. In 1745 it was captured by a force of volunteers from New England, under Sir William Pepperell (1696-1759) aided by a British fleet under Commodore Warren (1703-1752). By the treaty of Aix-la-Chapelle, the town was restored to France; but in 1758 was again captured by a British force under General Sir Jeffrey Amherst and Admiral Boscawen. On the conclusion of hostilities the island was ceded to England by the treaty of Paris; and on the 7th of October 1763 it was united by royal proclamation to the government of Nova Scotia. In 1784 it was separated from Nova Scotia, and a new capital founded at the mouth of the Spanish river by Governor Desbarres, which received the name of Sydney in honour of Lord Sydney (Sir Thomas Townshend), then secretary of state for the colonies. There was immediately a considerable influx of settlers to the island, which received another important accession by the immigration of Scottish Highlanders from 1800 to 1828. In 1820, in spite of strong opposition, it was again annexed to Nova Scotia. Since then, its history has been uneventful, chiefly centring in the development of the mining industry.

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CAPE COAST, a port on the Gold Coast, British West Africa, in 5° 5′ N., 1° 13′ W., about 80 m. W. of Accra. Pop. (1901) 28,948, mostly Fantis. There are about 100 Europeans and a colony of Krumen. The town is built on a low bank of gneiss and micaceous slate which runs out into the sea and affords some protection at the landing-place against the violence of the surf. (This bank was the *Cabo Corso* of the Portuguese, whence the English corruption of Cape Coast.) The castle faces the sea and is of considerable size and has a somewhat imposing appearance. Next to the castle, used as quarters for military officers and as a prison, the principal buildings are the residence of the district commissioner, the churches and schools of various denominations, the government schools and the colonial hospital. Many of the wealthy natives live in brick-built residences. The streets are hilly, and the town is surrounded on the east and north by high ground, whilst on the west is a lagoon. Fort Victoria lies west of the town, and Fort William (used as a lighthouse) on the east.

The first European settlement on the spot was that of the Portuguese in 1610. In 1652 the Swedes established themselves here and built the castle, which they named Carolusburg. In 1659 the Dutch obtained possession, but the castle was seized in 1664 by the English under Captain (afterwards Admiral Sir) Robert Holmes, and it has not since been captured in spite of an attack by De Ruyter in 1665, a French attack in 1757, and various assaults by the native tribes. Next to Elmina it was considered the strongest fort on the Guinea Coast. Up to 1876 the town was the capital of the British settlements on the coast, the administration being then removed to Accra. It is still one of the chief ports of the Gold Coast Colony, and from it starts the direct road to Kumasi. In 1905 it was granted municipal government. In the courtyard of the castle are buried George Maclean (governor of the colony 1830-1843) and his wife (Laetitia Elizabeth Landon). The graves are marked by two stones bearing respectively the initials "L.E.L." and "G.M." The land on the east side of the town is studded with disused gold-diggers' pits. The natives are divided into seven clans called companies, each under the rule of recognized captains and possessing distinct customs and fetish.

See A. Ffoulkes, "The Company System in Cape Coast Castle," in *Jnl. African Soc.* vol. vii., 1908; and Gold Coast.

CAPE COLONY (officially, "Province of the Cape of Good Hope"), the most southern part of Africa, a British possession since 1806. It was named from the promontory on its south-west coast discovered in 1488 by the Portuguese navigator Diaz, and near which the first settlement of Europeans (Dutch) was made in 1652. From 1872 to 1910 a self-governing

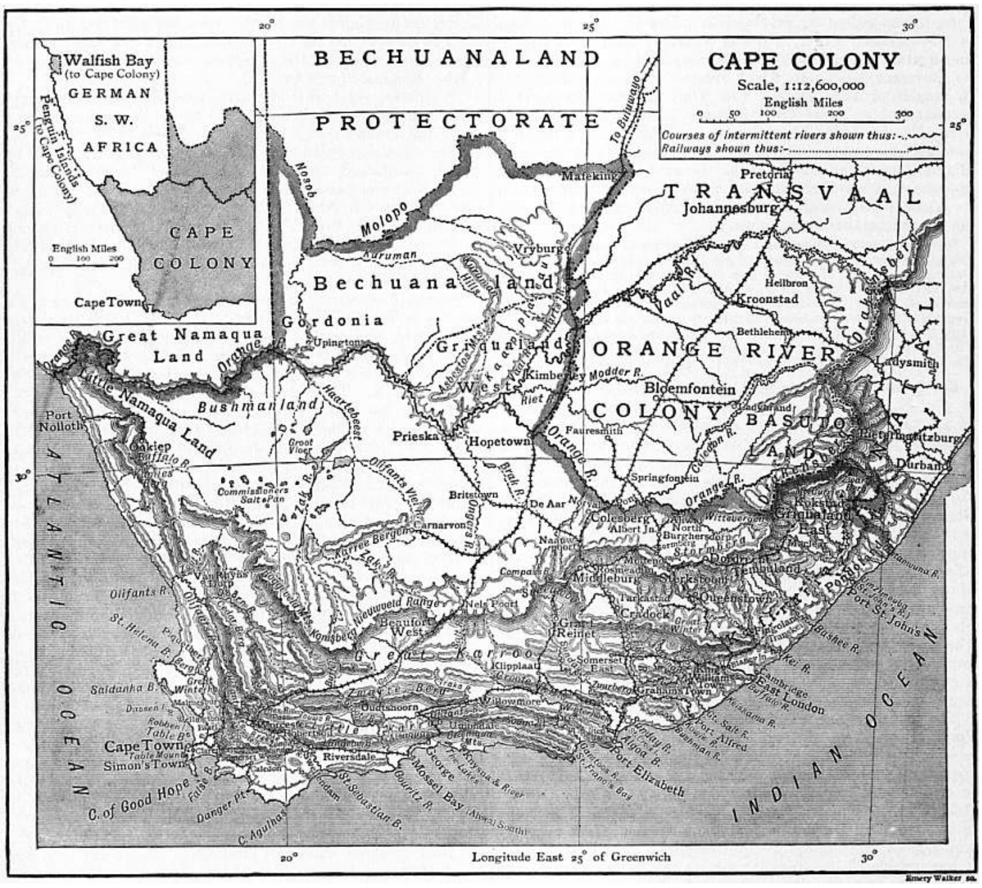
colony, in the last-named year it entered the Union of South Africa as an original province. Cape Colony as such then ceased to exist. In the present article, however, the word "colony" is retained. The "provinces" referred to are the colonial divisions existing before the passing of the South Africa Act 1909, except in the sections *Constitution and Government* and *Law and Justice*, where the changes made by the establishment of the Union are set forth. (See also South Africa.)

Boundaries and Area.—The coast-line extends from the mouth of the Orange (28° 38′ S. 16° 27′ E.) on the W. to the mouth of the Umtamvuna river (31° 4′ S. 30° 12′ E.) on the E., a distance of over 1300 m. Inland the Cape is bounded E. and N.E. by Natal, Basutoland, Orange Free State and the Transvaal; N. by the Bechuanaland Protectorate and N.W. by Great Namaqualand (German S.W. Africa). From N.W. to S.E. the colony has a breadth of 800 m., from S.W. to N.E. 750 m. Its area is 276,995 sq. m.—more than five times the size of England. Walfish Bay (*q.v.*) on the west coast north of the Orange river is a detached part of Cape Colony.

Physical Features.—The outstanding orographic feature of the country is the terrace-formation of the land, which rises from sea-level by well-marked steps to the immense plateau which forms seven-eighths of South Africa. The coast region varies in width from a few miles to as many as fifty, being narrowest on the south-east side. The western coast line, from the mouth of the Orange to the Cape peninsula, runs in a general south-east direction with no deep indentations save just south of 33° S. where, in Saldanha Bay, is spacious and sheltered anchorage. The shore is barren, consisting largely of stretches of white sand or thin soil sparsely covered with scrub. The Cape peninsula, which forms Table Bay on the north and False Bay on the south, juts pendant beyond the normal coast line and consists of an isolated range of hills. The scenery here becomes bold and picturesque. Dominating Table Bay is the well-known Table Mountain (3549 ft.), flat-topped and often covered with a "tablecloth" of cloud. On its lower slopes and around Table Bay is built Cape Town, capital of the colony. Rounding the storm-vexed Cape of Good Hope the shore trends south-east in a series of curves, forming shallow bays, until at the saw-edged reefs of Cape Agulhas (Portuguese, Needles) in 34° 51′ 15″ S. 20° E. the southernmost point of the African continent is reached. Hence the coast, now very slightly indented, runs north by east until at Algoa Bay (25° 45′ E.) it takes a distinct north-east bend, and so continues beyond the confines of the colony. Along the southern and eastern shore the country is better watered, more fertile and more picturesque than along the western seaboard. Cape Point (Cape of Good Hope) stands 840 ft. above the sea; Cape Agulhas 455 ft. Farther on the green-clad sides of the Uiteniquas Mountains are plainly visible from the sea, and as the traveller by boat proceeds eastward, stretches of forest are seen and numbers of mountain streams carrying their waters to the ocean. In this part of the coast the only good natural harbour is the spacious estuary of the Knysna river in 23° 5′ E. The entrance, which is over a bar with 14 ft. minimum depth of water, is between two bold sandstone cliffs, called the Heads.

Off the coast are a few small islands, mainly mere rocks within the bay. None is far from the mainland. The largest are Dassen Island, 20 m. S. of Saldanha Bay, and Robben Island, at the entrance to Table Bay. St Croix is a rock in Algoa Bay, upon which Diaz is stated to have erected a cross. A number of small islands off the coast of German South-West Africa, chiefly valuable for their guano deposits, also belong to Cape Colony (see Angra Pequena).

Ocean Currents.—Off the east and south shores of the colony the Mozambique or Agulhas current sweeps south-westward with force sufficient to set up a back drift. This back drift or counter current flowing north-east is close in shore and is 226
taken advantage of by vessels going from Cape Town to Natal. On the west coast the current runs northwards. It is a deflected stream from the west drift of the "roaring forties" and coming from Antarctic regions is much colder than the Agulhas current. Off the southern point of the continent the Agulhas current meets the west drift, giving rise to alternate streams of warm and cold water. This part of the coast, subject alike to strong westerly and southeasterly winds, is often tempestuous, as is witnessed by the name, Cabo Tormentoso, given to the Cape of Good Hope, and to the many wrecks off the coast. The most famous was that of the British troopship "Birkenhead," on the 26th of February 1852, off Danger Point, midway between Cape of Good Hope and Cape Agulhas.



(Click to enlarge.)

Mountains and Tablelands.—It has been stated that the land rises by well-marked steps to a vast central plateau. Beyond the coast plain, which here and there attains a height of 600 ft., are mountain ranges running parallel to the shore. These

mountains are the supporting walls of successive terraces. When the steep southern sides of the ranges nearest the sea are ascended the hills are often found to be flat-topped with a gentle slope northward giving on to a plateau rarely more than 40 m. wide. This plateau is called the Southern or Little Karroo, Karroo being a corruption of a Hottentot word meaning dry, arid. Having crossed the Little Karroo, from which rise minor mountain chains, a second high range has to be climbed. This done the traveller finds himself on another tableland—the Great Karroo. It has an average width of 80 m. and is about 350 m. long. Northwards the Karroo (*q.v.*) is bounded by the ramparts of the great inner tableland, of which only a comparatively small portion is in Cape Colony. This sequence of hill and plain—namely (1) the coast plain, (2) first range of hills, (3) first plateau (Little Karroo), (4) second range of hills, (5) second plateau (the Great Karroo), (6) main chain of mountains guarding, (7) the vast interior tableland—is characteristic of the greater part of the colony but is not clearly marked in the south-east and north-west borders. The innermost, and most lofty, chain of mountains follows a curve almost identical with that of the coast at a general distance of 120 m. from the ocean. It is known in different places under different names, and the same name being also often given to one or more of the coast ranges the nomenclature of the mountains is confusing (see the map). The most elevated portion of the innermost range, the Drakensberg (*q.v.*) follows the curve of the coast from south to north-east. Only the southern slopes of the range are in Cape Colony, the highest peaks—over 10,000 ft.—being in Basutoland and Natal. Going westward from the Drakensberg the rampart is known successively as the Stormberg, Zuurberg, Sneeuwberg and Nieuwveld mountains. These four ranges face directly south. In the Sneeuwberg range is Compass Berg, 8500 ft. above the sea, the highest point in the colony. In the Nieuwveld are heights of over 6000 ft. The Komsberg range, which joins the Nieuwveld on the east, sweeps from the south to the north-west and is followed by the Roggeveld mountains, which face the western seaboard. North of the Roggeveld the interior plateau approaches closer to the sea than in southern Cape Colony. The slope of the plateau being also westward, the mountain rampart is less elevated, and north of 32° S. few points attain 5000 ft. The coast ranges are here, in Namaqualand and the district of Van Rhyns Dorp, but the outer edges of the inner range. They attain their highest point in the Kamies Berg, 5511 ft. above the sea. Northward the Orange river, marking the frontier of the colony, cuts its way through the hills to the Atlantic.

From the Olifants river on the west to the Kei river on the east the series of parallel ranges, which are the walls of the terraces between the inner tableland and the sea, are clearly traceable. Their general direction is always that of the coast, and they are cut across by rugged gorges or *kloofs*, through which the mountain streams make their way towards the sea. The two chief chains, to distinguish them from the inner chain already described, may be called the coast and central chains. Each has many local names. West to east the central chain is known as the Cedarberg, Groote Zwarteberg (highest point 6988 ft.), Groote river, Winterhoek (with Cockscomb mountain 5773 ft. high) and Zuurberg ranges. The Zuurberg, owing to the north-east trend of the shore, becomes, east of Port Elizabeth, a coast range, and the central chain is represented by a more northerly line of hills, with a dozen different names, which are a south-easterly spur of the Sneeuwberg. In this range the Great Winter Berg attains a height of 7800 ft.

The coast chain is represented west to east by the Olifants mountains (with Great Winterhoek, 6618 ft. high), Drakenstein, Zonder Einde, Langeberg (highest point 5614 ft.), Attaquas, Uiteniquas and various other ranges. In consequence of the north-east trend of the coast, already noted, several of these ranges end in the sea in bold bluffs. From the coast plain rise many short ranges of considerable elevation, and on the east side of False Bay parallel to Table Bay range is a mountain chain with heights of 4000 and 5000 ft. East of the Kei river the whole of the country within Cape Colony, save the narrow seaboard, is mountainous. The southern part is largely occupied with spurs of the Stormberg; the northern portion, Griqualand East and Pondoland, with the flanks of the Drakensberg. Several peaks exceed 7000 ft. in height. Zwart Berg, near the Basuto-Natal frontier, rises 7615 ft. above the sea. Mount Currie, farther south, is 7296 ft. high. The Witte Bergen (over 5000 ft. high) are an inner spur of the Drakensberg running through the Herschel district.

That part of the inner tableland of South Africa which is in the colony has an average elevation of 3000 ft., being higher in the eastern than in the western districts. It consists of wide rolling treeless plains scarred by the beds of many rivers, often dry for a great part of the year. The tableland is broken by the Orange river, which traverses its whole length. North of the river the plateau slopes northward to a level sometimes as low as 2000 ft. The country is of an even more desolate character than south of the Orange (see Bechuanaland). Rising from the plains are chains of isolated flat-topped hills such as the Karree Bergen, the Asbestos mountains and Kuruman hills, comparatively unimportant ranges.

Although the mountains present bold and picturesque outlines on their outward faces, the general aspect of the country north of the coast-lands, except in its south-eastern corner, is bare and monotonous. The flat and round-topped hills (*kopjes*), which are very numerous on the various plateaus, scarcely afford relief to the eye, which searches the sun-scorched landscape, usually in vain, for running water. The absence of water and of large trees is one of the most abiding impressions of the traveller. Yet the vast arid plains are covered with shallow beds of the richest soil, which only require the fertilizing power of water to render them available for pasture or agriculture. After the periodical rains, the Karroo and the great plains of Bushmanland are converted into vast fields of grass and flowering shrubs, but the summer sun reduces them again to a barren and burnt-up aspect. The pastoral lands or *velds* are distinguished according to the nature of their herbage as “sweet” or “sour.” Shallow sheets of water termed *vleis*, usually brackish, accumulate after heavy rain at many places in the plateaus; in the dry seasons these spots, where the soil is not excessively saline, are covered with rich grass and afford favourite grazing land for cattle. Only in the southern coast-land of the colony is there a soil and moisture supply suited to forest growth.

Rivers.—The inner chain of mountains forms the watershed of the colony. North of this great rampart the country drains to the Orange (*q.v.*), which flows from east to west nearly across the continent. For a considerable distance, both in its upper and lower courses, the river forms the northern frontier of Cape Colony. In the middle section, where both banks are in the colony, the Orange receives from the north-east its greatest tributary, the Vaal (*q.v.*). The Vaal, within the boundaries of the colony, is increased by the Harts river from the north-east and the Riet river from the south-east, whilst just within the colony the Riet is joined by the Modder. All these tributaries of the Orange flow, in their lower courses, through the eastern part of Griqualand West, the only well-watered portion of the colony north of the mountains. From the north, below the Vaal confluence, the Nosob, Molopo and Kuruman, intermittent streams which traverse Bechuanaland, send their occasional surplus waters to the Orange. In general these rivers lose themselves in some *vlei* in the desert land. The Molopo and Nosob mark the frontier between the Bechuanaland Protectorate and the Cape; the Kuruman lies wholly within the colony. From the south a number of streams, the Brak and Ongers, the Zak and Olifants Vlei (the two last uniting to form the Hartebeest), flow north towards the Orange in its middle course. Dry for a great part of the year, these streams rarely add anything to the volume of the Orange.

South of the inner chain the drainage is direct to the Atlantic or Indian Oceans. Rising at considerable elevations, the coast rivers fall thousands of feet in comparatively short courses, and many are little else than mountain torrents. They make their way down the mountain sides through great gorges, and are noted in the eastern part of the country for their extremely sinuous course. Impetuous and magnificent streams after heavy rain, they become in the summer mere rivulets, or even dry up altogether. In almost every instance the mouths of the rivers are obstructed by sand bars. Thus, as is the case of the Orange river also, they are, with rare exceptions, unnavigable.

Omitting small streams, the coast rivers running to the Atlantic are the Buffalo, Olifants and Berg. It may be pointed out here that the same name is repeatedly applied throughout South Africa to different streams, Buffalo, Olifants (elephants’) and Groote (great) being favourite designations. They all occur more than once in Cape Colony. Of the west coast rivers,

the Buffalo, about 125 m. long, the most northern and least important, flows through Little Namaqualand. The Olifants (150 m.), which generally contains a fair depth of water, rises in the Winterhoek mountains and flows north between the Cedarberg and Olifants ranges. The Doorn, a stream with a somewhat parallel but more easterly course, joins the Olifants about 50 m. above its mouth, the Atlantic being reached by a semicircular sweep to the south-west. The Berg river (125 m.) rises in the district of French Hoek and flows through fertile country, in a north-westerly direction, to the sea at St Helena Bay. It is navigable for a few miles from its mouth.

On the south coast the most westerly stream of any size is the Breede (about 165 m. long), so named from its low banks and broad channel. Rising in the Warm Bokkeveld, it pierces the mountains by Mitchell's Pass, flows by the picturesque towns of Ceres and Worcester, and receives, beyond the last-named place, the waters which descend from the famous Hex River Pass. The Breede thence follows the line of the Langeberg mountains as far as Swellendam, where it turns south, and traversing the coast plain, reaches the sea in St Sebastian Bay. From its mouth the river is navigable by small vessels for from 30 to 40 m. East of the Breede the following rivers, all having their rise on the inner mountain chain, are passed in the order named:—Gouritz (200 m.),[1] Gamtoos (290 m.), Sunday (190 m.), Great Salt (230 m.), Kei (150 m.), Bashee (90 m.) and Umzimvuba or St John's (140 m.).

The Gouritz is formed by the junction of two streams, the Gamka and the Olifants. The Gamka rises in the Nieuwveld not far from Beaufort West, traverses the Great Karroo from north to south, and forces a passage through the Zwarteberg. Crossing the Little Karroo, it is joined from the east by the Olifants (115 m.), a stream which rises in the Great Karroo, being known in its upper course as the Traka, and pierces the Zwarteberg near its eastern end. Thence it flows west across the Little Karroo past Oudtshoorn to its junction with the Gamka. The united stream, which takes the name of Gouritz, flows south, and receives from the west, a few miles above the point where it breaks through the coast range, a tributary (125 m.) bearing the common name Groote, but known in its upper course as the Buffels. Its headwaters are in the Komsberg. The Touws (90 m.), which rises in the Great Karroo not far from the sources of the Hex river, is a tributary of the Groote river. Below the Groote the Gouritz receives no important tributaries and enters the Indian Ocean at a point 20 m. south-west of Mossel Bay.

The Gamtoos is also formed by the junction of two streams, the Kouga, an unimportant river which rises in the coast hills, and the Groote river. This, *the* Groote river of Cape Colony, has its rise in the Nieuwveld near Nels Poort, being known in its upper course as the Salt river. Flowing south-east, it is joined by the Kariega on the left, and breaking through the escarpment of the Great Karroo, on the lower level changes its name to the Groote, the hills which overhang it to the north-east being known as Groote River Heights. Bending south, the Groote river passes through the coast chain by Cockscomb mountain, and being joined by the Kouga, flows on as the Gamtoos to the sea at St Francis Bay.

Sunday river does not, like so many of the Cape streams, change its name on passing from the Great to the Little Karroo and again on reaching the coast plain. It rises in the Sneeuwberg north-west of Graaff Reinet, flows south-east through one of the most fertile districts of the Great Karroo, which it pierces at the western end of the Zuurberg (of the coast chain), and reaches the ocean in Algoa Bay.

Great Salt river is formed by the junction of the Kat with the Great Fish river, which is the main stream. Several small streams rising in the Zuurberg (of the inner chain) unite to form the Great Fish river which passes through Cradock, and crossing the Karroo, changes its general direction from south to east, and is joined by the Kooner (or Koonap) and Kat, both of which rise in the Winterberg. Thence, as the Great Salt river, it winds south to the sea. Great Fish river is distinguished for the sudden and great rise of its waters after heavy rain and for its exceedingly sinuous course. Thus near Cookhouse railway station it makes an almost circular bend of 20 m., the ends being scarcely 2 m. apart, in which distance it falls 200 ft. Although, like the other streams which cross the Karroo, the river is sometimes dry in its upper course, it has an estimated annual discharge of 51,724,000,000 cubic ft.

The head-streams of the Kei, often called the Great Kei, rise in the Stormberg, and the river, which resembles the Great Fish in its many twists, flows in a general south-east direction through mountainous country until it reaches the coast plain. Its mouth is 40 m. in a direct line north-east of East London. In the history of the Cape the Kei plays an important part as long marking the boundary between the colony and the independent Kaffir tribes. (For the Umzimvuba and other Transkei rivers see KAFFRARIA.)

Of the rivers rising in the coast chain the Knysna (30 m.), Kowie (40 m.), Keiskama (75 m.) and Buffalo (45 m.) may be mentioned. The Knysna rises in the Uiteniquas hills and is of importance as a feeder of the lagoon or estuary of the same name, one of the few good harbours on the coast. The banks of the Knysna are very picturesque. Kowie river, which rises in the Zuurberg mountains near Graham's Town, is also noted for the beauty of its banks. At its mouth is Port Alfred. The water over the bar permits the entrance of vessels of 10 to 12 ft. draught. The Buffalo river rises in the hilly country north of King William's Town, past which it flows. At the mouth of the river, where the scenery is very fine, is East London, third in importance of the ports of Cape Colony.

The frequency of "fontein" among the place names of the colony bears evidence of the number of springs in the country. They are often found on the flat-topped hills which dot the Karroo. Besides the ordinary springs, mineral and thermal springs are found in several places.

Lakes and Caves.—Cape Colony does not possess any lakes properly so called. There are, however, numerous natural basins which, filled after heavy rain, rapidly dry up, leaving an incrustation of salt on the ground, whence their name of salt pans. The largest, Commissioner's Salt Pan, in the arid north-west district, is 18 to 20 m. in circumference. Besides these pans there are in the interior plateaus many shallow pools or *vleis* whose extent varies according to the dryness or moisture of the climate. West of Knysna, and separated from the seashore by a sandbank only, are a series of five *vleis*, turned in flood times into one sheet of water and sending occasional spills to the ocean. These *vleis* are known collectively as "the lakes." In the Zwarteberg of the central chain are the Cango Caves, a remarkable series of caverns containing many thousand of stalactites and stalagmites. These caves, distant 20 m. from Oudtshoorn, have been formed in a dolomite limestone bed about 800 ft. thick. There are over 120 separate chambers, the caverns extending nearly a mile in a straight line.

Climate.—The climate of Cape Colony is noted for its healthiness. Its chief characteristics are the dryness and clearness of the atmosphere and the considerable daily range in temperature; whilst nevertheless the extremes of heat and cold are rarely encountered. The mean annual temperature over the greater part of the country is under 65° F. The chief agents in determining the climate are the vast masses of water in the southern hemisphere and the elevation of the land. The large extent of ocean is primarily responsible for the lower temperature of the air in places south of the tropics compared with that experienced in countries in the same latitude north of the equator. Thus Cape Town, about 34° S., has a mean temperature, 63° F., which corresponds with that of the French and Italian Riviera, in 41° to 43° N. For the dryness of the atmosphere the elevation of the country is responsible. The east and south-east winds, which contain most moisture, dissipate their strength against the Drakensberg and other mountain ranges which guard the interior. Thus while the coast-lands, especially in the south-east, enjoy an ample rainfall, the winds as they advance west and north contain less and less moisture, so that over the larger part of the country drought is common and severe. Along the valley of the lower Orange rain does not fall for years together. The drought is increased in intensity by the occasional hot dry wind from the desert region in the north, though this wind is usually followed by violent thunderstorms.

Whilst the general characteristics of the climate are as here outlined, in a country of so large an area as Cape Colony there are many variations in different districts. In the coast-lands the daily range of the thermometer is less marked than in the interior and the humidity of the atmosphere is much greater. Nevertheless, the west coast north of the Olifants river is practically rainless and there is great difference between day and night temperatures, this part of the coast sharing the characteristics of the interior plateau. The division of the year into four seasons is not clearly marked save in the Cape peninsula, where exceptional conditions prevail. In general the seasons are but two—summer and winter, summer lasting from September to April and winter filling up the rest of the year. The greatest heat is experienced in December, January and February, whilst June and July are the coldest months. In the western part of the colony the winter is the rainy season, in the eastern part the chief rains come in summer. A line drawn from Port Elizabeth north-west across the Karroo in the direction of Walfish Bay roughly divides the regions of the winter and summer rains. All the country north of the central mountain chain and west of 23° E., including the western part of the Great Karroo, has a mean annual rainfall of under 12 in. East of the 23° E. the plateaus have a mean annual rainfall ranging from 12 to 25 in. The western coast-lands and the Little Karroo have a rainfall of from 10 to 20 in.; the Cape peninsula by exception having an average yearly rainfall of 40 in. (see Cape Town). Along the south coast and in the south-east the mean annual rainfall exceeds 25 in., and is over 50 in. at some stations. The rain falls, generally, in heavy and sudden storms, and frequently washes away the surface soil. The mean annual temperature of the coast region, which, as stated, is 63° F. at Cape Town, increases to the east, the coast not only trending north towards the equator but feeling the effect of the warm Mozambique or Agulhas current.

On the Karroo the mean maximum temperature is 77° F., the mean minimum 49°, the mean daily range about 27°. In summer the drought is severe, the heat during the day great, the nights cool and clear. In winter frost at night is not uncommon. The climate of the northern plains is similar to that of the Karroo, but the extremes of cold and heat are greater. In the summer the shade temperature reaches 110° F., whilst in winter nights 12° of frost have been registered. The hot westerly winds of summer make the air oppressive, though violent thunderstorms, in which form the northern districts receive most of their scanty rainfall, occasionally clear the atmosphere. Mirages are occasionally seen. The keen air, accompanied by the brilliant sunshine, renders the winter climate very enjoyable. Snow seldom falls in the coast region, but it lies on the higher mountains for three or four months in the year, and for as many days on the Karroo. Violent hailstorms, which do great damage, sometimes follow periods of drought. The most disagreeable feature of the climate of the colony is the abundance of dust, which seems to be blown by every wind, and is especially prevalent in the rainy season.

That white men can thrive and work in Cape Colony the history of South Africa amply demonstrates. Ten generations of settlers, from northern Europe have been born, lived and died there, and the race is as strong and vigorous as that from which it sprang. Malarial fever is practically non-existent in Cape Colony, and diseases of the chest are rare.

(F. R. C.)

Geology.—The colony affords the typical development of the geological succession south of the Zambezi. The following general arrangement has been determined:—

Table Of Formations.
Post-Cretaceous and Recent.

Cretaceous System	Pondoland Cretaceous Series Uitenhage Series	Cretaceous
Karroo System	Stormberg Series Beaufort Series Ecca Series Dwyka Series	Carboniferous
Cape System	Witteberg Series Bokkeveld Series Table Mountain Sandstone Series	Devonian
Pre-Cape Rocks	Includes several independent unfossiliferous formations of pre-Devonian age	Archaean to Silurian(?)

The general structure of the colony is simple. It may be regarded as a shallow basin occupied by the almost horizontal rocks of the Karroo. These form the plains and plateaus of the interior. Rocks of pre-Cape age rise from beneath them on the north and west; on the south and east the Lower Karroo and Cape systems are bent up into sharp folds, beneath which, but in quite limited areas, the pre-Cape rocks emerge. In the folded regions the strike conforms to the coastal outline on the south and east.

Pre-Cape rocks occur in three regions, presenting a different development in each:—

North.	West.	South.
Matsap Series	Nieuwerust Beds	Cango Beds
Ongeluk Volcanic Series		
Griquatown Series	Ibiquas Beds	
Campbell Rand Series		
Black Reef Series		
Pniel Volcanic Series		
Keis Series		
Namaqualand Schists	Namaqualand Schists and Malmesbury Beds	Malmesbury Beds

The pre-Cape rocks are but little understood. They no doubt represent formations of widely different ages, but all that can be said is that they are greatly older than the Cape System. The hope that they will yield fossils has been held out but not yet fulfilled. Their total thickness amounts to several thousand feet. The rocks have been greatly changed by pressure in most cases and by the intrusion of great masses of igneous material, the Namaqualand schists and Malmesbury beds being most altered.

The most prominent member of the Cango series is a coarse conglomerate; the other rocks include slates, limestone and porphyroids. The Ibiquas beds consist of conglomerates and grits. Both the Cango and Ibiquas series have been invaded by granite of older date than the Table Mountain series. The Nieuwerust beds contain quartzite, arkose and shales. They rest indifferently on the Ibiquas series or Malmesbury beds.

The pre-Cape rocks of the northern region occur in the Campbell Rand, Asbestos mountains, Matsap and Langebergen,

and in the Schuftebergen. They contain a great variety of sediments and igneous rocks. The oldest, or Keis, series consists of quartzites, quartz-schists, phyllites and conglomerates. These are overlain, perhaps unconformably, by a great thickness of lavas and volcanic breccias (Pniel volcanic series, Beer Vley and Zeekoe Baard amygdaloids), and these in turn by the quartzites, grits and shales of the Black Reef series. The chief rocks of the Campbell Rand series are limestones and dolomites, with some interbedded quartzites. Among the Griquatown series of quartzites, limestones and shales are numerous bands of jasper and large quantities of crocidolite (a fibrous amphibole); while at Blink Klip a curious breccia, over 200 ft. thick, is locally developed. Evidences of one of the oldest known glaciations have been found near the summit in the district of Hay. The Ongeluk volcanic series, consisting of lavas and breccias, conformably overlies the Griquatown series; while the grits, quartzites and conglomerates of the Matsap series rest on them with a great discordance.

Rocks of the Cape System have only been met with in the southern and eastern parts of South Africa. The lowest member (Table Mountain Sandstone) consists of sandstones with subordinate bands of shale. It forms the upper part of Table Mountain and enters largely into the formation of the southern mountainous folded belt. It is unfossiliferous except for a few obscure sheils obtained near the base. A bed of conglomerate is regarded as of glacial origin.

The Table Mountain Sandstone passes up conformably into a sequence of sandstones and shales (Bokkeveld Beds), well exposed in the Cold and Warm Bokkevelds. The lowest beds contain many fossils, including *Phacops, Homalonotus, Leptocoelia, Spirifer, Chonetes, Orthothetes, Orthoceras, Bellerophon*. Many of the species are common to the Devonian rocks of the Falkland Islands, North and South America and Europe, with perhaps a closer resemblance to the Devonian fauna of South America than to that of any other country.

The Bokkeveld beds are conformably succeeded by the sandstones, quartzites and shales of the Witteberg series. So far 230
imperfect remains of plants (*Spirophyton*) are the only fossils, and these are not sufficient to determine if the beds belong to the Devonian or Carboniferous System.

The thickness of the rocks of the Cape System exceeds 5000 ft.

The Karroo System is *par excellence* the geological formation of South Africa. The greater part of the colony belongs to it, as do large tracts in the Orange Free State and Transvaal. It includes the following well-defined subdivisions:—

		Feet.	
Stormberg Serie	Volcanic Beds	4000	Jurassic
	Cave Sandstone	800	
	Red Beds	1400	
	Molteno Beds	2000	Trias
Beaufort Series	Burghersdorp Beds		
	Dicynodon Beds	5000	
	Pareiasaurus Beds		Permian
Ecca Series	Shales and Sandstones		
	Laingsburg Beds	2600	
	Shales		Carboniferus
Dwyka Series	Upper Shales	600	
	Conglomerates	1000	
	Lower Shales	700	

In the southern areas the Karroo formation follows the Cape System conformably; in the north it rests unconformably on very much older rocks. The most remarkable deposits are the conglomerates of the Dwyka series. These afford the clearest evidences of glaciation on a great scale in early Carboniferous times. The deposit strictly resembles a consolidated modern boulder clay. It is full of huge glaciated blocks, and in different regions (Prieska chiefly) the underlying pavement is remarkably striated and shows that the ice was moving southward. The upper shales contain the small reptile *Mesosaurus tenuidens*.

Plants constitute the chief fossils of the Ecca series; among others they include *Glossopteris, Gangamopteris, Phyllotheca*. The Beaufort series is noted for the numerous remains of remarkable and often gigantic reptiles it contains. The genera and species are numerous, *Dicynodon, Oudenodon, Pareiasaurus* being the best known. Among plants *Glossopteris* occurs for the last time. The Stormberg series occurs in the mountainous regions of the Stormberg and Drakensberg. The Molteno beds contain several workable seams of coal. The most remarkable feature of the series is the evidence of volcanic activity on an extensive scale. The greater part of the volcanic series is formed by lava streams of great thickness. Dykes and intrusive sheets, most of which end at the folded belt, are also numerous. The age of the intrusive sheets met with in the Beaufort series is usually attributed to the Stormberg period. They form the kopjes, or characteristic flat-topped hills of the Great Karroo. The Stormberg series contains the remains of numerous reptiles. A true crocodile, *Notochampsa*, has been discovered in the Red Beds and Cave Sandstone. Among the plants, *Thinnfeldia* and *Taeniopteris* are common. Three genera of fossil fishes, *Cleithrolepis, Semionotus* and *Ceratodus*, ascend from the Beaufort series into the Cave Sandstone.

Cretaceous rocks occur only near the coast. The plants of the Uitenhage beds bear a close resemblance to those of the Wealden. The marine fauna of Sunday river indicates a Neocomian age. The chief genera are *Hamites, Baculites, Crioceras, Olcostephanus* and certain *Trigoniae*.

The superficial post-Cretaceous and Recent deposits are widely spread. High-level gravels occur from 600 to 2000 ft. above the sea. The remains of a gigantic ox, *Bubalus Baini*, have been obtained from the alluvium near the Modder river. The recent deposits indicate that the land has risen for a long period.

(W. G.*)

Fauna.—The fauna is very varied, but some of the wild animals common in the early days of the colony have been exterminated (*e.g.* quagga and blaauwbok), and others (*e.g.* the lion, rhinoceros, giraffe) driven beyond the confines of the Cape. Other game have been so reduced in numbers as to require special protection. This class includes the elephant (now found only in the Knysna and neighbouring forest regions), buffalo and zebra (strictly preserved, and confined to much the same regions as the elephant), eland, oribi, koodoo, haartebeest and other kinds of antelope and gnu. The leopard is not protected, but lingers in the mountainous districts. Cheetahs are also found, including a rare woolly variety peculiar to the Karroo. Both the leopards and cheetahs are commonly spoken of in South Africa as tigers. Other carnivora more or less common to the colony are the spotted hyena, aard-wolf (or *Proteles*), silver jackal, the *Otocyon* or Cape wild dog, and various kinds of wild cats. Of ungulata, besides a few hundreds of rare varieties, there are the springbuck, of which great herds still wander on the open veld, the steinbok, a small and beautiful animal which is sometimes coursed like a hare, the klipspringer or “chamois of South Africa,” common in the mountains, the wart-hog and the dassie or rock rabbit. There are two or three varieties of hares, and a species of jerboa and several genera of mongooses. The English rabbit has been introduced into Robben Island, but is excluded from the mainland. The ant-bear, with very long snout, tongue and ears, is found on the Karroo, where it makes inroads on the ant-heaps which dot the plain. There is also a scaly ant-eater and various species of pangolins, of arboreal habit, which live on ants. Baboons are found in the mountains and forests, otters in the rivers. Of reptiles there are the crocodile, confined to the Transkei rivers, several kinds of snakes, including the cobra di capello and puff adder, numerous lizards and various tortoises, including the leopard tortoise, the largest of the

continental land forms. Of birds the ostrich may still be found wild in some regions. The great kori bustard is sometimes as much as 5 ft. high. Other game birds include the francolin, quail, guinea-fowl, sand-grouse, snipe, wild duck, wild goose, widgeon, teal, plover and rail. Birds of prey include the bearded vulture, aasvogel and several varieties of eagles, hawks, falcons and owls. Cranes, storks, flamingoes and pelicans are found in large variety.

Parrots are rarely seen. The greater number of birds belong to the order Passeres; starlings, weavers and larks are very common, the Cape canary, long-tailed sugar bird, pipits and wagtails are fairly numerous. The English starling is stated to be the only European bird to have thoroughly established itself in the colony. The Cape sparrow has completely acclimatized itself to town life and prevented the English sparrow obtaining a footing.

Large toads and frogs are common, as are scorpions, tarantula spiders, butterflies, hornets and stinging ants. In some districts the tsetse fly causes great havoc. The most interesting of the endemic insectivora is the *Chrysochloris* or "golden mole," so called from the brilliant yellow lustre of its fur. There are not many varieties of freshwater fish, the commonest being the baba or cat-fish and the yellow fish. Both are of large size, the baba weighing as much as 70 lb. The smallest variety is the culper or burrowing perch. In some of the *vleis* and streams in which the water is intermittent the fish preserve life by burrowing into the ooze. Trout have been introduced into several rivers and have become acclimatized. Of sea fish there are more than forty edible varieties. The snock, the steenbrass and geelbeck are common in the estuaries and bays. Seals and sharks are also common in the waters of the Cape. Whales visit the coast for the purpose of calving.

Of the domestic animals, sheep, cattle and dogs were possessed by the natives when the country was discovered by Europeans. The various farm animals introduced by the whites have thriven well (see below, *Agriculture*).

Flora.—The flora is rich and remarkably varied in the coast districts. On the Karroo and the interior plateau there is less variety. In all, some 10,000 different species have been noted in the colony, about 450 genera being peculiar to the Cape. The bush of the coast districts and lower hills consists largely of heaths, of which there are over 400 species. The heaths and the rhenoster or rhinoceros wood, a plant 1 to 2 ft. high resembling heather, form the characteristic features of the flora of the districts indicated. The prevailing bloom is pink coloured. The deciduous plants lose their foliage in the dry season but revive with the winter rains. Notable among the flowers are the arum lily and the iris. The pelargonium group, including many varieties of geranium, is widely represented. In the eastern coast-lands the vegetation becomes distinctly sub-tropical. Of pod-bearing plants there are upwards of eighty genera: Cape "everlasting" flowers (generally species of *Helichrysum*) are in great numbers. Several species of aloe are indigenous to the Cape. The so-called American aloe has also been naturalized. The castor-oil plant and many other plants of great value in medicine are indigenous in great abundance. Among plants remarkable in their appearance and structure may be noted the cactus-like Euphorbiae or spurge plants, the *Stapelia* or carrion flower, and the elephant's foot or Hottentots' bread, a plant of the same order as the yam. Hooks, thorns and prickles are characteristic of many South African plants.

Forests are confined to the seaward slopes of the coast ranges facing south. They cover between 500 and 600 sq. m. The forests contain a great variety of useful woods, affording excellent timber; among the commonest trees are the yellow wood, which is also one of the largest, belonging to the yew species; black iron wood; heavy, close-grained and durable stinkhout; melkhout, a white wood used for wheel work; nieshout; and the assegai or Cape lancewood. Forest trees rarely exceed 30 ft. in height and scarcely any attain a greater height than 60 ft. A characteristic Cape tree is *Leucadendron argenteum* or silver tree, so named from the silver-like lustre of stem and leaves. The so-called cedars, whence the Cedarberg got its name, exist no longer. Among trees introduced by the Dutch or British colonists the oak, poplar, various pines, the Australian blue-gum (eucalyptus) and wattle flourish. The silver wattle grows freely in shifting sands and by its means waste lands, *e.g.* the Cape Flats, have been reclaimed. The oak grows more rapidly and more luxuriantly than in Europe. There are few indigenous fruits; the kei apple is the fruit of a small tree or shrub found in Kaffraria and the eastern districts, where also the wild and Kaffir plums are common; hard pears, gourds, water melons and species of almond, chestnut and lemon are also native. Almost all the fruits of other countries have been introduced and flourish. On the Karroo the bush consists of dwarf mimosas, wax-heaths and other shrubs, which after the spring rains are gorgeous in blossom (see Karroo). The grass of the interior plains is of a coarse character and yellowish colour, very different from the meadow grasses of England. The "Indian" doab grass is also indigenous.

With regard to mountain flora arborescent shrubs do not reach beyond about 4000 ft. Higher up the slopes are covered with small heath, *Bruniaceae, Rutaceae*, &c. All plants with permanent foliage are thickly covered with hair. Above 6000 ft. over seventy species of plants of Alpine character have been found.

Races and Population.—The first inhabitants of Cape Colony of whom there is any record were Bushmen and Hottentots (*q.v.*). The last-named were originally called Quaequaes, and received the name Hottentots from the Dutch. They dwelt chiefly in the south-west and north-west parts of the country; elsewhere the inhabitants were of Bantu negroid stock, and to them was applied the name Kaffir. When the Cape was discovered by Europeans, the population, except along the coast, was very scanty and it is so still. The advent of Dutch settlers and a few Huguenot families in the 17th century was followed in the 19th century by that of English and German immigrants. The Bushmen retreated before the white races and now few are to be found in the colony. These live chiefly in the districts bordering the Orange river. The tribal organization of the Hottentots has been broken up, and probably no *pure bred* representatives of the race survive in the colony.

Half-breeds of mixed Hottentot, Dutch and Kaffir blood now form the bulk of the native population west of the Great Fish river. Of Kaffir tribes the most important living north of the Orange river are the Bechuanas, whilst in the eastern province and Kaffraria live the Fingoes, Tembus and Pondos. The Amaxosa are the principal Kaffir tribe in Cape Colony proper. The Griquas (or Bastaards) are descendants of Dutch-Hottentot half-castes. They give their name to two tracts of country. During the slavery period many thousands of negroes were imported, chiefly from the Guinea coast. The negroes have been largely assimilated by the Kaffir tribes. (For particulars of the native races see their separate articles.) Of the white races in the Colony the French element has been completely absorbed in the Dutch. They and the German settlers are mainly pastoral people. The Dutch, who have retained in a debased form their own language, also engage largely in agriculture and viticulture. Of fine physique and hardy constitution, they are of strongly independent character; patriarchal in their family life; shrewd, *slim* and courageous; in religion Protestants of a somewhat austere type. Education is somewhat neglected by them, and the percentage of illiteracy among adults is high. They are firm believers in the inferiority of the black races and regard servitude as their natural lot. The British settlers have developed few characteristics differing from the home type. The British element of the community is largely resident in the towns, and is generally engaged in trade or in professional pursuits; but in the eastern provinces the bulk of the farmers are English or German; the German farmers being found in the district between King William's Town and East London, and on the Cape Peninsula. Numbers of them retain their own language. The term "Africander" is sometimes applied to all white residents in Cape Colony and throughout British South Africa, but is often restricted to the Dutch-speaking colonists. "Boer," *i.e.* farmer, as a synonym for "Dutch," is not in general use in Cape Colony.

Besides the black and white races there is a large colony of Malays in Cape Town and district, originally introduced by the Dutch as slaves. These people are largely leavened with foreign elements and, professing Mahommedanism, religion rather than race is their bond of union. They add greatly by their picturesque dress to the gaiety of the street scenes. They are generally small traders, but many are wealthy. There are also a number of Indians in the colony. English is the language of the towns; elsewhere, except in the eastern provinces, the *taal* or vernacular Dutch is the tongue of the majority of the whites, as it is of the natives in the western provinces.

The first census was taken in 1865 when the population of the colony, which then had an area of 195,000 sq. m., and did not include the comparatively densely-populated Native Territories, was 566,158. Of these the Europeans numbered 187,400 or about 33% of the whole. Of the coloured races the Hottentots and Bushmen were estimated at 82,000, whilst the Kaffirs formed about 50% of the population. Since 1865 censuses have been taken—in 1875, 1891 and 1904. In 1875 Basutoland formed part of the colony; in 1891 Transkei, Tembuland, Griqualand East, Griqualand West and Walfish Bay had been incorporated, and Basutoland had been disannexed; and in 1904 Pondoland and British Bechuanaland had been added. The following table gives the area and population at each of the three periods.

1875.		1891.		1904.	
Area. sq. m.	Pop.	Area. sq. m.	Pop.	Area. sq. m.	Pop.
201,136	849,160	260,918	1,527,224	276,995	2,409,804

The 1875 census gave the population of the colony proper at 720,984, and that of Basutoland at 128,176. The colony is officially divided into nine provinces, but is more conveniently treated as consisting of three regions, to which may be added the detached area of Walfish Bay and the islands along the coast of Namaqualand. The table on the next page shows the distribution of population in the various areas.

The white population, which as stated was 187,400 in 1865 and 579,741 in 1904, was at the intermediate censuses 236,783 in 1875 and 376,987 in 1891. The proportion of Dutch descended whites to those of British origin is about 3 to 2. No exact comparison can be made showing the increase in the native population owing to the varying areas of the colony, but the natives have multiplied more rapidly than the whites; the increase in the numbers of the last-named being due, in considerable measure, to immigration. The whites who form about 25% of the total population are in the proportion of 4 to 6 in the colony proper. The great bulk of the people inhabit the coast region. The population is densest in the south-west corner (which includes Cape Town, the capital) where the white outnumbers the coloured population. Here in an area of 1711 sq. m. the inhabitants exceed 264,000, being 154 to the sq. m. The urban population, reckoning as such dwellers in the nine largest towns and their suburbs, exceeds 331,000, being nearly 25% of the total population of the colony proper. Of the coloured inhabitants at the 1904 census 15,682 were returned as Malay, 8489 as Indians, 85,892 as Hottentots,[2] 4168 as Bushmen and 6289 as Griquas. The Kaffir and Bechuana tribes numbered 1,114,067 individuals, besides 310,720 Fingoes separately classified, while 279,662 persons were described as of mixed race. Divided by sex (including white and black) the males numbered (1904) 1,218,940, the females 1,190,864, females being in the proportion of 97.70 to 100 males. By race the proportion is:—whites, 82.16 females to every 100 males (a decrease of 10% compared with 1891); coloured, 103.22 females to every 100 males. Of the total population over 14 years old—1,409,975—the number married was 738,563 or over 50%. Among the white population this percentage was only reached in adults over 17.

	Population (1904).				
	Area in sq. m.	White.	Coloured.	Total.	Per sq. m.
Cape Colony Proper	206,613	553,452	936,239	1,489,691	7.21
British Bechuanaland	51,424	9,368	75,104	84,472	1.64
Native Territories	18,310	16,777	817,867	834,644	45.50
Walfish Bay and Islands	648	144	853	977	1.50
Total	276,995	579,741	1,830,063	2,409,804	8.70

The professional, commercial and industrial occupations employ about ¼th of the white population. In 1904 whites engaged in such pursuits numbered respectively only 32,202, 46,750 and 67,278, whereas 99,319 were engaged in domestic employment, and 111,175 in agricultural employment, while 214,982 (mostly children) were dependants. The natives follow domestic and agricultural pursuits almost exclusively.

Registration of births and deaths did not become compulsory till 1895. Among the European population the birth-rate is about 33.00 per thousand, and the death-rate 14.00 per thousand. The birth-rate among the coloured inhabitants is about the same as with the whites, but the death-rate is higher—about 25.00 per thousand.

Immigration and Emigration.—From 1873 to 1884 only 23,337 persons availed themselves of the government aid to immigrants from England to the Cape, and in 1886 this aid was stopped. The total number of adult immigrants by sea, however, steadily increased from 11,559 in 1891 to 38,669 in 1896, while during the same period the number of departures by sea only increased from 8415 to 17,695, and most of this increase took place in the last year. But from 1896 onwards the uncertainty of the political position caused a falling off in the number of immigrants, while the emigration figures still continued to grow; thus in 1900 there were 29,848 adult arrivals by sea, as compared with 21,163 departures. Following the close of the Anglo-Boer War the immigration figures rose in 1903 to 61,870, whereas the departures numbered 29,615. This great increase proved transitory; in 1904 and 1905 the immigrants numbered 32,282 and 33,775 respectively, while in the same years the emigrants numbered 33,651 and 34,533. At the census of 1904, 21.68% of the European population was born outside Africa, persons of Russian extraction constituting the strongest foreign element.

Provinces.—The first division of the colony for the purposes of administration and election of members for the legislative council was into two provinces, a western and an eastern, the western being largely Dutch in sentiment, the eastern chiefly British. With the growth of the colony these provinces were found to be inconveniently large, and by an act of government, which became law in 1874, the country was portioned out into seven provinces; about the same time new fiscal divisions were formed within them by the reduction of those already existing. The seven provinces are named from their geographical position: western, north-western, south-western, eastern, north-eastern, south-eastern and midland. In general usage the distinction made is into western and eastern provinces, according to the area of the primary division. Griqualand West on its incorporation with the colony in 1880 became a separate province, and when the crown colony of British Bechuanaland was taken over by the Cape in 1895 it also became a separate province (see Griqualand and Bechuanaland). For electoral purposes the Native Territories (see Kaffraria) are included in the eastern province.

Chief Towns.—With the exception of Kimberley the principal towns (see separate notices) are on the coast. The capital, Cape Town, had a population (1904) of 77,668, or including the suburbs, 169,641. The most important of these suburbs, which form separate municipalities, are Woodstock (28,990), Wynberg (18,477), and Claremont (14,972). Kimberley, the centre of the diamond mining industry, 647 m. up country from Cape Town, had a pop. of 34,331, exclusive of the adjoining municipality of Beaconsfield (9378). Port Elizabeth, in Algoa Bay, had 32,959 inhabitants, East London, at the mouth of the Buffalo river, 25,220. Cambridge (pop. 3480) is a suburb of East London. Uitenhage (pop. 12,193) is 21 m. N.N.W. of Port Elizabeth. Of the other towns Somerset West (2613), Somerset West Strand (3059), Stellenbosch (4969), Paarl (11,293), Wellington (4881), Ceres (2410), Malmesbury (3811), Caledon (3508), Worcester (7885), Robertson (3244) and Swellendam (2406) are named in the order of proximity to Cape Town, from which Swellendam is distant 134 m. Other towns in the western half of the colony are Riversdale (2643), Oudtshoorn (8849), Beaufort West (5478), Victoria West (2762), De Aar (3271), and the ports of Mossel Bay (4206) and George (3506). Graaff Reinet (10,083), Middleburg (6137), Cradock (7762), Aberdeen (2553), Steynsburg (2250) and Colesberg (2668) are more centrally situated, while in the east are Graham's

Town (13,887), King William's Town (9506), Queenstown (9616), Molteno (2725), Burghersdorp (2894), Tarkastad (2270), Dordrecht (2052), Aliwal North (5566), the largest town on the banks of the Orange, and Somerset East (5216). Simon's Town (6643) in False Bay is a station of the British navy. Mafeking (2713), in the extreme north of the colony near the Transvaal frontier, Taungs (2715) and Vryburg (2985) are in Bechuanaland. Kokstad (2903) is the capital of Griqualand East, Umtata (2342) the capital of Tembuland.

Port Nolloth is the seaport for the Namaqualand copper mines, whose headquarters are at O'okiep (2106). Knysna, Port Alfred and Port St Johns are minor seaports. Barkly East and Barkly West are two widely separated towns, the first being E.S.E. of Aliwal North and Barkly West in Griqualand West. Hopetown and Prieska are on the south side of the middle course of the Orange river. Upington (2508) lies further west on the north bank of the Orange and is the largest town in the western part of Bechuanaland. Indwe (2608) is the centre of the coal-mining region in the east of the colony. The general plan of the small country towns is that of streets laid out at right angles, and a large central market square near which are the chief church, town hall and other public buildings. In several of the towns, notably those founded by the early Dutch settlers, the streets are tree-lined. Those towns for which no population figures are given had at the 1904 census fewer than 2000 inhabitants.

Agriculture and Allied Industries.—Owing to the scarcity of water over a large part of the country the area of land under cultivation is restricted. The farmers, in many instances, are pastoralists, whose wealth consists in their stock of cattle, sheep and goats, horses, and, in some cases, ostriches. In the lack of adequate irrigation much fertile soil is left untouched.

The principal cereal crops are wheat, with a yield of 1,701,000 bushels in 1904, oats, barley, rye, mealies (Indian corn) and Kaffir corn (a kind of millet). The principal wheat-growing districts are in the south-western and eastern provinces. The yield per acre is fully up to the average of the world's yield, computed at twelve bushels to the acre. The quality of Cape wheat is stated to be unsurpassed. Rye gives its name to the Roggeveld, and is chiefly grown there and in the lower hills of Namaqualand. Mealies (extensively used as food for cattle and horses) are very largely grown by the coloured population and Kaffir corn almost exclusively so. Oats are grown over a wider area than any other crop, and next to mealies are the heaviest crop grown. They are often cut whilst still tender, dried and used as forage being known as oat hay (67,742,000 bundles of about 5½ lb each were produced in 1904). The principal vegetables cultivated are potatoes, onions, mangold and beet, beans and peas. Farms in tillage are comparatively small, whilst those devoted to the rearing of sheep are very large, ranging from 3000 acres to 15,000 acres and more. For the most part the graziers own the farms they occupy.

The rearing of sheep and other live-stock is one of the chief occupations followed. At the census of 1904 over 8,465,000 woolled and 3,353,000 other sheep were enumerated. There were 2,775,000 angora and 4,386,000 other goats, some 2,000,000 cattle, 250,000 horses and 100,000 asses. These figures showed in most cases a large decrease compared with those obtained in 1891, the cause being largely the ravages of rinderpest. Lucerne and clover are extensively grown for fodder. Ostrich farms are maintained in the Karroo and in other parts of the country, young birds having been first enclosed in 1857. A farm of 6000 acres supports about 300 ostriches. The number of domesticated ostriches in 1904 was 357,000, showing an increase of over 200,000 since 1891. There are large mule-breeding establishments on the veld.

Viticulture plays an important part in the life of the colony. It is doubtful whether or not a species of vine is indigenous to the Cape. The first Dutch settlers planted small vineyards, while the cuttings of French vines introduced by the Huguenots about 1688 have given rise to an extensive culture in the south-western districts of the colony. The grapes are among the finest in the world, whilst the fruit is produced in almost unrivalled abundance. It is computed that over 600 gallons of wine are produced from 1000 vines. The vines number about 80,000,000, and the annual output of wine is about 6,000,000 gallons, besides 1,500,000 gallons of brandy. The Cape wines are chiefly those known as Hermitage, Muscadel, Pontac, Stein and Hanepoot. The high reputation which they had in the first half of the 19th century was afterwards lost to a large extent. Owing to greater care on the part of growers, and the introduction of French-American resistant stocks to replace vines attacked by the phylloxera, the wines in the early years of the 20th century again acquired a limited sale in England. By far the greater part of the vintage has been, however, always consumed in the colony. The chief wine-producing districts are those of the Paarl, Worcester, Robertson, Malmesbury, Stellenbosch and the Cape, all in the south-western regions. Beyond the colony proper there are promising vine stocks in the Gordonia division of Bechuanaland and in the Umtata district of Tembuland.

Fruit culture has become an important industry with the facilities afforded by rapid steamers for the sale of produce in Europe. The trees whose fruit reaches the greatest perfection and yield the largest harvest are the apricot, peach, orange and apple. Large quantities of table grapes are also grown. Many millions of each of the fruits named are produced annually. The pear, lemon, plum, fig and other trees likewise flourish. Cherry trees are scarce. The cultivation of the olive was begun in the western provinces, *c.* 1900. In the Oudtshoorn, Stockenstroom, Uniondale, Piquetberg and other districts tobacco is grown. The output for 1904 was 5,309,000 lb.

Flour-milling is an industry second only in importance to that of diamond mining (see below). The chief milling centres are Port Elizabeth and the Cape district. In 1904 the output of the mills was valued at over £2,200,000, more than 7,000,000 bushels of wheat being ground.

Forestry is a growing industry. Most of the forests are crown property and are under the care of conservators. Fisheries were little developed before 1897 when government experiments were begun, which proved that large quantities of fish were easily procurable by trawling. Large quantities of soles are obtained from a trawling ground near Cape Agulhas. The collection of guano from the islands near Walfish Bay is under government control.

Mining.—The mineral wealth of the country is very great. The most valuable of the minerals is the diamond, found in Griqualand West and also at Hopetown, and other districts along the Orange river. The diamond-mining industry is almost entirely under the control of the De Beers Mining Company. From the De Beers mines at Kimberley have come larger numbers of diamonds than from all the other diamond mines of the world combined. Basing the calculation on the figures for the ten years 1896-1905, the average annual production is slightly over two and a half million carats, of the average annual value of £4,250,000, the average price per carat being £1 : 13 : 3. From the other districts alluvial diamonds are obtained of the average annual value of £250,000-£400,000. They are finer stones than the Kimberley diamonds, having an average value of £3 : 2 : 7 per carat.

Next in importance among mineral products are coal and copper. The collieries are in the Stormberg district and are of considerable extent. The Indwe mines are the most productive. The colonial output increased from 23,000 tons in 1891 to 188,000 tons in 1904. The copper mines are in Namaqualand, an average of 50,000 to 70,000 tons of ore being mined yearly. Copper was the first metal worked by white men in the colony, operations beginning in 1852.

Gold is obtained from mines on the Madibi Reserve, near Mafeking—the outcrop extending about 30 m.—-and, in small quantities, from mines in the Knysna district. In the Cape and Paarl districts are valuable stone and granite quarries. Asbestos is mined near Prieska, in which neighbourhood there are also nitrate beds. Salt is produced in several districts, there being large pans in the Prieska, Hopetown and Uitenhage divisions. Tin is obtained from Kuils river, near Cape Town. Many other minerals exist but are not put to industrial purposes.

Trade.—The colony has not only a large trade in its own commodities, but owes much of its commerce to the transit of goods to and from the Transvaal, Orange River Colony and Rhodesia. The staple exports are diamonds, gold (from the Witwatersrand mines), wool, copper ore, ostrich feathers, mohair, hides and skins. The export of wool, over 23,000,000 lb in

1860, had doubled by 1871, and was over 63,473,000 lb in 1905 when the export was valued at £1,887,459. In the same year (1905) 471,024 lb of ostrich feathers were exported valued at £1,081,187. The chief imports are textiles, food stuffs, wines and whisky, timber, hardware and machinery. The value of the total imports rose from £13,612,405 in 1895 to £33,761,831 in 1903, but dropped to £20,000,913 in 1905. The exports in 1895 were valued at £16,798,137 and rose to £23,247,258 in 1899. The dislocation of trade caused by the war with the Boer Republics brought down the exports in 1900 to £7,646,682 (in which year the value of the gold exported was only £336,795). They rose to £10,000,000 and £16,000,000 in 1901 and 1902 respectively, and in 1905 had reached £33,812,210. (This figure included raw gold valued at £20,731,159.) About 75% of the imports come from the United Kingdom or British colonies, and nearly the whole of the exports go to the United Kingdom. The tonnage of ships entered and cleared at colonial ports rose from 10,175,903 in 1895 to 22,518,286 in 1905. In that year $^{9}/_{11}$ths of the tonnage was British. It is interesting to compare the figures already given with those of earlier days, as they illustrate the growth of the colony over a longer period. In 1836 the total trade of the country was under £1,000,000, in 1860 it had risen to over £4,500,000, in 1874 it exceeded £10,500,000. It remained at about this figure until the development of the Witwatersrand gold mines. The consequent great increase in the carrying trade with the Transvaal led to some neglect of the internal resources of the colony. Trade depression following the war of 1899-1902 turned attention to these resources, with satisfactory results. The value of imports for local consumption in 1906 was £12,847,188, the value of exports, the produce of the colony being £15,302,854. A “trade balance-sheet” for 1906 drawn up for the Cape Town chamber of commerce by its president showed, however, a debtor account of £18,751,000 compared with a credit account of £17,931,000, figures representing with fair accuracy the then economic condition of the country.

Cape Colony is a member of the South African Customs Union. The tariff, revised in 1906, is protective with a general *ad valorem* rate of 15% on goods not specifically enumerated. On machinery generally there is a 3% *ad valorem* duty. Books, engravings, paintings, sculptures, &c., are on the free list. There is a rebate of 3% on most goods from the United Kingdom, machinery from Great Britain thus entering free.

Communications.—There is regular communication between Europe and the colony by several lines of steamships. The British mails are carried under contract with the colonial government by packets of the Union-Castle Steamship Co., which leave Southampton every Saturday and Cape Town every Wednesday. The distance varies from 5866 m. to 6146 m., according to the route followed, and the mail boats cover the distance in seventeen days. From Cape Town mail steamers sail once a week, or oftener, to Port Elizabeth (436 m., two days) East London (543 m., three days) and Durban (823 m., four or five days); Mossel Bay being called at once a fortnight. Steamers also leave Cape Town at frequent and stated intervals for Port Nolloth.

Steamers of the D.O.A.L. (*Deutsche Ost Afrika Linie*), starting from Hamburg circumnavigate Africa, touching at the three chief Cape ports. The western route is via Dover to Cape Town, the eastern route is via the Suez Canal and Natal. Several lines of steamers ply between Cape Town and Australian ports, and others between Cape Colony and India.

There are over 8000 m. of roads in the colony proper and rivers crossing main routes are bridged. The finest bridge in the colony is that which spans the Orange at Hopetown. It is 1480 ft. long and cost £114,000. Of the roads in general it may be said that they are merely tracks across the veld made at the pleasure of the traveller. The ox is very generally used as a draught animal in country districts remote from railways; sixteen or eighteen oxen being harnessed to a wagon carrying 3 to 4 tons. Traction-engines have in some places supplanted the ox-wagon for bringing agricultural produce to market. The “Scotch cart,” a light two-wheeled vehicle is also much used.

Railways.—Railway construction began in 1859 when a private company built a line from Cape Town to Wellington. This line, 64 m. long, was the only railway in the colony for nearly fifteen years. In 1871 parliament resolved to build railways at the public expense, and in 1873 (the year following the conferment of responsible government on the colony) a beginning was made with the work, £5,000,000 having been voted for the purpose. In the same year the Cape Town-Wellington line was bought by the state. Subsequently powers were again given to private companies to construct lines, these companies usually receiving subsidies from the government, which owns and works the greater part of the railways in the colony.

The plan adopted in 1873 was to build independent lines from the seaports into the interior, and the great trunk lines then begun determined the development of the whole system. The standard gauge in South Africa is 3 ft., 6 in. and all railways mentioned are of that gauge unless otherwise stated.

The railways, which have a mileage exceeding 4000, are classified under three great systems:—the Western, the Midland and the Eastern.

The Western system—the southern section of the Cape to Cairo route—starts from Cape Town and runs by Kimberley (647 m.) to Vryburg (774 m.), whence it is continued by the Rhodesia Railway Co. to Mafeking (870 m.), Bulawayo (1360 m.), the Victoria Falls on the Zambezi (1623 m.) and the Belgian Congo frontier, whilst a branch from Bulawayo runs via Salisbury to Beira, 2037 m. from Cape Town. From Fourteen Streams, a station 47 m. north of Kimberley, a line goes via Klerksdorp to Johannesburg and Pretoria, this being the most direct route between Cape Town and the Transvaal. (Distance from Cape Town to Johannesburg, 955 m.)

The Midland system starts from Port Elizabeth, and the main line runs by Cradock and Naauwpoort to Norval’s Pont on the Orange river, whence it is continued through the Orange River Colony and the Transvaal by Bloemfontein to Johannesburg (714 m. from Port Elizabeth) and Pretoria (741 m.). From Kroonstad, a station midway between Bloemfontein and Johannesburg, a railway, opened in 1906, goes via Ladysmith to Durban, and provides the shortest railway route between Cape Town and Port Elizabeth and Natal. From Port Elizabeth a second line (186 m.) runs by Uitenhage and Graaff Reinet, rejoining the main line at Rosmead, from which a junction line (83 m.) runs eastwards, connecting with the Eastern system at Stormberg. From Naauwpoort another junction line (69 m.) runs north-west, connecting the Midland with the Western system at De Aar, and affords an alternative route to that via Kimberley from Cape Town to the Transvaal. (Distance from Cape Town to Johannesburg via Naauwpoort, 1012 m.)

The Eastern system starts from East London, and the principal line runs to Springfontein (314 m.) in the Orange River Colony, where it joins the line to Bloemfontein and the Transvaal. (Distance from East London to Johannesburg, 665 m.) From Albert junction (246 m. from East London) a branch, originally the main line, goes east to Aliwal North (280 m.).

The west to east connexion is made by a series of railways running for the most part parallel with the coast. Starting from Worcester, 109 m. from Cape Town on the western main line a railway runs to Mossel Bay via Swellendair and Riversdale. From Mossel Bay another line runs by George, Oudtshoorn and Willowmore to Klipplaat, a station on the line from Graaff Reinet to Port Elizabeth. (Distance from Cape Town 666 m.) From Somerset East a line (164 m.) goes via King William’s Town to Blaney junction on the eastern main line and 31 m. from East London. The Somerset East line crosses, at Cookhouse station, the Midland main line from Port Elizabeth to the north, and by this route the distance between Port Elizabeth and East London is 307 m. Before the completion in 1905 of the Somerset East-King William’s Town line, the nearest railway connexion between the two seaports was via Rosmead and Stormberg junction—a distance of 547 m. From Sterkstroom junction on the eastern main line a branch railway goes through the Transkei to connect at Riverside, the frontier station, with the Natal railways. It runs via the Indwe coal-mines (66 m. from Sterkstroom), Maclear (173 m.) and Kokstad. From Kokstad to Durban is 232 m. The eastern system is also connected with the Transkei by another railway. From Amabele, a station 51 m. from East London, a line goes east to Umtata (180 m. distant). Thence the line is continued

to Port St Johns (307 m. from East London), whence another line 142 m. long goes to Kokstad.

Besides the main lines there are many smaller lines. Thus all the towns within a 50 m. radius of Cape Town are linked to it by railway. Longer branches run from the capital S.E. to Caledon (87 m.) and N.W. via Malmesbury (47 m.), and Piquetberg (107 m.) to Graaf Water (176 m.). A line runs N.W. across the veld from Hutchinson on the western main line via Victoria West to Carnarvon (86 m.). From De Aar junction, a line (111 m.) goes N.W. via Britstown to Prieska on the Orange river. From Port Elizabeth a line (35 m.) runs east to Grahamstown, whence another line (43 m.) goes south-east to Port Alfred at the mouth of the Kowie river. Another line (179 m.) on a two-foot gauge runs N.W. from Port Elizabeth via Humansdorp to Avontuur.

A line, unconnected with any other in the colony, runs from Port Nolloth on the west coast to the O'okiep copper mines (92 m.). It has a gauge of 2 ft. 6 in.

The railways going north have to cross, within a comparatively short distance of the coast, the mountains which lead to the Karroo. The steepest gradient is on the western main line. Having entered the hilly district at Tulbagh Road, where the railway ascends 500 ft. in 9 m., the Hex River Pass is reached soon after leaving Worcester, 794 ft. above the sea. In the next 36 m. the line rises 2400 ft., over 20 m. of that distance being at gradients of 1 in 40 to 1 in 45. The eastern line is the most continuously steep in the colony. In the first 18 m. from East London the railway rises 1000 ft.; at Kei Road, 46 m. from its starting-point, it has reached an altitude of 2332 ft., at Cathcart (109 m.) it is 3906 ft. above the sea, and at Cyphergat, where it pierces the Stormberg, 204 m. from East London, the rails are 5450 ft. above the sea. From Sterkstroom to Cyphergat, 15 m., the line rises 1044 ft. The highest railway station in the colony is Krom Hooghte, 5543 ft., in the Zuurberg, on the branch line connecting the Eastern and Western systems. The capital expended on government railways to the end of 1905 was £29,973,024, showing a cost per mile of £10,034. The gross earnings in 1905 were £4,047,065 (as compared with £3,390,093 in 1895); the expenses £3,076,920 (as compared with £1,596,013 in 1895). Passengers conveyed in 1905 numbered 20,611,384, and the tonnage of goods 1,836,946 (of 2000 lb).

Posts and Telegraphs.—Direct telegraphic communication between London and Cape Town was established on Christmas day 1879. Cables connect the colony with Europe (1) via Loanda and Bathurst, (2) via St Helena, Ascension and St Vincent; with Europe and Asia (3) via Natal, Zanzibar and Aden, and with Australia (4) via Natal, Mauritius and Cocos.

An overland telegraph wire connects Cape Town and Ujiji, on Lake Tanganyika, via Rhodesia and Nyasaland. Other lines connect Cape Town with all other South African states, while within the colony there is a complete system of telegraphic communication, over 8000 m. of lines being open in 1906. The telephone service is largely developed in the chief towns. The telegraph lines are owned and have been almost entirely built, at a cost up to 1906 of £865,670, by the government, which in 1873 took over the then existing lines (781 m.).

The postal service is well organized, and to places beyond the reach of the railway there is a service of mail carts, and in parts of Gordonia (Bechuanaland) camels are used to carry the mails. Since 1890 a yearly average of over 50,000,000 has passed through the post. Of these about four-fifths are letters.

Constitution and Government.—Under the constitution established in 1872 Cape Colony enjoyed self-government. The legislature consisted of two chambers, a Legislative Council and a House of Assembly. Members of the Legislative Council or Upper House represented the provinces into which the colony was divided and were elected for seven years; members of the House of Assembly, a much more numerous body, elected for five years, represented the towns and divisions of the provinces. At the head of the executive was a governor appointed by the crown. By the South Africa Act 1909 this constitution was abolished as from the establishment of the Union of South Africa in 1910. Cape Colony entered the Union as an original province, being represented in the Union parliament by eight members in the Senate and fifty-one in the House of Assembly. The qualifications of voters for the election of members of the House of Assembly are the same as those existing in Cape Colony at the establishment of the Union, and are as follows:—Voters must be born or naturalized British subjects residing in the Cape province at least twelve months, must be males aged 21 (no distinction being made as to race or colour), must be in possession of property worth £75, or in receipt of salary or wages of not less than £50 a year. No one not an elector in 1892 can be registered as a voter unless he can sign his name and write his address and occupation. A share in tribal occupancy does not qualify for a vote. A voter of non-European descent is not qualified for election to parliament (see further South Africa). The number of registered electors in 1907 was 152,135, of whom over 20,000 were non-Europeans.

For provincial purposes there is a provincial council consisting of the same number of members as are elected by the province to the House of Assembly. The qualifications of voters for the council are the same as for the House of Assembly. All voters, European and non-European, are eligible for seats on the council, but any councillor who becomes a member of parliament thereupon ceases to be a member of the provincial council. The council passes ordinances dealing with direct taxation within the province for purely local purposes, and generally controls all matters of a merely local or private nature in the province. The council was also given, for five years following the establishment of the Union, control of elementary education. All ordinances passed by the council must have the sanction of the Union government before coming into force. The council is elected for three years and is not subject to dissolution save by effluxion of time. The chief executive officer is an official appointed by the Union government and styled administrator of the province. The administrator holds his post for a period of five years. He is assisted by an executive committee consisting of four persons elected by the provincial council but not necessarily members of that body.

To the provincial council is entrusted the oversight of the divisional and municipal councils of the province, but the powers of such subordinate bodies can also be varied or withdrawn by the Union parliament acting directly. Divisional councils, which are elected triennially, were established in 1855. In 1908 they numbered eighty-one. The councils are presided over by a civil commissioner who is also usually resident magistrate. They have to maintain all roads in the division; can nominate field cornets (magistrates); may borrow money on the security of the rates for public works; and return three members yearly to the district licensing court. Their receipts in 1908 were £269,000; their expenditure in the same period was £283,000. The electors to the divisional councils are the owners or occupiers of immovable property. Members of the councils must be registered voters and owners of immovable property in the division valued at not less than £500.

Municipalities at the Cape date from 1836, and are now, for the most part, subject to the provisions of the General Municipal Act of 1882. Certain municipalities have, however, obtained special acts for their governance. In 1907 there were 110 municipalities in the province. Under the act of 1882 the municipalities were given power to levy annually an owner's rate assessed upon the capital value of rateable property, and a tenant's rate assessed upon the annual value of such property. No rate may exceed 2d. in the £ on the capital value or 8d. in the £ on the annual value. The receipts of the municipalities in 1907 amounted to £1,430,000. During the same period the expenditure amounted to £1,539,000.

Law and Justice.—The basis of the judicial system is the Roman-Dutch law, which has been, however, modified by legislation of the Cape parliament. In each division of the province there is a resident magistrate with primary jurisdiction in civil and criminal matters. The South Africa Act 1909 created a Supreme Court of South Africa, the supreme court of the Cape of Good Hope, which sits at Cape Town, becoming a provincial division of the new supreme court, presided over by a judge-president. The two other superior courts of Cape Colony, namely the eastern districts court which sits at Graham's Town, and the high court of Griqualand which sits at Kimberley, became local divisions of the Supreme Court of South

Africa. Each of these courts consists of a judge-president and two puisne judges. The provincial and local courts, besides their original powers, have jurisdiction in all matters in which the government of the Union is a party and in all matters in which the validity of any provincial ordinance shall come into question. From the decisions of these courts appeals may be made to the appellate division of the Supreme Court. The judges of the divisional courts go on circuit twice a year. In addition, since 1888 a special court has been held at Kimberley for trying cases relating to illicit diamond buying ("I.D.B."). This court consists of two judges of the supreme court and one other member, hitherto the civil commissioner or the resident magistrate of Kimberley. The Transkeian territories, which fall under the jurisdiction of the eastern district court, are subject to a Native Territories Penal Code, which came into force in 1887. Besides the usual magistrates in these territories, there is a chief magistrate, resident at Cape Town, with two assistants in the territories.

Religion.—Up to the year 1876 government provided an annual grant for ecclesiastical purposes which was divided among the various churches, Congregationalists alone declining to receive state aid. From that date, in accordance with the provisions of the Voluntary Act of 1875, grants were only continued to the then holders of office. The Dutch Reformed Church, as might be anticipated from the early history of the country, is by far the most numerous community. Next in number of adherents among the white community come the Anglicans—Cape Colony forming part of the Province of South Africa. In 1847 a bishop of Cape Town was appointed to preside over this church, whose diocese extended not only over Cape Colony and Natal, but also over the island of St Helena. Later, however, separate bishops were appointed for the eastern province (with the seat at Graham's Town) and for Natal. Subsequently another bishopric, St John's, Kaffraria, was created and the Cape Town diocesan raised to the rank of archbishop. Of other Protestant bodies the Methodists outnumber the Anglicans, eight-ninths of their members being coloured people. The Roman Catholics have bishops in Cape Town and Graham's Town, but are comparatively few. There are, besides, several foreign missions in the colony, the most important being the Moravian, London and Rhenish missionary societies. The Moravians have been established since 1732.

The following figures are extracted from the census returns of 1904:—Protestants, 1,305,453; Roman Catholics, 38,118; Jews, 19,537; Mahommedans, 22,623; other sects, 4297; "no religion," 1,016,255. In this last category are placed the pagan natives. The figures for the chief Protestant sects were:—Dutch Reformed Church, 399,487; Gereformeerde Kerk, 6209; Lutherans, 80,902; Anglicans, 281,433; Presbyterians, 88,660; Congregationalists, 112,202; Wesleyan and other Methodists, 290,264; Baptists, 14,105. Of the Hottentots 77%, of the Fingoes 50%, of the mixed races 89%, and of the Kaffirs and Bechuanas 26% were returned as Christians.

Education.—There is a state system of primary education controlled by a superintendent-general of education and the education department which administers the parliamentary grants. As early as 1839 a scheme of public schools, drawn up by Sir John Herschel, the astronomer, came into operation, and was continued until 1865, when a more comprehensive scheme was adopted. In 1905 an act was passed dividing the colony into school districts under the control of popularly elected school boards, which were established during 1905-1906. These boards levy, through municipal or divisional councils, a rate for school purposes and supervise all public and poor schools. The schools are divided into public undenominational elementary schools; day schools and industrial institutions for the natives; mission schools to which government aid for secular instruction is granted; private farm schools, district boarding schools, training schools for teachers, industrial schools for poor whites, &c. In 1905 2930 primary schools of various classes were open. Education is not compulsory, but at the 1904 census 95% of the white population over fourteen years old could read and write. In the same year 186,000 natives could read and write, and 53,000 could read but not write. There are also numbers of private schools receiving no government aid. These include schools maintained by the German community, in which the medium of instruction is German.

The university of the Cape of Good Hope, modelled on that of London, stands at the head of the educational system of the colony. It arose out of and superseded the board of public examiners (which had been constituted in 1858), was established in 1874 and was granted a royal charter in 1877. It is governed by a chancellor, a vice-chancellor (who is chairman of the university council) and a council consisting (1909) of 38 members, including representatives of Natal. The university is empowered to grant degrees ranking equally with those of any university in Great Britain. Originally only B.A., M.A., LL.B., LL.D., M.B., and M.D. degrees were conferred, but degrees in literature, science and music and (in 1908) in divinity were added. The number of students who matriculated rose from 34 in 1875 to 118 in 1885, 242 in 1895 and 539 in 1905. The examinations are open to candidates irrespective of where they have studied, but under the Higher Education Act grants are paid to seven colleges that specially devote themselves to preparing students for the graduation courses. These are the South African College at Cape Town (founded in 1829), the Victoria College at Stellenbosch, the Diocesan College at Rondebosch, Rhodes University College, Graham's Town, Gill College at Somerset East, the School of Mines at Kimberley and the Huguenot Ladies' College at Wellington. Several denominational colleges, receiving no government aid, do the same work in a greater or less degree, the best known being St Aidan's (Roman Catholic) College and Kingswood (Wesleyan) College, both at Graham's Town. Graaff Reinet College, Dale College, King William's Town, and the Grey Institute, Port Elizabeth, occupy the place of high schools under the education department. The Theological Seminary at Stellenbosch prepares theological students for the ministry of the Dutch Church. At Cape Town is a Royal Observatory, founded in 1829, one of the most important institutions of its kind in the world. It is under the control of a royal astronomer and its expenses are defrayed by the British admiralty.

Defence.—The Cape peninsula is fortified with a view to repelling attacks from the sea. Simon's Town, which is on the east side of the peninsula, is the headquarters of the Cape and West Coast naval squadron. It is strongly fortified, as is also Table Bay. Port Elizabeth is likewise fortified against naval attack. A strong garrison of the British army is stationed in the colony, with headquarters at Cape Town. The cost of this garrison is borne by the imperial government. For purposes of local defence a force named the Frontier Armed and Mounted Police was organized in 1853, and a permanent colonial force has been maintained since that date. It is now known as the Cape Mounted Riflemen and is about 700 strong. Its ordinary duty is to preserve order in the Transkeian territories. The Cape Mounted Police, over 1600 strong, are also available for the defence of the colony and are fully armed. There are numerous volunteer corps, which receive a capitation grant from the government. By a law passed in 1878 every able-bodied man between eighteen and fifty is liable to military service without as well as within the limits of the state. There is also a volunteer naval force.

Revenue, Debt, &c.—The following table shows the total receipts (including loans) and payments (including that under Loan Acts) of the colony in various financial years, from 1880 to 1905:—

Year ending 30th June.	Receipts.		Payments.
	Total.	Loans (included in total).	
1880	£3,556,601		£3,742,665
1885	£3,814,947	£496,795	4,211,832
1890	5,571,907	1,141,857	5,327,496
1895	5,416,611	26,441	5,388,157
1900	6,565,752	128,376	7,773,230
1905	13,856,247	5,214,290	10,914,784

The colony had a public debt of £42,109,561 on the 31st of December 1905, including sums raised for corporate bodies,

harbour boards, &c., but guaranteed in the general revenue. The greater part of the loans were issued at 3½ or 4% interest. Nearly the whole of the loans raised have been spent on railways, harbours, irrigation and other public works. The value of assessed property for divisional council purposes was returned in 1905 at £87,078,268. The total revenue of the divisional councils increased from £160,558 in 1901 to £273,543 in 1905, and the expenditure from £170,892 in 1901 to £243,241 in 1905. The receipts from municipal rates and taxes rose from £520,587 in 1901 to £700,103 in 1905; the total municipal receipts in the same period from £978,867 to £1,752,105. At the end of 1905 the total indebtedness of the municipalities was £5,775,420, and the value of assessed property within the municipal bounds £53,948,224.

Banks.—-The following table gives statistics of the banks under trust laws:—

31st December.	Including Head Offices.			Circulation, Colony only.	Assets and Liabilities Colony only.
	Capital Subscribed.	Capital Paid up.	Reserve		
1890	£5,780,610	£1,558,612	£850,489	£740,210	£9,221,661
1895	7,189,090	2,382,003	1,008,837	612,266	11,864,152
1900	12,166,800	6,508,308	1,810,621	1,361,637	20,537,343
1905	11,510,900	4,456,925	2,948,428	1,065,251	20,749,988

Standard Time, Money, Weights and Measures.—Since 1903 a standard time has been adopted throughout South Africa, being that of 30° or two hours east of Greenwich. In other words noon in South Africa corresponds to 10.0 A.M. in London. The actual difference between the meridians of Greenwich and Cape Town is one hour fourteen minutes. The monetary system is that of Great Britain and the coins in circulation are exclusively British. Though all the standard weights and measures are British, the following old Dutch measures are still used:—*Liquid Measure*: Leaguer = about 128 imperial gallons; half aum = 15½ imperial gallons; anker = 7½ imperial gallons. *Capacity*: Muid = 3 bushels. The general surface measure is the old Amsterdam *Morgen*, reckoned equal to 2.11654 acres; 1000 Cape lineal feet are equal to 1033 British imperial feet. The Cape ton is 2000 lb.

The Press.—The first newspaper of the colony, written in Dutch and English, was published in 1824, and its appearance marked an era not only in the literary but in the political history of the colony, since it drew to a crisis the disputes which had arisen between the colonists and the governor, Lord Charles Somerset, who had issued a decree prohibiting all persons from convening or attending public meetings. Its criticisms on public affairs soon led to its suppression by the governor, and a memorial from the colonists to the king petitioning for a free press was the result. This boon was secured to the colony in 1828, and the press soon became a powerful agent, characterized by public spirit and literary ability. In politics the newspapers are divided, principally on racial lines, appealing either to the British or the Dutch section of the community, rarely to both sides. There are about one hundred newspapers in English or Dutch published in the colony.

The chief papers are the *Cape Times, Cape Argus, South African News* (Bond), both daily and weekly; the *Diamond Fields Advertiser* (Kimberley) and the *Eastern Province Herald* (Port Elizabeth). *Ons Land* and *Het Dagblad* are Dutch papers published at Cape Town.

(F. R. C.)

History

Discovery and Settlement.—Bartholomew Diaz, the Portuguese navigator, discovered the Cape of Good Hope in 1488, and Vasco da Gama in 1497 sailed along the whole coast of South Africa on his way to India. The Portuguese, attracted by the riches of the East, made no permanent settlement at the Cape. But the Dutch, who, on the decline of the Portuguese power, established themselves in the East, early saw the importance of the place as a station where their vessels might take in water and provisions. They did not, however, establish any post at the Cape until 1652, when a small garrison under Jan van Riebeek were sent there by the Dutch East India Company. Riebeek landed at Table Bay and founded Cape Town. In 1671 the first purchase of land from the Hottentots beyond the limits of the fort built by Riebeek marked the beginning of the Colony proper. The earliest colonists were for the most part people of low station or indifferent character, but as the result of the investigations of a commissioner sent out in 1685 a better class of immigrants was introduced. About 1686 the European population was increased by a number of the French refugees who left their country on the revocation of the edict of Nantes. The influence of this small body of immigrants on the character of the Dutch settlers was marked. The Huguenots, however, owing to the policy of the Company, which in 1701 directed that Dutch only should be taught in the schools, ceased by the middle of the 18th century to be a distinct body, and the knowledge of French disappeared. Advancing north and east from their base at Cape Town the colonists gradually acquired—partly by so-called contracts, partly by force—all the land of the Hottentots, large numbers of whom they slew. Besides those who died in warfare, whole tribes of Hottentots were destroyed by epidemics of smallpox in 1713 and in 1755. Straggling remnants still maintained their independence, but the mass of the Hottentots took service with the colonists as herdsmen, while others became hangers-on about the company’s posts and grazing-farms or roamed about the country. In 1787 the Dutch government passed a law subjecting these wanderers to certain restrictions. The effect of this law was to place the Hottentots in more immediate dependence upon the farmers, or to compel them to migrate northward beyond the colonial border. Those who chose the latter alternative had to encounter the hostility of their old foes, the Bushmen, who were widely spread over the plains from the Nieuwveld and Sneeuwberg mountains to the Orange river. The colonists also, pressing forward to those territories, came in contact with these Ishmaelites—the farmers’ cattle and sheep, guarded only by a Hottentot herdsman, offering the strongest temptation to the Bushman. Reprisals followed; and the position became so desperate that the extermination of the Bushmen appeared to the government the only safe alternative. “Commandoes” or war-bands were sent out against them, and they were hunted down like wild beasts. Within a period of six years, it is said, upwards of 3000 were either killed or captured. Out of the organization of these commandoes, with their field-commandants and field-cornets, has grown the common system of local government in the Dutch-settled districts of South Africa.

It was not to the hostility of the natives, nor to the hard struggle with nature necessary to make agriculture profitable on Karroo or veld, that the slow progress made by the colonists was due, so much as to the narrow and tyrannical policy adopted by the East India Company, which closed the colony against free immigration, kept the whole of the trade in its own hands, combined the administrative, legislative and judicial powers in one body, prescribed to the farmers the nature of the crops they were to grow, demanded from them a large part of their produce, and harassed them with other exactions tending to discourage industry and enterprise. (See further South Africa, where the methods and results of Dutch colonial government are considered in their broader aspects.) To this mischievous policy is ascribed that dislike to orderly government, and that desire to escape from its control, which characterized for many generations the “boer” or farmer class of Dutch settlers—qualities utterly at variance with the character of the Dutch in their native country. It was largely to escape oppression that the farmers trekked farther and farther from the seat of government. The company, to control the emigrants, established a magistracy at Swellendam in 1745 and another at Graaff Reinet in 1786. The Gamtoos river had been declared, *c.* 1740, the eastern frontier of the colony, but it was soon passed. In 1780, however, the Dutch, to avoid collision with the warlike Kaffir tribes advancing south and west from east central Africa, agreed with them to make the Great Fish river the common boundary. In 1795 the heavily taxed burghers of the frontier districts, who were afforded no protection against the Kaffirs, expelled the officials of the East India Company, and set up independent governments at

Swellendam and Graaff Reinet. In the same year, Holland having fallen under the revolutionary government of France, a British force under General Sir James Craig was sent to Cape Town to secure the colony for the prince of Orange—a refugee in England—against the French. The governor of Cape Town at first refused to obey the instructions from the prince, but on the British proceeding to take forcible possession he capitulated.[3] His action was hastened by the fact that the Hottentots, deserting their former masters, flocked to the British standard. The burghers of Graaff Reinet did not surrender until a force had been sent against them, while in 1799 and again in 1801 they rose in revolt. In February 1803, as a result of the peace of Amiens, the colony was handed over to the Batavian Republic, which introduced many needful reforms, as had the British during their eight years' rule. (One of the first acts of General Craig had been to abolish torture in the administration of justice.) War having again broken out, a British force was once more sent to the Cape. After an engagement (Jan. 1806) on the shores of Table Bay the Dutch garrison of Cape Castle surrendered to the British under Sir David Baird, and in 1814 the colony was ceded outright by Holland to the British crown. At that time the colony extended to the line of mountains guarding the vast central plateau, then called Bushmansland, and had an area of about 120,000 sq. m. and a population of some 60,000, of whom 27,000 were whites, 17,000 free Hottentots and the rest slaves. These slaves were mostly imported negroes and Malays. Their introduction was the chief cause leading the white settlers to despise manual labour.

The First and Second Kaffir Wars.—At the time of the cession to Great Britain the first of several wars with the Kaffirs had been fought. (The numerous minor conflicts which since 1789 had taken place between the colonists and the Kaffirs—the latter sometimes aided by Hottentot allies—are not reckoned in the usual enumeration of the Kaffir wars.) The Kaffirs, who had crossed the colonial frontier, had been expelled from the district between the Sunday and Great Fish rivers known as the Zuurveld, which became a sort of neutral ground. For some time previous to 1811 the Kaffirs, however, had taken possession of the neutral ground and committed depredations on the colonists. In order to expel them from the Zuurveld, Colonel John Graham took the field with a mixed force in December 1811, and in the end the Kaffirs were driven beyond the Fish river. On the site of Colonel Graham's headquarters arose the town which bears his name. In 1817 further trouble arose with the Kaffirs, the immediate cause of quarrel being an attempt by the colonial authorities to enforce the restitution of some stolen cattle. Routed in 1818 the Kaffirs rallied, and in the early part of 1819 poured into the colony in vast hordes. Led by a prophet-chief named Makana, they attacked Graham's Town on the 22nd of April, then held by a handful of white troops. Help arrived in time and the enemy were beaten back. It was then arranged that the land between the Fish and Keiskamma rivers should be neutral territory.

The British Settlers of 1820.—The war of 1817-19 led to the first introduction of English settlers on a considerable scale, an event fraught with far-reaching consequences. The then governor, Lord Charles Somerset, whose treaty arrangements with the Kaffir chiefs had proved unfortunate, desired to erect a barrier against the Kaffirs by settling white colonists in the border district. In 1820, on the advice of Lord Charles, parliament voted £50,000 to promote emigration to the Cape, and 4000 British were sent out. These people formed what was known as the Albany settlement, founding Port Elizabeth and making Graham's Town their headquarters. Intended primarily as a measure to secure the safety of the frontier, and regarded by the British government chiefly as a better means of affording a livelihood to a few thousands of the surplus population, this emigration scheme accomplished a far greater work than its authors contemplated. The new settlers, drawn from every part of the British Isles and from almost every grade of society, retained, and their descendants retain, strong sympathy with their native land. In course of time they formed a valuable counterpoise to the Dutch colonists, and they now constitute the most progressive element in the colony. The advent of these immigrants was also the means of introducing the English language at the Cape. In 1825, for the first time, ordinances were issued in English, and in 1827 its use was extended to the conduct of judicial proceedings. Dutch was not, however, ousted, the colonists becoming to a large extent bilingual.

Dislike of British Rule.—Although the colony was fairly prosperous, many of the Dutch farmers were as dissatisfied with British rule as they had been with that of the Dutch East India Company, though their ground of complaint was not the same. In 1792 Moravian missions had been established for the benefit of the Hottentots,[4] and in 1799 the London Missionary Society began work among both Hottentots and Kaffirs. The championship of Hottentot grievances by the missionaries caused much dissatisfaction among the majority of the colonists, whose views, it may be noted, temporarily prevailed, for in 1812 an ordinance was issued which empowered magistrates to bind Hottentot children as apprentices under conditions differing little from that of slavery. Meantime, however, the movement for the abolition of slavery was gaining strength in England, and the missionaries at length appealed from the colonists to the mother country. An incident which occurred in 1815-1816 did much to make permanent the hostility of the frontiersmen to the British. A farmer named Bezuidenhout refused to obey a summons issued on the complaint of a Hottentot, and firing on the party sent to arrest him, was himself killed by the return fire. This caused a miniature rebellion, and on its suppression five ringleaders were publicly hanged at the spot—Slachters Nek—where they had sworn to expel "the English tyrants." The feeling caused by the hanging of these men was deepened by the circumstances of the execution—for the scaffold on which the rebels were simultaneously swung, broke down from their united weight and the men were afterwards hanged one by one. An ordinance passed in 1827, abolishing the old Dutch courts of *landroost* and *heemraden* (resident magistrates being substituted) and decreeing that henceforth all legal proceedings should be conducted in English; the granting in 1828, as a result of the representations of the missionaries, of equal rights with whites to the Hottentots and other free coloured people; the imposition (1830) of heavy penalties for harsh treatment of slaves, and finally the emancipation of the slaves in 1834,[5]—all these things increased the dislike of the farmers to the government. Moreover, the inadequate compensation awarded to slave-owners, and the suspicions engendered by the method of payment, caused much resentment, and in 1835 the trekking of farmers into unknown country in order to escape from an unloved government, which had characterized the 18th century, recommenced. Emigration beyond the colonial border had in fact been continuous for 150 years, but it now took on larger proportions.

The Third Kaffir War.—On the eastern border further trouble arose with the Kaffirs, towards whom the policy of the Cape government was marked by much vacillation. On the 11th of December 1834 a chief of high rank was killed while resisting a commando party. This set the whole of the Kaffir tribes in a blaze. A force of 10,000 fighting men, led by Macomo, a brother of the chief who was killed, swept across the frontier, pillaged and burned the homesteads and murdered all who dared to resist. Among the worst sufferers were a colony of freed Hottentots who, in 1829, had been settled in the Kat river valley by the British authorities. The fighting power of the colony was scanty, but the governor, Sir Benjamin D'Urban (*q.v.*), acted with promptitude, and all available forces were mustered under Colonel (afterwards Sir Harry) Smith, who reached Graham's Town on the 6th of January 1835, six days after news of the rising reached Cape Town. The enemy's territory was invaded, and after nine months' fighting the Kaffirs were completely subdued, and a new treaty of peace concluded (on the 17th of September). By this treaty all the country as far as the river Kei was acknowledged to be British, and its inhabitants declared British subjects. A site for the seat of government was selected and named King Wiliam's Town.

The Great Trek.—The action of Sir Benjamin D'Urban was not approved by the home government, and on the instruction of Lord Glenelg, secretary for the colonies, who declared that "the great evil of the Cape Colony consists in its magnitude," the colonial boundary was moved back to the Great Fish river, and eventually (in 1837) Sir Benjamin was dismissed from office. "The Kaffirs," in the opinion of Lord Glenelg, "had an ample justification for war; they had to resent, and endeavoured justly, though impotently, to avenge a series of encroachments" (despatch of the 26th of December 1835). This attitude towards the Kaffirs was one of the many reasons given by the Trek Boers for leaving Cape Colony. The Great Trek, as it is called, lasted from 1836 to 1840, the trekkers, who numbered about 7000, founding communities with a

republican form of government beyond the Orange and Vaal rivers, and in Natal, where they had been preceded, however, by British emigrants. From this time Cape Colony ceased to be the only civilized community in South Africa, though for long it maintained its predominance. Up to 1856 Natal was, in fact, a dependency of the Cape (see South Africa). Considerable trouble was caused by the emigrant Boers on either side of the Orange river, where the new comers, the Basutos and other Kaffir tribes, Bushmen and Griquas contended for mastery. The Cape government endeavoured to protect the rights of the natives. On the advice of the missionaries, who exercised great influence with all the non-Dutch races, a number of native states were recognized and subsidized by the Cape government, with the object—not realized—of obtaining peace on this northern frontier. The first of these "Treaty States" recognized was that of the Griquas of Griqualand West. Others were recognized in 1843 and 1844—in the last-named year a treaty was made with the Pondoes on the eastern border. During this period the condition of affairs on the eastern frontier was deplorable, the government being unable or unwilling to afford protection to the farmers from the depredations of the Kaffirs. Elsewhere, however, the colony was making progress. The change from slave to free labour proved to be advantageous to the farmers in the western provinces; an efficient educational system, which owed its initiation to Sir John Herschel, the astronomer (who lived in Cape Colony from 1834 to 1838), was adopted; Road Boards were established and did much good work; to the staple industries—the growing of wheat, the rearing of cattle and the making of wine—was added sheep-raising; and by 1846 wool became the most valuable export from the country. The creation, in 1835, of a legislative council, on which unofficial members had seats, was the first step in giving the colonists a share in the government.

The War of the Axe.—Another war with the Kaffirs broke out in 1846 and was known as the War of the Axe, from the murder of a Hottentot, to whom an old Kaffir thief was manacled, while being conveyed to Graham's Town for trial for stealing an axe. The escort was attacked by a party of Kaffirs and the Hottentot killed. The surrender of the murderer was refused, and war was declared in March 1846. The Gaikas were the chief tribe engaged in the war, assisted during the course of it by the Tambukies. After some reverses the Kaffirs were signally defeated on the 7th of June by General Somerset on the Gwangu, a few miles from Fort Peddie. Still the war went on, till at length Sandili, the chief of the Gaikas, surrendered, followed gradually by the other chiefs; and by the beginning of 1848 the Kaffirs were again subdued, after twenty-one months' fighting.

Extension of British Sovereignty.—In the last month of the war (December 1847) Sir Harry Smith reached Cape Town as governor of the colony, and with his arrival the Glenelg policy was reversed. By proclamation, on the 17th of December, he extended the frontier of the colony northward to the Orange river and eastward to the Keiskamma river, and on the 23rd, at a meeting of the Kaffir chiefs, announced the annexation of the country between the Keiskamma and the Kei rivers to the British crown, thus reabsorbing the territory abandoned by order of Lord Glenelg. It was not, however, incorporated with the Cape, but made a crown dependency under the name of British Kaffraria. For a time the Kaffirs accepted quietly the new order of things. The governor had other serious matters to contend with, including the assertion of British authority over the Boers beyond the Orange river, and the establishment of amicable relations with the Transvaal Boers. In the colony itself a crisis arose out of the proposal to make it a convict station.

The Convict Agitation and Granting of a Constitution.—In 1848 a circular was sent by the 3rd Earl Grey, then colonial secretary, to the governor of the Cape (and to other colonial governors), asking him to ascertain the feelings of the colonists regarding the reception of a certain class of convicts, the intention being to send to South Africa Irish peasants who had been driven into crime by the famine of 1845. Owing to some misunderstanding, a vessel, the "Neptune," was despatched to the Cape before the opinion of the colonists had been received, having on board 289 convicts, among whom were John Mitchell, the Irish rebel, and his colleagues. When the news reached the Cape that this vessel was on her way, the people of the colony became violently excited; and they established an anti-convict association, by which they bound themselves to cease from all intercourse of every kind with persons in any way connected "with the landing, supplying or employing convicts." On the 19th of September 1849 the "Neptune" arrived in Simon's Bay. Sir Harry Smith, confronted by a violent public agitation, agreed not to land the convicts, but to keep them on board ship in Simon's Bay till he received orders to send them elsewhere. When the home government became aware of the state of affairs orders were sent directing the "Neptune" to proceed to Tasmania, and it did so after having been in Simon's Bay for five months. The agitation did not, however, pass away without other important results, since it led to another movement, the object of which was to obtain a free representative government for the colony. This concession, which had been previously promised by Lord Grey, was granted by the British government, and, in 1854, a constitution was established of almost unprecedented liberality.

The Kaffir War of 1850-1853.—The anti-convict agitation had scarcely ceased when the colony was once again involved in war. The Kaffirs bitterly resented their loss of independence, and ever since the last war had been secretly preparing to renew the struggle. Sir Harry Smith, informed of the threatening attitude of the natives, proceeded to the frontier, and summoned Sandili and the other chiefs to an interview. Sandili refused obedience; upon which, at an assembly of other chiefs (October 1850), the governor declared him deposed from his chiefship, and appointed an Englishman, Mr Brownlee, a magistrate, to be temporary chief of the Gaika tribe. The governor appears to have believed that the measures he took would prevent a war and that Sandili could be arrested without armed resistance. On the 24th of December Col. Geo. Mackinnon, being sent with a small force with the object of securing the chief, was attacked in a narrow defile by a large body of Kaffirs, and compelled to retreat with some loss. This was the signal for a general rising of the Gaika tribe. The settlers in the military villages, which had been established along the frontier, assembled in fancied security to celebrate Christmas Day, were surprised, many of them murdered, and their houses given to the flames. Other disasters followed in quick succession. A small patrol of military was cut off to a man. The greater part of the Kaffir police deserted, many of them carrying off their arms and accoutrements. Emboldened by success, the enemy in immense force surrounded and attacked Fort Cox, where the governor was stationed with an inconsiderable force. More than one unsuccessful attempt was made to relieve Sir Harry; but his dauntless spirit was equal to the occasion. At the head of 150 mounted riflemen, accompanied by Colonel Mackinnon, he dashed out of the fort, and, through a heavy fire of the enemy, rode to King William's Town—a distance of 12 m. Meantime, a new enemy appeared. Some 900 of the Kat river Hottentots, who had in former wars been firm allies of the British, threw in their lot with their hereditary enemies—the Kaffirs. They were not without excuses. They complained that while doing burgher duty in former wars—the Cape Mounted Rifles consisted largely of Hottentot levies—they had not received the same treatment as others serving in defence of the colony, that they got no compensation for the losses they had sustained, and that they were in various ways made to feel they were a wronged and injured race. A secret combination was formed with the Kaffirs to take up arms to sweep the Europeans away and establish a Hottentot republic. Within a fortnight of the attack on Colonel Mackinnon the Kat river Hottentots were also in arms. Their revolt was followed by that of the Hottentots at other missionary stations; and part of the Hottentots of the Cape Mounted Rifles followed their example, including the very men who had escorted the governor from Fort Cox. But numbers of Hottentots remained loyal and the Fingo Kaffirs likewise sided with the British.

After the confusion caused by the sudden outbreak had subsided, and preparations had been made, Sir Harry Smith and his gallant force turned the tide of war against the Kaffirs. The Amatola mountains were stormed; and the paramount chief Kreli, who all along covertly assisted the Gaikas, was severely punished. In April 1852 Sir Harry Smith was recalled by Earl Grey, who accused him—unjustly, in the opinion of the duke of Wellington—of a want of energy and judgment in conducting the war, and he was succeeded by Lieutenant-General Cathcart. Kreli was again attacked and reduced to submission. The Amatolas were finally cleared of the Kaffirs, and small forts erected among them to prevent their reoccupation. The British commanders were hampered throughout by the insufficiency of their forces, and it was not till March 1853 that this most sanguinary of Kaffir wars was brought to a conclusion, after a loss of many hundred British soldiers. Shortly afterwards,

British Kaffraria was made a crown colony. The Hottentot settlement at Kat river remained, but the Hottentot power within the colony was now finally crushed.

The Great Amaxosa Delusion.—From 1853 the Kaffir tribes on the east gave little trouble to the colony. This was due, in large measure, to an extraordinary delusion which arose among the Amaxosa in 1856, and led in 1857 to the death of some 50,000 persons. This incident is one of the most remarkable instances of misplaced faith recorded in history. The Amaxosa had not accepted their defeat in 1853 as decisive and were preparing to renew the struggle with the white men. At this juncture, May 1856, a girl named Nongkwase told her father that on going to draw water from a stream she had met strangers of commanding aspect. The father, Mhlakza, went to see the men, who told him that they were spirits of the dead, who had come, if their behests were obeyed, to aid the Kaffirs with their invincible power to drive the white man from the land. Mhlakza repeated the message to his chief, Sarili, one of the most powerful Kaffir rulers. Sarili ordered the commands of the spirits to be obeyed. These orders were, at first, that the Amaxosa were to destroy their fat cattle. The girl Nongkwase, standing in the river where the spirits had first appeared, heard unearthly noises, interpreted by her father as orders to kill more and more cattle. At length the spirits commanded that not an animal of all their herds was to be left alive, and every grain of corn was to be destroyed. If that were done, on a given date myriads of cattle more beautiful than those destroyed would issue from the earth, while great fields of corn, ripe and ready for harvest, would instantly appear. The dead would rise, trouble and sickness vanish, and youth and beauty come to all alike. Unbelievers and the hated white man would on that day utterly perish. The people heard and obeyed. Sarili is believed by many persons to have been the instigator of the prophecies. Certainly some of the principal chiefs regarded all that was done simply as the preparation for a last struggle with the whites, their plan being to throw the whole Amaxosa nation fully armed and in a famishing condition upon the colony. There were those who neither believed the predictions nor looked for success in war, but destroyed their last particle of food in unquestioning obedience to their chief's command. Either in faith that reached the sublime, or in obedience equally great, vast numbers of the people acted. Great kraals were also prepared for the promised cattle, and huge skin sacks to hold the milk that was soon to be more plentiful than water. At length the day dawned which, according to the prophecies, was to usher in the terrestrial paradise. The sun rose and sank, bat the expected miracle did not come to pass. The chiefs who had planned to hurl the famished warrior host upon the colony had committed an incredible blunder in neglecting to call the nation together under pretext of witnessing the resurrection. This error they realized too late, and endeavoured by fixing the resurrection for another day to gather the clans, but blank despair had taken the place of hope and faith, and it was only as starving suppliants that the Amaxosa sought the British. The colonists did what they could to save life, but thousands perished miserably. In their extremity many of the Kaffirs turned cannibals, and one instance of parents eating their own child is authenticated. Among the survivors was the girl Nongkwase; her father perished. A vivid narrative of the whole incident will be found in G.M. Theal's *History and Geography of South Africa* (3rd ed., London, 1878), from which this account is condensed. The country depopulated as the result of this delusion was afterwards peopled by European settlers, among whom were members of the German legion which had served with the British army in the Crimea, and some 2000 industrious North German emigrants, who proved a valuable acquisition to the colony.

Sir George Grey's Governorship.—In 1854 Sir George Grey became governor of the Cape, and the colony owed much to his wise administration. The policy, imposed by the home government, of abandoning responsibility beyond the Orange river, was, he perceived, a mistaken one, and the scheme he prepared in 1858 for a confederation of all South Africa (*q.v.*) was rejected by Great Britain. By his energetic action, however, in support of the missionaries Moffat and Livingstone, Sir George kept open for the British the road through Bechuanaland to the far interior. To Sir George was also due the first attempt, missionary effort apart, to educate the Kaffirs and to establish British authority firmly among them, a result which the self-destruction of the Amaxosa rendered easy. Beyond the Kei the natives were left to their own devices. Sir George Grey left the Cape in 1861. During his governorship the resources of the colony had been increased by the opening up of the copper mines in Little Namaqualand, the mohair wool industry had been established and Natal made a separate colony. The opening, in November 1863, of the railway from Cape Town to Wellington, begun in 1859, and the construction in 1860 of the great breakwater in Table Bay, long needed on that perilous coast, marked the beginning in the colony of public works on a large scale. They were the more or less direct result of the granting to the colony of a large share in its own government. In 1865 the province of British Kaffraria was incorporated with the colony, under the title of the Electoral Divisions of King William's Town and East London. The transfer was marked by the removal of the prohibition of the sale of alcoholic liquors to the natives, and the free trade in intoxicants which followed had most deplorable results among the Kaffir tribes. A severe drought, affecting almost the entire colony for several years, caused great depression of trade, and many farmers suffered severely. It was at this period (1869) that ostrich-farming was successfully established as a separate industry.

Whether by or against the wish of the home government, the limits of British authority continued to extend. The Basutos, who dwelt in the upper valleys of the Orange river, had subsisted under a semi-protectorate of the British government from 1843 to 1854; but having been left to their own resources on the abandonment of the Orange sovereignty, they fell into a long exhaustive warfare with the Boers of the Free State. On the urgent petition of their chief Moshesh, they were proclaimed British subjects in 1868, and their territory became part of the colony in 1871 (see Basutoland). In the same year 241
the south-eastern part of Bechuanaland was annexed to Great Britain under the title of Griqualand West. This annexation was a consequence of the discovery there of rich diamond mines, an event which was destined to have far-reaching results.

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Development of Modern Conditions.—The year 1870 marks the dawn of a new era in South Africa. From that date the development of modern South Africa may be said to have fairly started, and in spite of political complications, arising from time to time, the progress of Cape Colony down to the outbreak of the Transvaal War of 1899 was steadily forward. The discovery of diamonds on the Orange river in 1867, followed immediately afterwards by the discovery of diamonds on the Vaal river, led to the rapid occupation and development of a tract of country which had hitherto been but sparsely inhabited. In 1870 Dutoitspan and Bultfontein diamond mines were discovered, and in 1871 the still richer mines of Kimberley and De Beers. These four great deposits of mineral wealth are still richly productive, and constitute the greatest industrial asset which the colony possesses. At the time of the beginning of the diamond industry, not only the territory of Cape Colony and the Boer Republics, but all South Africa, was in a very depressed condition. Ostrich-farming was in its infancy, and agriculture but little developed. The Boers, except in the immediate vicinity of Cape Town, were a primitive people. Their wants were few, they lacked enterprise, and the trade of the colony was restricted. Even the British colonists at that time were far from rich. The diamond industry therefore offered considerable attractions, especially to colonists of British origin. It was also the means at length of demonstrating the fact that South Africa, barren and poor on the surface, was rich below the surface. It takes ten acres of Karroo to feed a sheep, but it was now seen that a few square yards of diamondiferous blue ground would feed a dozen families. By the end of 1871 a large population had already gathered at the diamond fields, and immigration continued steadily, bringing new-comers to the rich fields. Among the first to seek a fortune at the diamond fields was Cecil Rhodes.

In 1858 the scheme of Sir George Grey for the federation of the various colonies and states of South Africa had been rejected, as has been stated, by the home authorities. In 1874 the 4th earl of Carnarvon, secretary of state for the colonies, who had been successful in aiding to bring about the federation of Canada, turned his attention to a similar scheme for the confederation of South Africa. The representative government in Cape Colony had been replaced in 1872 by responsible, *i.e.* self-government, and the new parliament at Cape Town resented the manner in which Lord Carnarvon propounded his suggestions. A resolution was passed (June 11, 1875) stating that any scheme in favour of confederation must in its opinion

originate within South Africa itself. James Anthony Froude, the distinguished historian, was sent out by Lord Carnarvon to further his policy in South Africa. As a diplomatist and a representative of the British government, the general opinion in South Africa was that Froude was not a success, and he entirely failed to induce the colonists to adopt Lord Carnarvon's views. In 1876, Fingoland, the Idutywa reserve, and Noman's-land, tracts of country on the Kaffir frontier, were annexed by Great Britain, on the understanding that the Cape government should provide for their government. Lord Carnarvon, still bent on confederation, now appointed Sir Bartle Frere governor of Cape Colony and high commissioner of South Africa.

Frere had no sooner taken office as high commissioner than he found himself confronted with serious native troubles in Zululand and on the Kaffir frontier of Cape Colony. In 1877 there occurred an outbreak on the part of the Galekas and the Gaikas. A considerable force of imperial and colonial troops was employed to put down this rising, and the war was subsequently known as the Ninth Kaffir war. It was in this war that the famous Kaffir chief, Sandili, lost his life. At its conclusion the Transkei, the territory of the Galeka tribe, under Kreli, was annexed by the British. In the meantime Lord Carnarvon had resigned his position in the British cabinet, and the scheme for confederation which he had been pushing forward was abandoned. As a matter of fact, at that time Cape Colony was too fully occupied with native troubles to take into consideration very seriously so great a question as confederation. A wave of feeling spread amongst the different Kaffir tribes on the colonial frontier, and after the Gaika-Galeka War there followed in 1879 a rising in Basutoland under Moirosi, whose cattle-raiding had for some time past caused considerable trouble. His stronghold was taken after very severe fighting by a colonial force, but, their defeat notwithstanding, the Basutos remained in a restless and aggressive condition for several years. In 1880 the colonial authorities endeavoured to extend to Basutoland the Peace Preservation Act of 1878, under which a general disarmament of the Basutos was attempted. Further fighting followed on this proclamation, which was by no means successful, and although peace was declared in the country in December 1882, the colonial authorities were very glad in 1884 to be relieved of the administration of a country which had already cost them £3,000,000. The imperial government then took over Basutoland as a crown colony, on the understanding that Cape Colony should contribute for administrative purposes £18,000 annually. In 1880, Sir Bartle Frere, who by his energetic and statesmanlike attitude on the relations with the native states, as well as on all other questions, had won the esteem and regard of loyal South African colonists, was recalled by the 1st earl of Kimberley, the liberal secretary of state for the colonies, and was succeeded by Sir Hercules Robinson. Griqualand West, which included the diamond fields, was now incorporated as a portion of Cape Colony.

Origin of the Afrikander Bond.—The Boer War of 1881, with its disastrous termination, naturally reacted throughout South Africa; and as one of the most important results, in the year 1882 the first Afrikander Bond congress was held at Graaff Reinet. The organization of the Bond developed into one embracing the Transvaal, the Orange Free State and Cape Colony. Each country had a provincial committee with district committees, and branches were distributed throughout the whole of South Africa. At a later date the Bond in the Cape Colony dissociated itself from its Republican branches. The general lines of policy which this organization endeavoured to promote may best be gathered from *De Patriot*, a paper published in the colony, and an avowed supporter of the organization. The following extracts from articles published in 1882 will illustrate, better than anything else, the ambition entertained by some of the promoters of this remarkable organization.

> "The Afrikander Bond has for its object the establishment of a South African nationality by spreading a true love for what is really our fatherland. No better time could be found for establishing the Bond than the present, when the consciousness of nationality has been thoroughly aroused by the Transvaal war." ... "The British government keep on talking about a confederation under the British flag, but that will never be brought about. They can be quite certain of that. There is just one obstacle in the way of confederation, and that is the British flag. Let them remove that, and in less than a year the confederation would be established under the Free Afrikander flag." "After a time the English will realize that the advice given them by Froude was the best—they must just have Simon's Bay as a naval and military station on the way to India, and give over all the rest of South Africa to the Afrikanders." ... "Our principal weapon in the social war must be the destruction of English trade by our establishing trading companies for ourselves." ... "It is the duty of each true Afrikander not to spend anything with the English that he can avoid."

De Patriot afterwards became imperialist, but *Ons Land*, another Bond organ, continued in much the same strain.

In addition to having its press organs, the Bond from time to time published official utterances less frank in their tone than the statements of its press. Some of the Articles of the Bond's original manifesto are entirely praiseworthy, *e.g.* those referring to the administration of justice, the honour of the people, &c.; such clauses as these, however, were meaningless in view of the enlightened government which obtained in Cape Colony, and for the true "inwardness" of this document it is necessary to note Article 3, which distinctly speaks of the promotion of South Africa's independence (*Zelfstandigheid*). If the Bond aroused disloyalty and mistaken aspirations in one section of the Cape inhabitants, it is equally certain that it caused a great wave of loyal and patriotic enthusiasm to pass through another and more enlightened section. A pamphlet written in 1885 for an association called the Empire League by Mr Charles Leonard, who afterwards consistently championed the cause of civil equality and impartial justice in South Africa, maintained as follows:—

> "(1) That the establishment of the English government here was beneficial to all classes; and (2) that the withdrawal of that government would be disastrous to every one having vested interests in the colony.... England never can, never will, give up this colony, and we colonists will never give up England.... Let us, the inhabitants of the Cape Colony, be swift to recognize that we are one people, cast together under a glorious flag of liberty, with heads clear enough to appreciate the freedom we enjoy, and hearts resolute to maintain our true privileges; let us desist from reproaching and insulting one another, and, rejoicing that we have this goodly land as a common heritage, remember that by united action only can we realize its grand possibilities. We belong both of us to a home-loving stock, and the peace and prosperity of every home in the land is at stake. On our action now depends the question whether our children shall curse or bless us; whether we shall live in their memory as promoters of civil strife, with all its miserable consequences, or as joint architects of a happy, prosperous and united state. Each of us looks back to a noble past. United, we may ensure to our descendants a not unworthy future. Disunited, we can hope for nothing but stagnation, misery and ruin. Is this a light thing?"

It is probable that many Englishmen reading Mr Leonard's manifesto at the time regarded it as unduly alarming, but subsequent events proved the soundness of the views it expressed. The fact is that, from 1881 onwards, two great rival ideas came into being, each strongly opposed to the other. One was that of Imperialism—full civil rights for every civilized man, whatever his race might be, under the supremacy and protection of Great Britain. The other was nominally republican, but in fact exclusively oligarchical and Dutch. The policy of the extremists of this last party was summed up in the appeal which President Kruger made to the Free State in February 1881, when he bade them "Come and help us. God is with us. It is his will to unite us as a people"—"to make a united South Africa free from British authority." The two actual founders of the Bond party were Mr Borckenhagen, a German who was residing in Bloemfontein, and Mr Reitz, afterwards state secretary of the Transvaal. Two interviews have been recorded which show the true aims of these two promoters of the Bond at the outset. One occurred between Mr Borckenhagen and Cecil Rhodes, the other between Mr Reitz and Mr T. Schreiner, whose brother became, at a later date, prime minister of Cape Colony. In the first interview Mr Borckenhagen remarked to Rhodes: "We want a united Africa," and Rhodes replied: "So do I." Mr Borckenhagen then continued: "There is nothing in the way; we will take you as our leader. There is only one small thing: we must, of caurse, be independent of the rest of the world." Rhodes replied: "You take me either for a rogue or a fool. I should be a rogue to forfeit all my history and my traditions; and I should be a fool, because I should be hated by my own countrymen and mistrusted by yours." But as Rhodes truly said at Cape Town in 1898, "The only chance of a true union is the overshadowing protection of a supreme

power, and any German, Frenchman, or Russian would tell you that the best and most liberal power is that over which Her Majesty reigns." The other interview took place at the beginning of the Bond's existence. Being approached by Mr Reitz, Mr T. Schreiner objected that the Bond aimed ultimately at the overthrow of British rule and the expulsion of the British flag from South Africa. To this Mr Reitz replied: "Well, what if it is so?" Mr Schreiner expostulated in the following terms: "You do not suppose that that flag is going to disappear without a tremendous struggle and hard fighting?" "Well, I suppose not, but even so, what of that?" rejoined Mr Reitz. In the face of this testimony with reference to two of the most prominent of the Bond's promoters, it is impossible to deny that from its beginning the great underlying idea of the Bond was an independent South Africa.

Mr Hofmeyr's Policy.—In 1882 an act was passed in the Cape legislative assembly, empowering members to speak in the Dutch language on the floor of the House, if they so desired. The intention of this act was a liberal one, but the moment of its introduction was inopportune, and its effect was to give an additional stimulus to the policy of the Bond. It was probably also the means of bringing into the House a number of Dutchmen, by no means well educated, who would not have been returned had they been obliged to speak English. By this act an increase of influence was given to the Dutch leaders. The head of the Afrikander Bond at this time in Cape Colony, and the leader of Dutch opinion, was Mr J.H. Hofmeyr, a man of undoubted ability and astuteness. Although he was recognized leader of the Dutch party in Cape Colony, he consistently refused to take office, preferring to direct the policy and the action of others from an independent position. Mr Hofmeyr sat in the house of assembly as member for Stellenbosch, a strong Dutch constituency. His influence over the Dutch members was supreme, and in addition to directing the policy of the Bond within the Cape Colony, he supported and defended the aggressive expansion policy of President Kruger and the Transvaal Boers. In 1883, during a debate on the Basutoland Dis-annexation Bill, Rhodes openly charged Mr Hofmeyr in the House with a desire to see a "United States of South Africa under its own flag." In 1884 Mr Hofmeyr led the Bond in strongly supporting the Transvaal Boers who had invaded Bechuanaland (*q.v.*), proclaiming that if the Bechuanaland freebooters were not permitted to retain the territories they had seized, in total disregard of the terms of the conventions of 1881 and 1884, there would be rebellion among the Dutch of Cape Colony. Fortunately, however, for the peace of Cape Colony at that time, Sir Charles Warren, sent by the imperial government to maintain British rights, removed the invading Boers from Stellaland and Goshen—two so-called republics set up by the Boer freebooters—in March 1885 and no rebellion occurred. Nevertheless the Bond party was so strong in the House that they compelled the ministry under Sir Thomas Scanlen to resign in 1884. The logical and constitutional course for Mr Hofmeyr to have followed in these circumstances would have been to accept office and himself form a government. This he refused to do. He preferred to put in a nominee of his own who should be entirely dependent on him. Mr Upington, a clever Irish barrister, was the man he selected, and under him was formed in 1884 what will always be known in Cape history as the "Warming-pan" ministry. This action was denounced by many British colonists, who were sufficiently loyal, not only to Great Britain, but also to that constitution which had been conferred by Great Britain upon Cape Colony, to desire to see the man who really wielded political power also acting as the responsible head of the party. It was Mr Hofmeyr's refusal to accept this responsibility, as well as the nature of his Bond policy, which won for him the political sobriquet of the "Mole." Open and responsible exercise of a power conferred under the constitution of the country, Englishmen and English colonists would have accepted and even welcomed. But that subterranean method of Dutch policy which found its strongest expression in Pretoria, and which operated from Pretoria to Cape Town, could not but be resented by loyal colonists. From 1881 down to 1898, Mr Hofmeyr practically determined how Dutch members should vote, and also what policy the Bond should adopt at every juncture in its history. In 1895 he resigned his seat in parliament—an action which made his political dictatorship still more remarkable. This influence on Cape politics was a demoralizing one. Other well-known politicians at the Cape subsequently found it convenient to adapt their views a good deal too readily to those held by the Bond. In justice to Mr Hofmeyr, however, it is only fair to say that after the Warren expedition in 1885, which was at least evidence that Great Britain did not intend to renounce her supremacy in South Africa altogether, he adopted a less hostile or anti-British attitude. The views and attitude of Mr Hofmeyr between 1881 and 1884—when even loyal British colonists, looking to the events which followed Majuba, had almost come to believe that Great Britain had little desire to maintain her supremacy—can scarcely be wondered at.

Rhodes and Dutch Sentiment.—Recognizing the difficulties of the position, Cecil Rhodes from the outset of his political career showed his desire to conciliate Dutch sentiment by considerate treatment and regard for Dutch prejudices. Rhodes was first returned as member of the House of Assembly for Barkly West in 1880, and in spite of all vicissitudes this constituency remained loyal to him. He supported the bill permitting Dutch to be used in the House of Assembly in 1882, and early in 1884 he first took office, as treasurer-general, under Sir Thomas Scanlen. Rhodes had only held this position for six weeks when Sir Thomas Scanlen resigned, and in August of the same year he was sent by Sir Hercules Robinson to British Bechuanaland as deputy-commissioner in succession to the Rev. John Mackenzie, the London Missionary Society's representative at Kuruman, who in the previous May had proclaimed the queen's authority over the district. Rhodes's efforts to conciliate the Boers failed—hence the necessity for the Warren mission. In 1885 the territories of Cape Colony were farther extended, and Tembuland, Bomvanaland and Galekaland were formally added to the colony. In 1886 Sir Gordon Sprigg succeeded Sir Thomas Upington as prime minister.

South African Customs Union.—The period from 1878 to 1885 in Cape Colony had been one of considerable unrest. In this short time, in addition to the chronic troubles with the Basutos—which led the Cape to hand them over to the imperial authorities—there occurred a series of native disturbances which were followed by the Boer War of 1881, and the Bechuanaland disturbances of 1884. In spite, however, of these drawbacks, the development of the country proceeded. The diamond industry was flourishing. In 1887 a conference was held in London for "promoting a closer union between the various parts of the British empire by means of an imperial tariff of customs." At this conference it is worthy of note that Mr Hofmeyr propounded a sort of "Zollverein" scheme, in which imperial customs were to be levied independently of the duties payable on all goods entering the empire from abroad. In making the proposition he stated that his objects were "to promote the union of the empire, and at the same time to obtain revenue for the purposes of general defence." The scheme was not at the time found practicable. But its authorship, as well as the sentiments accompanying it, created a favourable view of Mr Hofmeyr's attitude. In the year 1888, in spite of the failure of statesmen and high commissioners to bring about political confederation, the members of the Cape parliament set about the establishment of a South African Customs Union. A Customs Union Bill was passed, and this in itself constituted a considerable development of the idea of federation. Shortly after the passing of the bill the Orange Free State entered the union. An endeavour was also made then, and for many years afterwards, to get the Transvaal to join. But President Kruger, consistently pursuing his own policy, hoped through the Delagoa Bay railway to make the South African Republic entirely independent of Cape Colony. The endeavour to bring about a customs union which would embrace the Transvaal was also little to the taste of President Kruger's Hollander advisers, interested as they were in the schemes of the Netherlands Railway Company, who owned the railways of the Transvaal.

Diamonds and Railways.—Another event of considerable commercial importance to the Cape Colony, and indeed to South Africa, was the amalgamation of the diamond-mining companies, chiefly brought about by Cecil Rhodes, Alfred Beit and "Barney" Barnato, in 1889. One of the principal and most beneficent results of the discovery and development of the diamond mines was the great impetus which it gave to railway extension. Lines were opened up to Worcester and Beaufort West, to Graham's Town, Graaff Reinet and Queenstown. Kimberley was reached in 1885. In 1890 the line was extended northwards on the western frontier of the Transvaal as far as Vryburg in Bechuanaland. In 1889 the Free State entered into an arrangement with the Cape Colony whereby the main trunk railway was extended to Bloemfontein, the Free State receiving half the profits. Subsequently the Free State bought at cost price the portion of the railway in its own territory. In

1891 the Free State railway was still farther extended to Viljoen's Drift on the Vaal river, and in 1892 it reached Pretoria and Johannesburg.

Rhodes as Prime Minister: Native Policy.—In 1889 Sir Henry Loch was appointed high commissioner and governor of Cape Colony in succession to Sir Hercules Robinson. In 1890 Sir Gordon Sprigg, the premier of the colony, resigned, and a Rhodes government was formed. Prior to the formation of this ministry (see table at end of article), and while Sir Gordon Sprigg was still in office, Mr Hofmeyr approached Rhodes and offered to put him in office as a Bond nominee. This offer was declined. When, however, Rhodes was invited to take office after the downfall of the Sprigg ministry, he asked the Bond leaders to meet him and discuss the situation. His policy of customs and railway unions between the various states, added to the personal esteem in which he was at this time held by many of the Dutchmen, enabled him to undertake and to carry on successfully the business of government.

The colonies of British Bechuanaland and Basutoland were now taken into the customs union existing between the Orange Free State and Cape Colony. Pondoland, another native territory, was added to the colony in 1894, and the year was marked by the Glen Grey Act, a departure in native policy for which Rhodes was chiefly responsible. It dealt with the natives residing in certain native reserves, and in addition to providing for their interests and holdings, and in other ways protecting the privileges accorded to them, the principle of the duty of some degree of labour devolving upon every able-bodied native enjoying these privileges was asserted, and a small labour tax was levied.[6] This is in many respects the most statesmanlike act dealing with natives on the statute-book; and in the session of 1895 Rhodes was able to report to the Cape parliament that the act then applied to 160,000 natives. In 1905 the labour clauses of this act, which had fallen into desuetude, were repealed. The clauses had, however, achieved success, in that they had caused many thousands of natives to fulfil the conditions requisite to claim exemption.

In other respects Rhodes's native policy was marked by combined consideration and firmness. Ever since the granting of self-government the natives had enjoyed the franchise. An act passed in 1892, at the instance of Rhodes, imposed an educational test on applicants for registration, and made other provisions, all tending to restrict the acquisition of the franchise by "tribal" natives, the possible danger arising from a large native vote being already obvious (see section *Constitution*).

Rhodes opposed the native liquor traffic, and at the risk of offending some of his supporters among the brandy-farmers of the western provinces, he suppressed it entirely on the diamond mines, and restricted it as far as he was able in the native reserves and territories. Nevertheless the continuance of this traffic on colonial farms, as well as to some extent in the native territories and reserves, is a black spot in the annals of the Cape Colony. The Hottentots have been terribly demoralized, and even partially destroyed by it in the western province.

Another and little-known instance of Rhodes's keen insight in dealing with native affairs—an action which had lasting results on the history of the colony—may be given. After the native territories east of the Kei had been added to Cape Colony, a case of claim to inheritance came up for trial, and in accordance with the law of the colony, the court held that the eldest son of a native was his heir. This decision created the strongest resentment among the people of the territory, as it was in distinct contradiction to native tribal law, which recognized the great son, or son of the chief wife, as heir. The government were threatened with a native disturbance, when Rhodes telegraphed his assurance that compensation should be granted, and that such a decision should never be given again. This assurance was accepted and tranquillity restored. At the close of the next session (that of 1894), after this incident had occurred, Rhodes laid on the table a bill drafted by himself, the shortest the House had ever seen. It provided that all civil cases were to be tried by magistrates, an appeal to lie only to the chief magistrate of the territory with an assessor. Criminal cases were to be tried before the judges of supreme court on circuit. The bill was passed, and the effect of it was, inasmuch as the magistrates administered according to native law, that native marriage customs and laws (including polygamy) were legalized in these territories. Rhodes had retrieved his promise, and no one who has studied and lived amongst the Bantu will question that the action taken was both beneficent and wise.

During 1895 Sir Hercules Robinson was reappointed governor and high commissioner of South Africa in succession to Sir Henry Loch, and in the same year Mr Chamberlain became secretary of state for the colonies.

Movement for Commercial Federation.—With the development of railways, and the extension of trade between Cape Colony and the Transvaal, there had grown up a closer relationship on political questions. Whilst premier of Cape Colony, by means of the customs union and in every other way, Rhodes endeavoured to bring about a friendly measure of at least commercial federation among the states and colonies of South Africa. He hoped to establish both a commercial and a railway union, and a speech which he made in 1894 at Cape Town admirably describes this policy:—

> "With full affection for the flag which I have been born under, and the flag I represent, I can understand the sentiment and feeling of a republican who has created his independence, and values that before all; but I can say fairly that I believe in the future that I can assimilate the system, which I have been connected with, with the Cape Colony, and it is not an impossible idea that the neighbouring republics, retaining their independence, should share with us as to certain general principles. If I might put it to you, I would say the principles of tariffs, the principle of railway connexion, the principle of appeal in law, the principle of coinage, and in fact all those principles which exist at the present moment in the United States, irrespective of the local assemblies which exist in each separate state in that country."

To this policy President Kruger and the Transvaal government offered every possible opposition. Their action in what is known as the Vaal River Drift question will best illustrate the line of action which the Transvaal government believed it expedient to adopt. A difficulty arose at the termination of the agreement in 1894 between the Cape government railway and the Netherlands railway. The Cape government, for the purposes of carrying the railway from the Vaal river to Johannesburg, had advanced the sum of £600,000 to the Netherlands railway and the Transvaal government conjointly; at the same time it was stipulated that the Cape government should have the right to fix the traffic rate until the end of 1894, or until such time as the Delagoa Bay-Pretoria line was completed. These rates were fixed by the Cape government at 2d. per ton per mile, but at the beginning of 1895 the rate for the 52 m. of railway from the Vaal river to Johannesburg was raised by the Netherlands railway to no less a sum than 8d. per ton per mile. It is quite evident from the action which President Kruger subsequently took in the matter that this charge was put on with his approval, and with the object of compelling traffic to be brought to the Transvaal by the Delagoa route, instead of as heretofore by the colonial railway. In order to compete against this very high rate, the merchants of Johannesburg began removing their goods from the Vaal river by waggon. Thereupon President Kruger arbitrarily closed the drifts (fords) on the Vaal river, and thus prevented through waggon traffic, causing an enormous block of waggons on the banks of the Vaal. A protest was then made by the Cape government against the action of the Transvaal, on the ground that it was a breach of the London Convention. President Kruger took no notice of this remonstrance, and an appeal was made to the imperial government; whereupon the latter entered into an agreement with the Cape government, to the effect that if the Cape would bear half the cost of any expedition which should be necessary, assist with troops, and give full use of the Cape railway for military purposes if required, a protest should be sent to President Kruger on the subject. These terms were accepted by Rhodes and his colleagues, of whom Mr W.P. Schreiner was one, and a protest was then sent by Mr Chamberlain stating that the government would regard the closing of the drifts as a breach of the London Convention, and as an unfriendly action calling for the gravest remonstrance. President Kruger at once reopened the drifts, and undertook that he would issue no further proclamation on the subject except after consultation with the imperial government.

On the 29th of December 1895 Dr Jameson (*q.v.*) made his famous raid into the Transvaal, and Rhodes's complicity in this movement compelled him to resign the premiership of Cape Colony in January 1896, the vacant post being taken by Sir Gordon Sprigg. As Rhodes's complicity in the raid became known, there naturally arose a strong feeling of resentment and astonishment among his colleagues in the Cape ministry, who had been kept in complete ignorance of his connexion with any such scheme. Mr Hofmeyr and the Bond were loud in their denunciation of him, nor can it be denied that the circumstances of the raid greatly embittered against England the Dutch element in Cape Colony, and influenced their subsequent attitude towards the Transvaal Boers.

In 1897 a native rising occurred under Galeshwe, a Bantu chief, in Griqualand West. Galeshwe was arrested and the rebellion repressed. On cross-examination Galeshwe stated that Bosnian, a magistrate of the Transvaal, had supplied ammunition to him, and urged him to rebel against the government of Cape Colony. There is every reason to suppose that this charge was true, and it is consistent with the intrigues which the Boers from time to time practised among the natives.

In 1897 Sir Alfred Milner was appointed high commissioner of South Africa and governor of Cape Colony, in succession to Sir Hercules Robinson, who had been created a peer under the title of Baron Rosmead in August 1896.

Mr Schreiner's Policy.—In 1898 commercial federation in South Africa advanced another stage, Natal entering the customs union. A fresh convention was drafted at this time, and under it "a uniform tariff on all imported goods consumed within such union, and an equitable distribution of the duties collected on such goods amongst the parties to such union, and free trade between the colonies and state in respect of all South African products," was arranged. In the same year, too, the Cape parliamentary election occurred, and the result was the return to power of a Bond ministry under Mr W.P. Schreiner. From this time, until June 1900, Mr Schreiner remained in office as head of the Cape government. During the negotiations (see TRANSVAAL) which preceded the war in 1899, feeling at the Cape ran very high, and Mr Schreiner's attitude was very freely discussed. As head of a party, dependent for its position in power on the Bond's support, his position was undoubtedly a trying one. At the same time, as prime minister of a British colony, it was strongly felt by loyal colonists that he should at least have refrained from openly interfering between the Transvaal and the imperial government during the course of most difficult negotiations. His public expressions of opinion were hostile in tone to the policy pursued by Mr Chamberlain and Sir Alfred Milner. The effect of them, it was believed, might conceivably be to encourage President Kruger in persisting in his rejection of the British terms. Mr Schreiner, it is true, used directly what influence he possessed to induce President Kruger to adopt a reasonable course. But however excellent his intentions, his publicly expressed disapproval of the Chamberlain-Milner policy probably did more harm than his private influence with Mr Kruger could possibly do good. On the 11th of June 1899, shortly after the Bloemfontein conference, from which Sir Alfred Milner had just returned, Mr Schreiner asked the high commissioner to inform Mr Chamberlain that he and his colleagues agreed in 245
regarding President Kruger's Bloemfontein proposals as "practical, reasonable and a considerable step in the right direction." Early in June, however, the Cape Dutch politicians began to realize that President Kruger's attitude was not so reasonable as they had endeavoured to persuade themselves, and Mr Hofmeyr, accompanied by Mr Herholdt, the Cape minister of agriculture, visited Pretoria. On arrival, they found that the Transvaal Volksraad, in a spirit of defiance and even levity, had just passed a resolution offering four new seats in the Volksraad to the mining districts, and fifteen to exclusively burgher districts. Mr Hofmeyr, on meeting the executive, freely expressed indignation at these proceedings. Unfortunately, Mr Hofmeyr's influence was more than counterbalanced by an emissary from the Free State, Mr Abraham Fischer, who, while purporting to be a peacemaker, practically encouraged the Boer executive to take extreme measures. Mr Hofmeyr's established reputation as an astute diplomatist, and as the trusted leader for years of the Cape Dutch party, made him as powerful a delegate as it was possible to find. If any emissary could accomplish anything in the way of persuading Mr Kruger, it was assuredly Mr Hofmeyr. Much was looked for from his mission by moderate men of all parties, and by none more so, it is fair to believe, than by Mr Schreiner. But Mr Hofmeyr's mission, like every other mission to Mr Kruger to induce him to take a reasonable and equitable course, proved entirely fruitless. He returned to Cape Town disappointed, but probably not altogether surprised at the failure of his mission. Meanwhile a new proposal was drafted by the Boer executive, which, before it was received in its entirety, or at least before it was clearly understood, elicited from Mr Schreiner a letter on the 7th of July to the *South African News*, in which, referring to his government, he said:—

> "While anxious and continually active with good hope in the cause of securing reasonable modifications of the existing representative system of the South African Republic, this government is convinced that no ground whatever exists for active interference in the internal affairs of that republic."

This letter was precipitate and unfortunate. On the 11th of July, after seeing Mr Hofmeyr on his return, Mr Schreiner made a personal appeal to President Kruger to approach the imperial government in a friendly spirit. At this time an incident occurred which raised the feeling against Mr Schreiner to a very high pitch. On the 7th of July 500 rifles and 1,000,000 rounds of ammunition were landed at Port Elizabeth, consigned to the Free State government, and forwarded to Bloemfontein. Mr Schreiner's attention was called to this consignment at the time, but he refused to stop it, alleging as his reason that, inasmuch as Great Britain was at peace with the Free State, he had no right to interdict the passage of arms through the Cape Colony. The British colonist is as capable of a grim jest as the Transvaal Boer, and this action of Mr Schreiner's won for him the nickname "Ammunition Bill." At a later date he was accused of delay in forwarding artillery and rifles for the defence of Kimberley, Mafeking and other towns of the colony. The reason he gave for delay was that he did not anticipate war; and that he did not wish to excite unwarrantable suspicions in the minds of the Free State. His conduct in both instances was perhaps technically correct, but it was much resented by loyal colonists.

On the 28th of July Mr Chamberlain sent a conciliatory despatch to President Kruger, suggesting a meeting of delegates to consider and report on his last franchise proposals, which were complex to a degree. Mr Schreiner, on the 3rd of August, telegraphed to Mr Fischer begging the Transvaal to welcome Mr Chamberlain's proposal. At a later date, on receiving an inquiry from the Free State as to the movements of British troops, Mr Schreiner curtly refused any information, and referred the Free State to the high commissioner. On the 28th of August Sir Gordon Sprigg in the House of Assembly moved the adjournment of the debate, to discuss the removal of arms to the Free State. Mr Schreiner, in reply, used expressions which called down upon him the severest censure and indignation, both in the colony and in Great Britain. He stated that, should the storm burst, he would keep the colony aloof with regard both to its forces and its people. In the course of the speech he also read a telegram from President Steyn, in which the president repudiated all contemplated aggressive action on the part of the Free State as absurd. The speech created a great sensation in the British press. It was probably forgotten at the time (though Lord Kimberley afterwards publicly stated it) that one of the chief reasons why the Gladstone government had granted the retrocession of the Transvaal after Majuba, was the fear that the Cape Colonial Dutch would join their kinsmen if the war continued. What was a danger in 1881, Mr Schreiner knew to be a still greater danger in 1899. At the same time it is quite obvious, from a review of Mr Schreiner's conduct through the latter half of 1899, that he took an entirely mistaken view of the Transvaal situation. He evinced, as premier of the Cape Colony, the same inability to understand the Uitlanders' grievances, the same futile belief in the eventual fairness of President Kruger, as he had shown when giving evidence before the British South Africa Select Committee into the causes of the Jameson Raid. Actual experience taught him that President Kruger was beyond an appeal to reason, and that the protestations of President Steyn were insincere. War had no sooner commenced with the ultimatum of the Transvaal Republic on the 9th of October 1899, than Mr Schreiner found himself called upon to deal with the conduct of Cape rebels. The rebels joined the invading forces of President Steyn, whose false assurances Mr Schreiner had offered to an indignant House of Assembly only a few weeks before. The war on the part of the Republics was evidently not to be merely one of self-defence. It was one of aggression and aggrandisement. Mr Schreiner ultimately addressed, as prime minister, a sharp remonstrance to

President Steyn for allowing his burghers to invade the colony. He also co-operated with Sir Alfred Milner, and used his influence to restrain the Bond.

The War of 1899-1902.[7]—The first shot actually fired in the war was at Kraipan, a small railway station within the colony, 40 m. south of Mafeking, a train being derailed, and ammunition intended for Colonel Baden-Powell seized. The effect of this was entirely to cut off Mafeking, the northernmost town in Cape Colony, and it remained in a state of siege for over seven months. On the 16th of October Kimberley was also isolated. Proclamations by the Transvaal and Free State annexing portions of Cape Colony were actually issued on the 18th of October, and included British Bechuanaland and Griqualand West, with the diamond fields. On the 28th of October Mr Schreiner signed a proclamation issued by Sir Alfred Milner as high commissioner, declaring the Boer annexations of territory within Cape Colony to be null and void.

Then came the British reverses at Magersfontein (on the 11th of December) and Stormberg (on the 10th of December). The effect of these engagements at the very outset of the war, occurring as they did within Cape Colony, was to offer every inducement to a number of the frontier colonial Boers to join their kinsmen of the republics. The Boers were prolific, and their families large. Many younger sons from the colony, with nothing to lose, left their homes with horse and rifle to join the republican forces.

Meanwhile the loyal Cape colonists were chafing at the tardy manner in which they were enrolled by the imperial authorities. It was not until after the arrival of Lord Roberts and Lord Kitchener at Cape Town on the 10th of January 1900 that these invaluable, and many of them experienced, men were freely invited to come forward. So strongly did Lord Roberts feel on the subject, that he at once made Colonel Brabant, a well-known and respected colonial veteran and member of the House of Assembly, a brigadier-general, and started recruiting loyal colonists in earnest. On the 15th of February Kimberley was relieved by General French, and the Boer general, Cronje, evacuated Magersfontein, and retreated towards Bloemfontein. Cecil Rhodes was shut up in Kimberley during the whole of the siege, and his presence there undoubtedly offered an additional incentive to the Boers to endeavour to capture the town, but his unique position and influence with the De Beers workmen enabled him to render yeoman service, and infused enthusiasm and courage into the inhabitants. The manufacture of a big gun, which was able to compete with the Boer “Long Tom,” at the De Beers workshops, under Rhodes’s orders, and by the ingenuity of an American, Mr. Labram, who was killed a few days after its completion, forms one of the most striking incidents of the period.

With the relief of Mafeking on the 17th of May, the Cape rebellion ended, and the colony was, at least for a time, delivered of the presence of hostile forces.

On the 20th of March Mr (afterwards Sir James) Rose-Innes, a prominent member of the House of Assembly, who for several years had held aloof from either party, and who also had defended Mr Schreiner’s action with regard to the passage of arms to the Free State, addressed his constituents at Claremont in support of the annexation of both republics; and in the course of an eloquent speech he stated that in Canada, in spite of rebellions, loyalty had been secured from the French Canadians by free institutions. In South Africa they might hope that a similar policy would attain a similar result with the Boers. In June, Mr Schreiner, whose recent support of Sir Alfred Milner had incensed many of his Bond followers, resigned in consequence of the refusal of some of his colleagues to support the disfranchisement bill which he was prepared, in accordance with the views of the home government, to introduce for the punishment of Cape rebels. The bill certainly did not err on the side of severity, but disfranchisement for their supporters in large numbers was more distasteful to the Bond extremists than any stringency towards individuals. Sir Gordon Sprigg, who after a political crisis of considerable delicacy, succeeded Mr Schreiner and for the fourth time became prime minister, was able to pass the Bill with the co-operation of Mr Schreiner and his section. Towards the end of the year 1900 the war entered on a new phase, and took the form of guerilla skirmishes with scattered forces of marauding Boers. In December some of these bands entered the Cape Colony and endeavoured to induce colonial Boers to join them. In this endeavour they met at first with little or no success; but as the year 1901 progressed and the Boers still managed to keep the various districts in a ferment, it was deemed necessary by the authorities to proclaim martial law over the whole colony, and this was done on the 9th of October 1901.

On the 4th of January 1901 Sir Alfred Milner was gazetted governor of the Transvaal and Orange River Colony, being shortly afterwards created a peer as Lord Milner, and Sir Walter Hely-Hutchinson, governor of Natal, was appointed his successor as governor of the Cape Colony. The office of high commissioner in South Africa was now separated from the governorship of the Cape and associated with that of the Transvaal—an indication of the changed conditions in South Africa. The division of the colonists into those who favoured the Boer states and those firmly attached to the British connexion was reflected, to the detriment of the public weal, in the parties in the Cape parliament. Proposals were made to suspend the constitution, but this drastic course was not adopted. The Progressive party, the name taken by those who sought a permanent settlement under the British flag, lost their leader, and South Africa its foremost statesman by the death, in May 1902, of Cecil Rhodes, a few weeks before the end of the war.

After the War.—The acknowledgment of defeat by the Boers in the field, and the surrender of some 10,000 rebels, did not weaken the endeavours of the Dutch to obtain political supremacy in the colony. Moreover, in the autumn of 1902 Sir Gordon Sprigg, the prime minister, nominally the leader of the Progressives, sought to maintain his position by securing the support of the Bond party in parliament. In the early part of 1903 Mr Chamberlain included Cape Town in his visit to South Africa, and had conferences with the political leaders of all parties. Reconciliation between the Bond and British elements in the colony was, however, still impossible, and the two parties concentrated their efforts in a struggle for victory at the coming election. Mr Hofmeyr, who had chosen to spend the greater part of the war period in Europe, returned to the Cape to reorganize the Bond. On the other side Dr Jameson came forward as the leader of the Progressives. Parliament was dissolved in September 1903. It had passed, since the war, two measures of importance—one (1902) restricting alien immigration, the other (1903) ratifying the first customs convention between all the South African colonies. This convention was notable for its grant of preferential treatment (in general, a rebate of 25% on the customs already levied) to imports from the United Kingdom.

The election turned on the issue of British or Bond supremacy. It was fought on a register purged of the rebel voters, many of whom, besides being disfranchised, were in prison. The issue was doubtful, and each side sought to secure the support of the native voters, who in several constituencies held the balance of power. The Bondsmen were more lavish than their opponents in their promises to the natives and even invited a Kaffir journalist (who declined) to stand for a seat in the Assembly. In view of the agitation then proceeding for the introduction of Chinese coolies to work the mines on the Rand, the Progressives declared their intention, if returned, to exclude them from the colony, and this declaration gained them some native votes. The polling (in January and February 1904) resulted in a Progressive majority of five in a house of 95 members. The rejected candidates included prominent Bond supporters like Mr Merriman and Mr Sauer, and also Sir Gordon Sprigg and Mr A. Douglass, another member of the cabinet. Mr W.P. Schreiner, the ex-premier, who stood as an Independent, was also rejected.

The Jameson Ministry.—On the 18th of February Sir Gordon Sprigg resigned and was succeeded by Dr L.S. Jameson, who formed a ministry wholly British in character. The first task of the new government was to introduce (on the 4th of March) an Additional Representation Bill, to rectify—in part—the disparity in electoral power of the rural and urban districts. Twelve new seats in the House of Assembly were divided among the larger towns, and three members were added to the legislative council. The town voter being mainly British, the bill met with the bitter opposition of the Bond members, who declared that its object was the extinction of their parliamentary power. In fact, the bill was called for by the glaring

anomalies in the distribution of seats by which a minority of voters in the country districts returned a majority of members, and it left the towns still inadequately represented. The bill was supported by two or three Dutch members, who were the object of violent attack by the Bondsmen. It became law, and the elections for the additional seats were held in July, after the close of the session. They resulted in strengthening the Progressive majority both in the House of Assembly and in the legislative council—where the Progressives previously had a majority of one only.

At the outset of its career the Jameson ministry had to face a serious financial situation. During the war the supplying of the army in the field had caused an artificial inflation of trade, and the Sprigg ministry had pursued a policy of extravagant expenditure not warranted by the finances of the colony. The slow recovery of the gold-mining and other industries in the Transvaal after the war was reflected in a great decline in trade in Cape Colony during the last half of 1903, the distress being aggravated by severe drought. When Dr Jameson assumed office he found an empty treasury, and considerable temporary loans had to be raised. Throughout 1904, moreover, revenue continued to shrink—compared with 1903 receipts dropped from £11,701,000 to £9,913,000. The government, besides cutting down official salaries and exercising strict economy, contracted (July 1904) a loan for £3,000,000. It also passed a bill imposing a graduated tax (6d. to 1s. in the £) on all incomes over £1000. A substantial excise duty was placed on spirits and beer, measures of relief for the brandy-farmers being taken at the same time. The result was that while there was a deficit on the budget of 1904-1905 of £731,000, the budget of 1905-1906 showed a surplus of £5161. This small surplus was obtained notwithstanding a further shrinkage in revenue.

Dr Jameson’s programme was largely one of material development. In the words of the speech opening the 1905 session of parliament, “without a considerable development of our agricultural and pastoral resources our position as a self-sustaining colony cannot be assured.” This reliance on its own resources was the more necessary for the Cape because of the keen rivalry of Natal and Delagoa Bay for the carrying trade of the Transvaal. The opening up of backward districts by railways was vigorously pursued, and in other ways great efforts were made to assist agriculture. These efforts to help the country districts met with cordial recognition from the Dutch farmers, and the release, in May 1904, of all rebel prisoners was another step towards reconciliation. On the exclusion of Chinese from the colony the Bond party were also in agreement with the ministry. An education act passed in 1905 established school boards on a popular franchise and provided for the gradual introduction of compulsory education. The cultivation of friendly relations with the neighbouring colonies was also one of the leading objects of Dr Jameson’s policy. The Bond, on its side, sought to draw closer to Het Volk, the Boer organization in the Transvaal, and similar bodies, and at its 1906 congress, held in March that year at Ceres, a resolution with that aim was passed, the design being to unify, in accordance with the original conception of the Bond, Dutch sentiment and action throughout South Africa.

Native affairs proved a source of considerable anxiety. In January 1905 an inter-colonial native affairs commission reported on the native question as it affected South Africa as a whole, proposals being made for an alteration of the laws in Cape Colony respecting the franchise exercised by natives. In the opinion of the commission the possession of the franchise by the Cape natives under existing conditions was sure to create in time an intolerable situation, and was an unwise and dangerous thing. (The registration of 1905 showed that there were over 23,000 coloured voters in the colony.) The commission proposed separate voting by natives only for a fixed number of members of the legislature—the plan adopted in New Zealand with the Maori voters. The privileged position of the Cape native was seen to be an obstacle to the federation of South Africa. The discussion which followed, based partly on the reports that the ministry contemplated disfranchising the natives, led, however, to no immediate results.

Another disturbing factor in connexion with native affairs was the revolt of the Hottentots and Hereros in German South-West Africa (*q.v.*). In 1904 and the following years large numbers of refugees, including some of the most important chiefs, fled into British territory, and charges were made in Germany that sufficient control over these refugees was not exercised by the Cape government. This trouble, however, came to an end in September 1907. In that month Morenga, a chief who had been interned by the colonial authorities, but had escaped and recommenced hostilities against the Germans, was once more on the British side of the frontier and, refusing to surrender, was pursued by the Cape Mounted Police and killed after a smart action. The revolt in the German protectorate had been, nearly a year before the death of Morenga, the indirect occasion of a “Boer raid” into Cape Colony. In November 1906 a small party of Transvaal Boers, who had been employed by the Germans against the Hottentots, entered the colony under the leadership of a man named Ferreira, and began raiding farms and forcibly enrolling recruits. Within a week the filibusters were all captured. Ferreira and four companions were tried for murder and convicted, February 1907, the death sentences being commuted to terms of penal servitude.

As the result of an inter-colonial conference held in Pietermaritzburg in the early months of 1906, a new customs convention of a strongly protective character came into force on the 1st of June of that year. At the same time the rebate on goods from Great Britain and reciprocating colonies was increased. The session of parliament which sanctioned this change was notable for the attention devoted to irrigation and railway schemes. But one important measure of a political character was passed in 1906, namely an amnesty act. Under its provisions over 7000 ex-rebels, who would otherwise have had no vote at the ensuing general election, were readmitted to the franchise in 1907.

While the efforts made to develop the agricultural and mineral resources of the country proved successful, the towns continued to suffer from the inflation—over-buying, over-building and over-speculation—which marked the war period. As a consequence, imports further declined during 1906-1907, and receipts being largely dependent on customs the result was a considerably diminished revenue. The accounts for the year ending 30th of June 1907 showed a deficit of £640,455. The decline in revenue, £4,000,000 in four years, while not a true reflection of the economic condition of the country—yearly becoming more self-supporting by the increase in home produce—caused general disquietude and injuriously affected the position of the ministry. In the session of 1907 the Opposition in the legislative council brought on a crisis by refusing to grant supplies voted by the lower chamber. Dr Jameson contested the constitutional right of the council so to act, and on his advice the governor dissolved parliament in September. Before its dissolution parliament passed an act imposing a profit tax of 10% on diamond- and copper-mining companies earning over £50,000 per annum, and another act establishing an agricultural credit bank.

Mr Merriman, Premier.—The elections for the legislative council were held in January 1908 and resulted in a Bond victory. Its supporters, who called themselves the South African party, the Progressives being renamed Unionists, obtained 17 seats out of a total of 26. Dr Jameson thereupon resigned (31st of January), and a ministry was formed with Mr J.X. Merriman as premier and treasurer, and Mr J.W. Sauer as minister of public works. Neither of these politicians was a member of the Bond, and both had held office under Cecil Rhodes and W.P. Schreiner. They had, however, been the leading parliamentary exponents of Bond policy for a considerable time. The elections for the legislative assembly followed in April and, partly in consequence of the reinfranchisement of the ex-rebels, resulted in a decisive majority for the Merriman ministry. There were returned 69 members of the South African party, 33 Unionists and 5 Independents, among them the ex-premiers Sir Gordon Sprigg and Mr Schreiner. The change of ministry was not accompanied by any relief in the financial situation. While the country districts remained fairly prosperous (agricultural and pastoral products increasing), the transit trade and the urban industries continued to decline. The depression was accentuated by the financial crisis in America, which affected adversely the wool trade, and in a more marked degree the diamond trade, leading to the partial stoppage of the Kimberley mines. (The “slump” in the diamond trade is shown by a comparison of the value of diamonds exported from the Cape in the years 1907 and 1908; in 1907 they were valued at £8,973,148, in 1908 at £4,796,655.) This seriously diminished the revenue returns, and the public accounts for the year 1907-1908 showed a deficit of £996,000, and a

prospective deficit for the ensuing year of an almost equal amount. To balance the budget, Mr Merriman proposed drastic remedies, including the suspension of the sinking fund, the reduction of salaries of all civil servants, and taxes on incomes of £50 per annum. Partly in consequence of the serious economic situation the renewed movement for the closer union of the various South African colonies, formally initiated by Dr Jameson in 1907, received the support of the Cape parliament. During 1907-1908 a national convention decided upon unification, and in 1910 the Union of South Africa was established (see South Africa: *History*).

Leading Personalities.—The public life of Cape Colony has produced many men of singular ability and accomplishments. The careers of Cecil Rhodes, of Jan Hendrik Hofmeyr, and of Dr L.S. Jameson have been sufficiently indicated (see also their separate biographies). Sir Gordon Sprigg, four times premier, was associated with the Cape parliament from 1873 to 1904, and was once more elected to that assembly in 1908. In and out of office his zeal was unflagging, and if he lacked those qualities which inspire enthusiasm and are requisite in a great leader, he was at least a model of industry. Among other prominent politicians were Sir James Rose-Innes, Mr J.X. Merriman and Mr W.P. Schreiner. The two last named both held the premiership; their attitude and views have been indicated in the historical sketch. Sir James Rose-Innes, a lawyer whose intellectual gifts and patriotism have never been impugned, was not a "party man," and this made him, on more than one occasion, a somewhat difficult political ally. On the native question he held a consistently strong attitude, defending their rights, and uncompromisingly opposing the native liquor traffic. In 1901 he went to the Transvaal as chief justice of that colony. Sir Thomas Fuller, a Cape Town representative, though he remained outside office, gave staunch support to every enlightened liberal and progressive measure which was brought forward. A man of exceptional culture and eloquence, he made his influence felt, not only in politics, but in journalism and the best social life of the Cape peninsula. From 1902 to 1908 he held the office of agent-general of the colony in London.

In literature, the colony has produced at least two authors whose works have taken their place among those of the best English writers of their day. The *History of South Africa*, by Mr G. McCall Theal, will remain a classic work of reference. The careful industry and the lucidity which characterize Mr Theal's work stamp him as a historian of whom South Africa may well be proud. In fiction, Olive Schreiner (Mrs Cronwright-Schreiner) produced, while still in her teens, the *Story of an African Farm*, a work which gave great promise of original literary genius. Unfortunately, she, in common with the rest of South Africa, was subsequently swept into the seething vortex of contemporary politics and controversy. In music and painting there have been artists of talent in the Cape Colony, but the country is still too young, and the conditions of life too disturbed, to allow such a development as has already occurred in Australia.

Governors at the Cape Since Introduction of Responsible Government

1870. Sir Henry Barkly.
1877. Sir Bartle Frere.
1880. Sir Hercules Robinson.
1889. Sir Henry Loch.
1895. Sir Hercules Robinson (Lord Rosmead).
1897. Sir Alfred Milner.
1901. Sir Walter Hely-Hutchinson.

Prime Ministers.

1872. Mr J.C. Molteno.
1878. Mr J. Gordon Sprigg.
1881. Mr T.C. Scanlen.
1884. Mr Upington.
1886. Sir J. Gordon Sprigg.
1890. Mr C.J. Rhodes.
1896. Sir J. Gordon Sprigg.
1898. Mr W.P. Schreiner.
1900. Sir J. Gordon Sprigg.
1904. Dr L.S. Jameson.
1908. Mr J.X. Merriman.

(A. P. H.; F. R. C.)

Bibliography.—The majority of the books concerning Cape Colony deal also with South Africa as a whole (see South Africa: *Bibliography*). The following list gives books specially relating to the Cape. For ethnography see the works mentioned under Bushmen, Hottentots, Kaffirs and Bechuana.

(*a*) Descriptive accounts, geography, commerce and economics:—The best early accounts of the colony are found in de la Caille's *Journal historique du voyage fait au Cap de Bonne Espérance* (Paris, 1763), the *Nouvelle Description du Cap de Bonne Espérance* (Amsterdam, 1778); F. le Vaillant's *Voyage dans l'intérieur de l'Afrique* (Paris, 1790), and *Second Voyage* (Paris, *an* III. [1794-1795]); C.P. Thunberg's "Account of the Cape of Good Hope" in vol. xvi. of Pinkerton's *Travels* (London, 1814); A. Sparman's *Voyage to the Cape of Good Hope ... 1772-1776* (translated into English from the Swedish, London, 1785)—an excellent work; and W. Paterson's *A Narrative of Four Journeys ... 1777-1779* (London, 1789). P. Kolbe or Kolben's *Present State of the Cape of Good Hope* (English translation from the German, London, 1731) is less trustworthy. Sir J. Barrow's *Account of Travels into the Interior of Southern Africa in 1797-1798* (2 vols., London, 1801-1804); H. Lichtenstein's *Travels in Southern Africa in 1803-1806* (translated from the German, 2 vols., London, 1812-1815), and W.J. Burchell's *Travels in the Interior of Southern Africa* (2 vols., London, 1822-1824) are standard works. Burchell's book contains the best map of the Cape published up to that time. W.P. Greswell's *Geography of Africa south of the Zambesi* (Oxford, 1892) deals specially with Cape Colony; the *Illustrated Official Handbook of the Cape and South Africa* (Cape Town, 1893) includes chapters on the zoology, flora, productions and resources of the colony. A.R.E. Burton, *Cape Colony To-day* (Cape Town, 1907), a useful guide to the country and its resources. A *Statistical Register* is issued yearly by the Cape government. The *Census of the Colony, 1904: General Report* (Cape Town, 1905) and previous census reports contain much valuable matter.

(*b*) Special subjects:—For detailed information on special subjects consult *The Natives of South Africa* (London, 1901); R. Wallace, *Farming Industries of Cape Colony* (London, 1896); A.R.E. Burton, *Cape Colony for the Settler* (London, 1903); *The Agricultural Journal of the Cape of Good Hope*; Gardner F. Williams, *The Diamond Mines of South Africa*, revised ed. (New York, 1905), an authoritative work by a former manager of the De Beers mine; A.W. Rogers, *An Introduction to the Geology of Cape Colony* (London, 1905) and "The Campbell Rand and Griquatown Series in Hay," *Trans. Geol. Soc S. Africa*, vol. ix. (1906); *Reports*, Geological Commission of the Cape of Good Hope (1896 et seq.); *Science in South Africa* (Cape Town, 1905); H.A. Bryden, *Kloof and Karoo*; sport, legend and natural history in Cape Colony (London, 1889); *South African Education Yearbook* (Cape Colony edition, Cape Town, 1906 et seq.). For books dealing with Roman-Dutch law, see South Africa.

(*c*) History:—H.C.V. Leibbrandt, *Précis of the Archives of the Cape of Good Hope* (15 vols., vols. v.-vii. contain van Riebeek's *Journal*, Cape Town, 1896—1902); *The Rebellion of 1815, generally known as Slachter's Nek* (Cape Town, 1902); G.M. Theal, *Chronicles of Cape Commanders ... 1651-1691* ... (Cape Town, 1882), and *Records of the Cape Colony from February 1793 to April 1831*, from MS. in the Record Office, London (36 vols., Cape Town, 1897-1905); *History of South Africa under the Administration of the Dutch East India Company, 1652 to 1795* (2 vols., London, 1897); *History of South*

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(F. R. C.)

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1 The distances given after the names of rivers indicate the length of the river valleys, including those of the main upper branch. In nearly all instances the rivers, owing to their sinuous course, are much longer.

2 This is an overstatement. The director of the census estimated the true number of Hottentots at about 56,000.

3 It is stated that Colonel R.J. Gordon (the explorer of the Orange river), who commanded the Dutch forces at the Cape, chagrined by the occupation of the country by the British, committed suicide.

4 From 1737 to 1744 George Schmidt, "The apostle to the Hottentots," had a mission at Genadendal—"The Vale of Grace."

5 Masters were allowed to keep their ex-slaves as "apprentices" until the 1st of December 1838.

6 The act enjoined that "every male native residing in the district, exclusive of natives in possession of lands under ordinary quit-rent titles, or in freehold, who, in the judgment of the resident magistrate, is fit for and capable of labour, shall pay to the public revenue a tax of ten shillings per annum unless he can show to the satisfaction of the magistrate that he has been in service beyond the borders of the district for at least three months out of the previous twelve, when he will be exempt from the tax for that year, or unless he can show that he has been employed for a total period of three years, when he will be exempt altogether."

7 See also TRANSVAAL.

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